

HANDBOOK OF THE IRIDEÆ.

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HANDBOOK  
OF  
THE IRIDEÆ

BY

J. G. BAKER, F. R. S., F. L. S.,  
KEEPER OF THE HERBARIUM OF THE ROYAL GARDENS, KEW.



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## PREFACE.

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THIS is the last of a series of botanical handbooks on which I have been working for a long time. When I first came to Kew, in January, 1866, I found the groups of plants that enter largely into horticulture that most wanted working at were the Vascular Cryptogams and Petaloid Monocotyledons. To those, consequently, during my connection with Kew, I have paid special attention. First, as was agreed upon with Sir Joseph Hooker when I was engaged as first-assistant in the herbarium, I finished the 'Synopsis Filicum' which Sir William Hooker had planned out and commenced. This was published in 1868, and a second edition, with a Supplement, in 1874. In 1891 I contributed to the fifth volume of the 'Annals of Botany' a classified index of the new species discovered up to that date. This has now been issued separately. In the Handbooks of the Fern Allies, Amaryllidæ, Bromeliaceæ, and the present work, I have followed the same concise general plan as in the Fern Synopsis. The *Liliaceæ* are dealt with in greater detail in the 'Journal of the Linnean Society.' The papers extend from the eleventh to the eighteenth volume, and cover the whole order, with the exception of the two large genera, *Smilax* and *Allium*, which have been monographed recently by M. Alphonse DeCandolle and Dr. Von Regel. Those who wish for full bibliographical details about the species of *Irideæ* will find them in a paper

entitled "Systema Iridacearum" in the sixteenth volume of the 'Journal of the Linnean Society,' but this contains only descriptions of the genera, not of the species. In the nomenclature and circumscription of the genera I have in the present handbook followed Bentham and Hooker's 'Genera Plantarum,' with very slight exception. The number of known species of Vascular Cryptogamia now amounts to 3500, and of these orders of Petaloid Monocotyledons to little short of 5000.

J. G. BAKER.

HERBARIUM OF THE ROYAL GARDENS, KEW,  
*August 17th, 1892.*

## KEY TO THE GENERA.

Tribe I. MORÆÆ. — Flowers stalked, usually more than one to a spathe, often fugitive and opening one after the other. Style-branches placed opposite the stamens and the outer segments of the perianth.

\* *Style-branches furnished with crests that overtop the anthers and transverse stigmas.*

† *Inner segments of the perianth not convolute* (temperate regions).

1. IRIS.—Perianth usually with a tube above the ovary. Filaments free. Ovary 3-celled. Rootstock usually a rhizome, in § *Xiphion* a bulb.—*North temperate zone.*

2. HERMODACTYLUS.—Like *Iris*, but ovary 1-celled, with 3 parietal placentas and rootstock digitate.—*Mediterranean region.*

3. MORÆA.—Perianth without a tube. Filaments monadelphous. Ovary 3-celled. Rootstock, except in § *Dietes*, a tunicated corm.—*Cape, Tropical Africa, Lord Howe's Island.*

†† *Inner segments of the perianth convolute* (tropical).

4. MARICA.—Perianth without a tube. Style-crests petaloid. Leaves in a distichous rosette, not plicate. Peduncle flattened. Rootstock not bulbous.—*Tropical America.*

5. CYPELLA.—Perianth without a tube. Style-crests large, spur-like or flattened. Stems terete. Leaves superposed, plicate. Rootstock bulbous.—*Tropical America.*

6. TRIMEZIA.—Perianth without a tube. Style-crests small tubercles or cusps. Stems terete. Leaves not plicate. Rootstock bulbous.—*Tropical America.*

\*\* *Style-branches furnished with terminal stigmas, not overtopping the anthers.*

7. TIGRIDIA.—Perianth-segments connivent in a cup, then spreading. Style-branches bifid; forks subulate.—*Tropical America.*

8. HYDROTÆNIA.—Like *Tigridia*, but perianth-segments without any spreading blade.—*Tropical America.*

9. RIGIDELLA.—Perianth-segments connivent in a cup; inner very small; outer with a large reflexed blade. Style-branches bifid; forks subulate.—*Mexico & Guatemala.*

10. HERBERTIA.—Perianth-tube none; inner segments small, not convolute. Style-branches bifid at the tip.—*Texas & Subtemperate S. America.*

11. FERRARIA.—Perianth-segments subequal, connivent in a cup, joined at the base. Style-branches forked at the tip, densely penicillate.—*Cape & Angola.*

12. HOMERIA.—Perianth-segments subequal, connivent in a cup at the base, then spreading. Style-branches with two petaloid stigmatose crests.—*Cape*.

13. HEXAGLOTTIS.—Perianth-segments subequal, obtuse, spreading from the base. Style-branches cut down to the base into two subulate forks.—*Cape*.

Tribe II. SISYRINCHIEÆ.—Flowers stalked, usually more than one to a spathe, and opening out one after the other, often fugitive. Style-branches alternate with the anthers.

Subtribe I. CROCEÆ. — Rootstock a bulb or corm. Spathes essentially 1-flowered.

14. CROCUS. — Peduncle short, hidden. Perianth with a long tube and long ascending segments. Style-arms entire or cut into capillary branches.—*S. Europe, N. Africa, W. Asia*.

15. SYRINGODEA. — Peduncle short, hidden. Perianth with a long tube; segments spreading or ascending. Style-branches subulate, entire.—*Cape*.

16. GALAXIA.—Peduncle short, hidden. Perianth with a cylindrical tube and short obtuse spreading segments. Stigma peltate, petaloid.—*Cape*.

17. ROMULEA.—Peduncle produced. Perianth-segments oblong, much exceeding the short tube. Spathe-valves herbaceous.—*Mediterranean region, Trop. Africa, Cape*.

Subtribe II. CIPUREÆ.—Rootstock a bulb or corm. Perianth-tube obsolete. Flowers usually more than one to a spathe, very fugitive.—All American.

\* *Perianth-segments dimorphic.*

18. CIPURA. — Inner segments connivent. Style-branches dilated. Clusters of flowers sessile, mostly fascicled. Flowers white.

19. SPHENOSTIGMA.—Inner perianth-segments spreading. Style-branches dilated. Clusters of flowers peduncled. Flowers generally blue.

\*\* *Perianth-segments subequal, obovate-cuneate.*

20. ELEUTHERINE. — Filaments free. Style-branches long, simple, subulate. Flowers white.

21. CALYDOREA. — Filaments free. Style-branches subulate, entire or emarginate. Flowers blue or yellow.

22. GELASINE. — Filaments united. Style-branches simple, subulate. Flowers blue.

23. NEMASTYLIS.—Filaments free or united. Style-branches cleft to the base into subulate forks. Flowers usually blue.

Subtribe III. EUSISYRINCHIEÆ.—Rootstock not a bulb nor corm. Perianth cleft down to the ovary. Flowers fugitive, usually more than one to a spathe.



\* *Perianth-segments unequal.*

24. DIPLARRHENA.—Inner segments shorter, connivent. Upper stamen imperfect.—*Australia.*

25. LIBERTIA.—Inner segments obovate-cuneate; outer oblong, usually shorter. Stamens all perfect.—*Australia, New Zealand, Chili.*

\*\* *Perianth-segments subequal.*

26. BELEMCANDA.—Leaves broad. Inflorescence a lax corymb. Style-branches flattened and emarginate at the apex. Flowers red, dotted.—*China.*

27. ORTHOSANTHUS.—Clusters paniced. Filaments nearly or quite free. Style-branches subulate. Flowers pale blue, shortly pedicellate.—*Australia, Tropical America.*

28. BOBARTIA.—Clusters terminal on a leafless peduncle, usually fascicled. Style-branches subulate. Flowers pale yellow, with long pedicels.—*Cape.*

29. SISYRINCHIUM.—Clusters terminal, single or fascicled. Filaments more or less connate. Style-branches subulate. Flowers usually blue or yellow; pedicels long.—*America, Sandwich Islands, Ireland.*

30. TAPEINIA.—Stem very short, bearing a single 1-flowered spathe.—*Magellan Straits.*

Subtribe IV. ARISTEÆ.—Rootstock not a bulb nor corm. Perianth with a distinct tube above the ovary. Flowers fugitive, usually more than one to a spathe.

\* *Perianth-segments unequal.*

31. PATERSONIA.—Inner segments very small. Filaments connate.—*Australia.*

32. CLEANTHE.—Inner segments the largest, obovate. Filaments free.—*Cape.*

\*\* *Perianth-segments subequal.*† *Filaments connate.*

33. SYMPHYSTEMON.—Perianth-tube funnel-shaped. Style-branches spreading, subulate.—*Chili & Southern Andes.*

34. CHAMELUM.—Perianth-tube slender. Style shortly tricuspidate.—*Chili.*

35. SOLENOMELUS.—Perianth-tube slender. Style unbranched.—*Chili.*

†† *Filaments free.*

36. ARISTEA.—Herbaceous, rarely fruticose. Perianth-tube short, cylindrical. Filaments short, subulate.—*Cape, Tropical Africa, Madagascar.*

37. WITSENIA.—Fruticose. Perianth-tube funnel-shaped, longer than the segments.—*Cape.*

38. KLATTIA.—Fruticose. Perianth-tube short, cylindrical. Filaments very long, filiform.—*Cape.*

Tribe III. IXIÆ.—Flowers spicate, not fugitive, never more than one to a spathe. (This tribe is concentrated at the Cape, but 40, 41, 42, 46, 47, 51, 56, & 57 extend also to the mountains of Tropical Africa, 50 to Socotra, and 56 to the Mediterranean region.)

\* *Style-branches simple. Perianth regular. Stamens equilateral.*

39. SCHIZOSTYLIS.—Like *Hesperantha*, but rootstock not thickened into a corm.

40. HESPERANTHA. — Style short; branches long, subulate. Spathe-valves green.

41. GEISSORHIZA. — Style longer than in the last; branches shorter, subulate. Spathe-valves oblong, green or brownish upwards.

42. DIERAMA.—Style long, with short clavate branches. Spathe-valves large, entirely membranous. Leaves long, rigid.

43. STREPTANTHERA. — Style long, with short clavate branches. Spathe-valves membranous. Leaves short, lanceolate.

44. IXIA.—Style long, with short subulate branches. Outer spathe-valve short, emarginate, membranous or chartaceous.

\*\* *Style-branches bifid. Stamens unilateral.*

45. FREESIA. — Perianth-tube broadly funnel-shaped, with stamens inserted below the throat. Spathe-valves small, green.

46. LAPEYROUSIA.—Perianth-tube slender, with stamens inserted at the throat. Ovules many, superposed.

47. WATSONIA.—Perianth-tube broadly funnel-shaped above the middle, where the stamens are inserted. Spathe-valves moderately large, rigid.

48. MICRANTHUS. — Perianth-tube cylindrical, with stamens inserted at the throat. Ovules 2, erect, collateral.

\*\*\* *Style-branches simple. Stamens unilateral and arcuate.*

49. BABIANA.—Differs from the following genera by its very plicate hairy leaves. Perianth-limb regular or irregular.

\* *Perianth-limb subregular.*

50. ACIDANTHERA. — Spathe-valves large, green, lanceolate. Perianth-tube subcylindrical, usually very long.

51. CROCOSMA. — Spathe-valves short, oblong. Perianth-tube subcylindrical. Capsule inflated, deeply 3-lobed.

52. MELASPHERULA. — Perianth small, without any tube; segments very acuminate.

53. TRITONIA.—Perianth with a short cylindrical tube. Spathe-valves small, oblong; outer emarginate.

54. SPARAXIS.—Perianth-tube short, funnel-shaped in the upper half. Spathe-valves scarioso, deeply lacerated.

\*\* *Perianth-limb irregular.*

55. SYNNOTIA.—Spathe-valves scarioso, deeply lacerated.

56. GLADIOLUS.—Spathe-valves large, green, lanceolate. Perianth-tube funnel-shaped.

57. ANTHOLYZA. — Spathe-valves oblong-lanceolate. Perianth-tube cylindrical in the lower half, suddenly dilated at the middle.

# HANDBOOK OF IRIDEÆ.

## 1. IRIS Linn.\*

*Perianth-tube* cylindrical, long, short or obsolete; segments of the two rows more or less dissimilar in shape and size, the three outer (falls) obovate-cuneate, reflexing in the expanded flower; the three inner (standards) distinctly unguiculate, usually erect. *Stamens* inserted at the base of the outer segments of the perianth opposite the petaloid styles; filaments short; anthers linear, basifixed. *Ovary* 3-celled; ovules many in a cell; style-branches petaloid, with a terminal stigma and two deltoid petaloid crests. *Capsule* oblong trigonal or hexagonal. *Seeds* globose.—*Rootstock* creeping or bulbous. *Leaves* distichous, linear or ensiform. *Flowers* very various in colour, one or few in a head; outer spathe-valves large, ovate, herbaceous or membranous.

### SERIES I.—ROOTSTOCK A SHORT THICK RHIZOME.

Subgenus I. APOGON. Outer segments of the perianth without any beard or crest.

Leaves linear . . . . . Sp. 1-28.

Leaves ensiform . . . . . Sp. 29-46.

Subgenus II. PARDANTHOPSIS. Habit of *Evansia*, but outer segments without a distinct crest . . . . . Sp. 47-50.

Subgenus III. ONCOCYCLUS. Outer segments diffusely hairy down the claw and lower part of the blade . . . . . Sp. 51-62.

Subgenus IV. REGELIA. Connects *Oncocyclus* and *Pogoniris*.  
Sp. 63-66.

Subgenus V. EVANSIA. Outer segments with a distinct crest down the claw and lower part of the blade.

Leaves linear . . . . . Sp. 67-69.

Leaves ensiform . . . . . Sp. 70-74.

\* Condensed, with many alterations and additions, from my paper on the genus in the 'Gardeners' Chronicle' for 1876. For a general sketch of the genus from a horticultural point of view, see Foster in Journ. Hort. Soc., vol. xi. p. 131.

Subgenus VI. PSEUDEVANSIA. Outer segments with a beard which springs from a rudimentary crest . . . Sp. 75-81.

Subgenus VII. POGONIRIS. Outer segments with a beard down the claw and lower part of the blade.

Group of I. PUMILA. Dwarf; spathes 1-flowered.

Tube long . . . . . Sp. 82-86.

Tube short . . . . . Sp. 87-91.

Group of I. BIFLORA. Stems 1-headed; spathes 1-3-flowered.

Leaves linear . . . . . Sp. 92-97.

Leaves ensiform . . . . . Sp. 98-110.

Group of I. VARIEGATA. Stem short, forked, not much overtopping the leaves . . . . . Sp. 111-117.

Group of I. GERMANICA. Stems forked, overtopping the leaves. Spathes not scariose at the flowering season . . . Sp. 118-129.

Group of I. PALLIDA. Stems forked, overtopping the leaves. Spathes scariose at the flowering season . . . Sp. 130-133.

#### SERIES II.—ROOTSTOCK BULBOUS.

Subgenus VIII. XIPHION. Inner segments of the perianth large, oblanceolate, erect. Stamens not adhering to the style-branches.

Caulescent. Perianth-tube obsolete . . . Sp. 134-136.

Caulescent. Perianth-tube produced . . . Sp. 137-141.

Acaulescent . . . . . Sp. 142-147.

Subgenus IX. GYNANDRIRIS. Inner segments produced, oblanceolate, erect. Stamens adhering to the style-branches.

Sp. 148.

Subgenus X. JUNO. Inner segments of the perianth spreading, minute . . . . . Sp. 149-161.

#### Subgenus I. APOGON.

1. I. HUMILIS M. Bieb. Fl. Taur. Cauc. i. 33; Cent. t. 13. *Neubeckia humilis* Alefeld. *I. ruthenica* Ker, ex parte. — Rhizome wide-creeping; rudimentary leaves fibrous. Leaves up to 12 in a tuft, linear, glaucous, firm in texture, strongly ribbed,  $\frac{1}{2}$ -1 ft. long,  $\frac{1}{8}$  in. broad. Peduncle obsolete, so that the spathe is sessile; outer valves lanceolate, firm, green,  $1\frac{1}{2}$ -2 in. long. Perianth-tube slender,  $1\frac{1}{2}$ -2 in. long; limb bright lilac,  $1\frac{1}{2}$ -2 in. long; falls with a sub-orbicular blade  $\frac{3}{8}$ - $\frac{1}{2}$  in. broad, and a long cuneate haft; standards oblanceolate-unguiculate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Style-arms narrow, an inch long; crests deltoid.

Hab. Caucasus and Georgia to Hungary and Transylvania.

2. I. MINUTA Franch. et Savat. Enum. Jap. ii. 42, 591. — Rhizome slender; tufts non-contiguous; sheaths splitting into fibres. Leaves linear, acuminate, 5-6 in. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Peduncle very short, 1-headed; spathe-valves green, lanceolate; pedicel about an inch long. Perianth-tube above an inch long;

limb lilac, shorter than the tube; falls with an ovate spreading blade half as long as the haft; standards much shorter, oblanceolate-unguiculate. Stigma-crests short.

Hab. Japan; Yedo, *Savatier* 1225. Near *I. Rossii*. Dr. Maximowicz describes in Bull. Acad. Peters. x. 715, an allied plant from Siebold's drawings, with a yellow flower, standards but little shorter than the falls, and acuminate dentate stigma-crests.

3. *I. ROSSII* Baker in Gard. Chron. 1877, ii. 809. — Rhizome slender, short- or wide-creeping; sheaths small, splitting up into copious fibres. Leaves linear, green, thin and grass-like in texture, 4-6 in. long at the flowering time,  $\frac{1}{2}$ - $\frac{1}{4}$  in. broad, acuminate. Stem 1-headed, very short or nearly obsolete. Spathe 1-flowered, about 2 in. long; valves green, linear, not rigid; pedicel short. Perianth-tube slender,  $1\frac{1}{2}$ -2 in. long; limb lilac,  $\frac{3}{4}$ -1 in. long; falls with an oblong blade  $\frac{1}{3}$  in. broad, as long as the haft; standards as long as broad, narrowly unguiculate. Style-branches  $\frac{1}{2}$  in. long; crests small, obtuse.

Hab. Corea and Northern China, first gathered by Mr. John Ross, in Schingking, in 1876.

4. *I. LUDWIGII* Maxim. in Bull. Acad. Petrop. x. 693. — Rhizome slender, creeping; scale-leaves splitting into fibres. Leaves linear, green, acuminate, firm, scabrous on the margin, 6-9 in. long,  $\frac{1}{8}$  in. broad. Peduncle obsolete. Spathes 2-flowered; outer valves linear-lanceolate. Perianth-tube as long as the limb; falls with a claw twice as long as the ovate blade; standards shorter, oblong, with a linear claw. Style-arms shorter than the standards; crests acuminate.

Hab. Altai Mountains, associated with *I. ruthenica*, Ludwig.

5. *I. UNGUICULARIS* Poir. Iter. Barb. ii. 56. *I. stylosa* Desf. Fl. Atlant. i. 40, t. 5; Hook. fil. in Bot. Mag. t. 5773. *Neubeckia stylosa* Alefeld. *Ioniris stylosa* Klatt. — Rhizome stout, short-creeping; sheaths not splitting into fibres. Leaves about six in a tuft, linear, finally  $1\frac{1}{2}$ -2 ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, bright green, moderately firm, finely ribbed. Stem nearly obsolete. Spathes 1-flowered; outer valve lanceolate, green, moderately firm, 5-6 in. long. Ovary cylindrical, an inch or more long; tube filiform, 5-6 in. long, much exerted from the spathe; limb bright lilac, rarely white,  $2\frac{1}{2}$ -3 in. long; falls obovate-cuneate, an inch broad, keeled with yellow, and streaked with lilac on a white ground at the throat; standards oblong-unguiculate,  $\frac{3}{4}$  in. broad, both narrowed suddenly into the claw. Style-branches above an inch long; crests lanceolate.

Hab. Algeria, flowering in January and February. Filaments sometimes united up to the top. Flowers fragrant.

6. *I. CRETENSIS* Janka in Oesterr. Bot. Zeit. 1868, 382; Baker in Bot. Mag. t. 6343. *I. cretica* Herb. inedit. *I. stylosa* var. *angustifolia* Boiss. — Rootstock very wide-creeping; tufts crowded; sheaths not splitting into fibres. Leaves linear, 6-15 in. long,  $\frac{1}{2}$ - $\frac{1}{4}$  in. broad, firm, acuminate, strongly ribbed. Peduncle nearly obsolete. Spathe 1-flowered; ovary sessile; outer valve lanceolate, scariose, 2-3 in. long, wrapped tightly round the very slender

tube, which is 3-4 in. long: limb bright lilac-purple, 2-3 in. long; falls with an obovate blade  $\frac{3}{4}$  in. broad, veined with bright yellow and lilac-purple on a white ground at the throat, shorter than the narrow claw; standards oblanceolate, erect, plain lilac,  $\frac{1}{4}$ - $\frac{1}{3}$  in. broad. Style-branches  $1\frac{1}{2}$  in. long, both narrowed gradually into the claw; crests lanceolate.

Hab. Greece, Crete, the Ionian Islands, and Asia Minor, ascending the hills to 5000 ft. Prof. Foster says that the Greek form is much nearer *unguicularis* than the Asia Minor plant, and forms a connecting link between the two.

7. *I. TENUIFOLIA* Pall. Iter. iv. 302; App. 683, tab. 7, fig. 2. *Neubeckia tenuifolia* Alefeld. *Ioniris tenuifolia* Klatt.—Tufts crowded, surrounded by many rigid truncate brown sheaths 2-3 in. long, often breaking up into fibres. Leaves thick, rigid, pale green, narrow linear. Stems very short, 1-headed. Spathes 2-flowered, 3-4 in. long; outer valves lanceolate, moderately firm; pedicels obsolete or short. Perianth-tube slender, 3-4 in. long; limb lilac,  $1\frac{1}{2}$ -2 in. long; blade of the falls oblong,  $\frac{1}{2}$  in. broad, much shorter than the broad haft; standards nearly as long, oblanceolate-oblong. Style-branches an inch long; crests large, lanceolate. Capsule ovoid,  $1-1\frac{1}{2}$  in. long.

Hab. Through Central Asia from the Caspian to Dahuria and Mongolia. Var. *thianschanica* Maxim. is a robust variety with broader longer leaves, and a longer peduncle. Griffith's 5902, from Afghanistan, probably belongs here. I cannot clearly distinguish *I. Loczyi* Kanitz Plant. Expedit. Szechen. 58, tab. 6, fig. 2.

8. *I. RUTHENICA* Dryand. in Ait. Hort. Kew. edit. 2, i. 117; Bot. Mag. t. 1123 & 1393. *I. caspitosa* Pallas. *Ioniris ruthenica* Klatt.—Rootstock slender, wide-creeping; tufts generally crowded; sheaths short, splitting into fibres. Leaves linear, thin, 3-12 in. long at the flowering time.  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad. Stem slender, often 3-6 in. long, but sometimes obsolete. Spathe solitary, 1 flowered,  $1-1\frac{1}{4}$  in. long; valves green, lanceolate, turgid; pedicel very short. Perianth-tube twice as long or as long as the ovary; limb lilac,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long; falls with an oblong blade  $\frac{1}{2}$  in. broad, rather shorter than the haft; standards as long, oblanceolate-unguiculate,  $\frac{1}{2}$  in. broad. Style-branches an inch long; crests deltoid. Capsule subglobose,  $\frac{1}{2}$  in. long.

Var. *I. UNIFLORA* Pallas.—Leaves rather broader. Valves of the spathe shorter and broader. Perianth-tube very short.

Hab. From North China, Mongolia, and Manchuria, through Siberia and Central Asia to Transylvania.

9. *I. HAUSSKNECHTII* Bornm. Pl. Exsic. Anatol. No. 1864.—Root-leaves linear, firm, glabrous, 6-8 in. long,  $\frac{1}{2}$  in. broad. Stem slender, 1-headed, 6-8 in. long, bearing 1-2 reduced leaves. Spathe 2-flowered; valves oblong-lanceolate, 2-2 $\frac{1}{2}$  in. long, green at the base and middle, whitish at the edge and tip. Perianth-tube an inch long; limb pale yellow; falls 2 in. long, with an oblong-lanceolate blade  $\frac{1}{2}$  in. broad; standards erect, oblanceolate-unguiculate,  $1\frac{1}{2}$  in. long. Style-crests small, deltoid.

Hab. Asia Minor; district of Amasia, Bornmuller! Habit of *I. ensata*, but leaves linear.

10. *I. MACROSIPHON* Torrey, Bot. Whipple, 144. — Rhizome slender; sheath-leaves splitting into fibres. Leaves linear, a foot long,  $\frac{1}{2}$  in. broad, firm in texture, acuminate, greenish, finely ribbed. Stem slender, 1-headed, 3-6 in. long; bract-leaves large, linear. Spathes 1-2-flowered; outer valves lanceolate, acuminate, green, firm, 2-3 in. long; pedicel very short. Perianth-tube slender,  $1\frac{1}{2}$ -3 in. long; limb bright lilac, 2 in. long; falls obovate-cuneate,  $\frac{3}{4}$  in. broad; standards rather shorter, oblanceolate, erect. Style-branches an inch long; crests deltoid. Capsule ovoid-oblong, an inch long.

Hab. California and Oregon.

11. *I. VENTRICOSA* Pallas, Iter. iii. 320; App. 682, t. 27, fig. 1. *Xyridion ventricosum* Klatt.—Tufts crowded, surrounded by a mass of rigid brown truncate entire sheaths 2-3 in. long. Leaves linear, a foot or more long,  $\frac{1}{2}$  in. broad, firm, acuminate, distinctly ribbed. Stems a few inches longer than the sheaths, bearing a single 1-2-flowered spathe, and beneath it 1-2 linear or lanceolate bract-leaves. Spathe 2-2 $\frac{1}{2}$  in. long; 2 outer valves oblong, acute, green, moderately firm, very ventricose. Ovary nearly sessile; tube  $1\frac{1}{2}$  in. long; limb lilac,  $1\frac{1}{2}$ -2 in. long; falls oblanceolate, with a small spreading blade and long strap-shaped haft; standards lanceolate,  $\frac{1}{2}$  in. broad. Style-branches an inch long; crests long; narrow, obtuse.

Hab. Dahuria and Mongolia.

12. *I. BUNGEI* Maxim. in Act. Petrop. x. 695.—Tufts crowded; sheaths splitting into copious fibres down to the base. Leaves narrow linear, a foot long, firm, strongly ribbed. Stem 3-4 in. long, 1-headed, bearing about 2 rigid lanceolate reduced leaves. Spathe 2-flowered, 3-3 $\frac{1}{2}$  in. long; two outer valves superposed, oblong-lanceolate, firm, pale green, very ventricose; pedicel short; perianth-tube  $1\frac{1}{2}$ -2 in. long; limb dark lilac, 2 in. long; standards with a long haft and short spreading claw; falls oblanceolate-oblong, shortly unguiculate,  $\frac{1}{2}$  in. broad. Style-branches an inch long; crests long, narrow.

Hab. Eastern and Southern Mongolia, first gathered by Bunge. Nearly allied to *I. ventricosa*.

13. *I. SONGARICA* Schrenk Enum. i. 3. *Ioniris songarica* Klatt.—Tufts densely crowded, surrounded by long sheaths, splitting up into copious fibres. Leaves linear,  $\frac{1}{2}$ -1 ft. long,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad, firm, strongly ribbed. Stems  $\frac{1}{2}$ -1 $\frac{1}{2}$  ft. long, bearing 1-4 spicate heads and 2-3 linear leaves. Spathes 2-3-flowered, 3-4 in. long; outer valves lanceolate, rigid; pedicel about an inch long. Perianth-tube cylindrical, 1-1 $\frac{1}{2}$  in. long; limb lilac,  $1\frac{1}{2}$ -2 in. long; falls with a long haft and short spreading obovate blade  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad; standards nearly as long as broad, oblanceolate-unguiculate. Style-branches an inch or more long; crests large, lanceolate. Capsule oblong-trigonous, rostrate,  $1\frac{1}{2}$ -2 in. long.

Var. ? *GRACILIS* Maxim.—Leaves weaker, spathe-valves narrower, perianth-tube not longer than the ovary, pedicel longer.

Hab. Through Central Asia from Songaria and Turkestan to Persia, Afghanistan and Beluchistan. Var. *gracilis* was collected in Western China by Przewalski.

14. I. *SINTENESII* Janka, Adat. Erdl. 173. — Rhizome short-creeping; sheaths short. Leaves linear, subrigid, glaucescent, finely ribbed, a foot long,  $\frac{1}{8}$  in. broad. Stem slender, flexuose, 1-headed,  $\frac{1}{2}$ –1 ft. long, bearing about 2 linear reduced leaves. Spathes 1–2-flowered, 2 in. long; outer valves firm, green, lanceolate; pedicel moderately long. Perianth-tube slender, about as long as the ovary; limb bright lilac,  $1\frac{1}{2}$  in. long; falls with an obovate blade  $\frac{1}{4}$  in. broad, one-third the length of the narrow haft; standards rather shorter, oblanceolate-unguiculate. Style-branches above an inch long; crests small, lanceolate.

Hab. Macedonia, Thrace, Bulgaria, Greece, and Asia Minor. Differs from *I. graminea* by its firmer leaves and produced perianth-tube.

15. I. *GRIJSI* Maxim. in Bull. Acad. Petrop. x. 702. — Rhizome slender, short-creeping; sheaths short, not splitting into fibres. Leaves linear, glaucescent, finely veined, 6–9 in. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad at the middle. Stem 3–4 in. long, with a single reduced leaf at the middle, and a single terminal head. Spathe 1–2-flowered; valves lanceolate, 2 in. long, scariose towards the tip and edge; pedicel produced. Ovary cylindrical,  $\frac{1}{2}$  in. long; tube about as long as the ovary; limb pale lilac,  $1-1\frac{1}{4}$  in. long; falls with an obovate limb shorter than the haft; standards as long, oblanceolate-unguiculate. Style-branches  $\frac{3}{4}$  in. long; crests large, lanceolate.

Hab. China; province of Fokien, *De Grijs!* Intermediate between *ensata* and *ruthenica*.

16. I. *HARTWEGII* Baker in Gard. Chron. 1876, 923. — Rhizome wiry, short-creeping; sheaths short, splitting up into fibres. Leaves linear, moderately firm,  $\frac{1}{2}$ –1 ft. long,  $\frac{1}{8}$ – $\frac{1}{6}$  in. broad, finely veined. Stem 1-headed,  $\frac{1}{2}$  ft. long, with a single linear leaf low down. Spathes 1–2-flowered; outer valves firm, pale green, lanceolate, superposed,  $1\frac{1}{2}$ –2 in. long; pedicel produced. Perianth-tube  $\frac{1}{4}$ – $\frac{1}{3}$  in. long; limb pale yellow,  $1\frac{1}{2}$  in. long; falls with an oblong blade  $\frac{1}{4}$  in. broad, shorter than the haft; standards as long, oblanceolate,  $\frac{1}{2}$  in. broad. Style-branches narrow,  $\frac{3}{4}$  in. long; crests divergent, obtuse. Capsule oblong, obtusely trigonous, an inch long.

Hab. California, first gathered by Hartweg in 1848.

16\*. I. *HENRYI* Baker. — Rhizome short-creeping. Leaves linear, moderately firm,  $1-1\frac{1}{2}$  ft. long,  $\frac{1}{6}$  in. broad. Stems 1-headed, 6–8 in. long. Spathe 2-flowered; valves linear, green, 2 in. long; pedicel as long as the spathe. Ovary oblong,  $\frac{1}{4}$  in. long. Perianth-tube very short; limb lilac,  $\frac{1}{2}$ – $\frac{3}{8}$  in. long; falls with an oblanceolate blade  $\frac{1}{3}$  in. broad, narrowed gradually to the base; standards shorter and narrower. Style-branches  $\frac{1}{2}$  in. long; crests lanceolate,  $\frac{1}{2}$  in. long.

Hab. West China; province of Hupeh, *Dr. Henry* 6372! Intermediate between *ruthenica* and *graminea*.

17. I. *DOUGLASIANA* Herb. in Hook. et Arn. Bot. Beech. 395; Hook. fil. in Bot. Mag. t. 6083. — Rootstock stout, short-creeping;



sheath-leaves rigid, not splitting into fibres. Leaves about 6 in a tuft, linear, 1-2 ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad at the middle, tapering to the point, moderately firm, strongly ribbed. Stem  $\frac{1}{2}$ -1 ft. long, usually simple; bract-leaf long, linear. Spathes 2-3-flowered; pedicels long; outer valves lanceolate, firm, green, 2-3 in. long. Perianth-tube cylindrical,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long; limb  $1\frac{1}{2}$ -2 in. long; falls obovate-cuneate,  $\frac{3}{4}$ -1 in. broad, pale lilac, with darker lilac veins; standards oblong-unguiculate,  $\frac{1}{2}$  in. broad. Style-branches an inch long; crests large, obtuse. Capsule oblong,  $1\frac{1}{2}$  in. long, narrowed gradually to the top.

Hab. California, first gathered by Menzies and Douglas. *I. Beecheyana* Herb. is a dwarf, nearly stemless form with a wide-creeping rootstock. What is called the Santa Cruz variety has whitish falls, with a yellow keel, and claret-purple veins.

18. *I. GRANT-DUFFII* Baker.—Rhizome moderately stout, short-creeping; sheaths splitting into fine fibres. Leaves linear, moderately firm, under a foot long,  $\frac{1}{8}$  in. broad. Stem 1-headed,  $\frac{1}{2}$  ft. long, with about 2 lanceolate leaves. Spathes 1-flowered; valves linear or lanceolate, acuminate, green, 3-3 $\frac{1}{2}$  in. long; pedicel about as long as the ovary, which is narrowed gradually to the apex. Perianth-tube  $\frac{1}{4}$  in. long; limb 2 $\frac{1}{2}$  in. long; falls with a yellow blade  $\frac{1}{2}$  in. broad, much shorter than the haft, which is copiously veined with lilac on a yellowish-white ground; standards as long, oblanceolate-unguiculate, nearly as broad, similarly coloured. Style-branches above an inch long; crests lanceolate-deltoid,  $\frac{3}{4}$  in. long. Anthers nearly an inch long.

Hab. Palestine; banks of the River Kishon, first gathered by Lowne in 1863—4. Sent alive to Kew in 1888, from the plain of Esdraelon, by Sir M. E. Grant-Duff.

19. *I. BRACTEATA* S. Wats. in Proc. Amer. Acad. xx. 375; Garden, 1888, t. 8.—Rhizome slender, wide-creeping; rudimentary leaves brown, very rigid. Produced leaves very few to a tuft, linear, very thick and rigid, 1-2 ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, pale green and glossy above, glaucous beneath; edge revolute. Peduncle 1-headed, varying from 2-3 in. to a foot long; bract-leaves small, lanceolate. Spathes 2-flowered; outer valves lanceolate, firm in texture, 2-2 $\frac{1}{2}$  in. long; pedicels long. Perianth-tube nearly obsolete; limb 2 in. long, pale yellow; falls with an ovate blade  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad, as long as the haft, veined with lilac; standards shorter, oblanceolate. Style-branches an inch long; crests very acuminate. Capsule ovoid-oblong, an inch long.

Hab. Oregon, *Howell*! Discovered in 1884.

20. *I. TENAX* Dougl. in Bot. Reg. t. 1218; Hook. in Bot. Mag. t. 3343. *Ioniris tenax* Klatt. — Tufts crowded on a short-creeping rhizome; sheaths short, splitting up into copious fibres. Leaves linear,  $\frac{1}{2}$ -1 ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, moderately firm in texture, strongly ribbed. Stems slender, 1-headed,  $\frac{1}{2}$ -1 ft. long; leaves 1-2, much reduced. Spathes 1-flowered; valves firm, green, lanceolate, superposed,  $1\frac{1}{2}$ -2 in. long; pedicel produced. Perianth-tube very short; limb bright lilac, 2 in. long; falls obovate-cuneate,  $\frac{3}{4}$  in.

long, with a spreading blade as long as the claw; standards nearly as long, oblanceolate-unguiculate,  $\frac{1}{4}$  in. broad. Style-branches narrow, an inch long, with large narrow obtuse crests. Capsule oblong, obtusely trigonous, an inch long.

Hab. Fort Vancouver, British Columbia, and Oregon. We have also specimens at Kew said to have been gathered in Newfoundland and New Brunswick.

21. *I. PRISMATICA* Pursh, Fl. Amer. Sept. i. 30; Ker in Bot. Mag. t. 1504. *I. virginica* A. Gray, non Linn. *I. gracilis* Bigelow. *I. Boltoniana* R. & S.—Rhizome slender; sheaths slitting into fine fibres. Leaves linear, weak, finely ribbed, green, a foot or more long,  $\frac{1}{4}$  in. broad. Stem slender, 1–2 ft. long, simple or forked, with 2–3 large linear leaves. Spathes 1–2-flowered; valves lanceolate, subrigid, 1–1 $\frac{1}{2}$  in. long; pedicels often much longer than the spathe. Perianth-tube almost obsolete; limb bright lilac, 1 $\frac{1}{2}$ –2 in. long; falls with an obovate blade  $\frac{1}{2}$  in. broad, shorter than the haft; standards shorter, oblanceolate-unguiculate,  $\frac{1}{4}$  in. broad. Style-branches an inch long; crests narrow. Capsule oblong-trigonous, an inch long, not rostrate.

Hab. Northern United States, from Maine to Virginia, Kentucky, and Tennessee. The plant of the Gronovian herbarium is that figured Bot. Mag. t. 703.

22. *I. ENSATA* Thunb. in Trans. Linn. Soc. ii. 328; Regel, Gartenfl. t. 1011. *I. biglumis* Vahl; Sweet, Brit. Flow. Gard. ser. ii. t. 187. *I. triflora* Balbis, Misc. Bot. 6, t. 1; Red. Lil. t. 481. *I. Doniana* Spach. *I. Pallasii* Fisch. *I. oxypetala* Bunge. *I. caricifolia* Pallas. *I. fragrans* Lindl. Bot. Reg. xxvi. t. 1. *I. longispatha* Fisch. in Bot. Mag. t. 2528. *I. Moorcroftiana* Wall. *I. longifolia* Royle. — Rhizome stout, short-creeping; tufts crowded, surrounded by long sheaths splitting up into fibres. Leaves linear, rigid, glaucescent, strongly veined, 1–1 $\frac{1}{2}$  ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stems  $\frac{1}{2}$ –1 ft. long, 1-headed. Spathes 1–3-flowered, 3–4 in. long; valves lanceolate, green, moderately firm; pedicels long. Ovary cylindrical, an inch long; perianth-tube scarcely any; limb lilac, about 2 in. long; falls with an oblong or obovate blade  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad, rather shorter than the narrow haft; standards as long, oblanceolate-unguiculate,  $\frac{1}{4}$  in. broad. Style-branches an inch long; crests large, deltoid. Capsule oblong, 1 $\frac{1}{2}$ –2 in. long, 6-ribbed, narrowed into a distinct beak.

Hab. Throughout Temperate Asia from Japan to the Caucasus and the Western Himalayas.

23. *I. GRAMINEA* Linn. Sp. Plant. 58; Jacq. Fl. Austr. t. 2; Bot. Mag. t. 681; Red. Lil. t. 299; Reich. Ic. Fl. Germ. t. 346. *I. Adami* Willd. *I. compressa* Moench. *Xiphion gramineum* Alefeld. *Xyridion gramineum* Klatt. — Rhizome short-creeping, moderately stout; sheaths short, fibrous. Leaves thin, linear, green, strongly ribbed, 1–1 $\frac{1}{2}$  ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem slender, solid, compressed, 1-headed, bearing 1–2 large leaves. Spathe 2-flowered; valves lanceolate, green, moderately firm, about 2 in. long; pedicels 1–2 in. long. Perianth-tube nearly obsolete; limb bright lilac,

copiously veined; falls with an orbicular blade  $\frac{1}{2}$  in. broad, much shorter than the broad haft; standards oblanceolate-unguiculate, erect, nearly as long,  $\frac{1}{4}$  in. broad. Style-branches above an inch long; crests small, deltoid. Capsule small, round-oblong, suddenly rostrate.

Hab. Throughout Europe from France to Greece and the Caucasus. *I. sylvestris* Balbis (*I. bayonnensis* Darracq) is a robust variety with leaves  $\frac{1}{2}$  in. broad. *I. lamprophylla* Lange in Bot. Tids. xiii. 17, t. 1, differs by its broader leaves, more scariose spathe-valves, and larger flowers.

24. *I. PSEUDO-CYPERUS* Schur, Transyl. 657. — Allied to *I. graminea*, but more robust, with larger flowers, which are dull violet passing into yellow. Stem 2 ft. long, 1-3-headed. Leaves rigid, linear-ensiform, glaucous, much overtopping the stem.

Hab. Transylvania, Wolff.

25. *I. SIBIRICA* Linn. Sp. Plant. 57; Jacq. Fl. Austr. t. 50; Red. Lil. t. 420; Reich. Ic. Fl. Germ. t. 341. *I. pratensis* Lam.; Red. Lil. t. 239. *I. acuta* Willd.; Reich. Ic. Germ. t. 343. *I. maritima* Miller; Reich. Ic. Germ. t. 342. *I. stricta* Moench. *Xiphion sibiricum* Parl. *Xyridion sibiricum* Klatt.—Rhizome moderately stout, short-creeping; tufts crowded; sheaths splitting into fine fibres. Leaves linear, green, not rigid, finely ribbed, 1-2 ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stems slender, terete, fistulose, overtopping the leaves, simple or forked. Spathes 2-3-flowered; valves lanceolate, brown, scariose, 1-1 $\frac{1}{2}$  in. long; pedicels long. Perianth-tube almost obsolete; limb 1 $\frac{1}{2}$ -2 in. long, bright lilac-blue; falls copiously veined, with an orbicular blade  $\frac{3}{4}$  in. broad, narrowed gradually to a slender claw; standards rather shorter, erect, oblong-unguiculate,  $\frac{1}{2}$ - $\frac{1}{4}$  in. broad. Style-branches  $\frac{3}{4}$ -1 in. long; crests small, deltoid. Capsule oblong-trigonus, 1-1 $\frac{1}{2}$  in. long, not rostrate.

Var. *I. FLEXUOSA* Murray; Ker in Bot. Mag. t. 1163; Red. Lil. t. 420.—Flowers white, with crisped segments.

Var. *I. ORIENTALIS* Thunb. in Trans. Linn. Soc. ii. 328, non Miller. *I. sanguinea* Donn. *I. hamatophylla* Fisch. in Sweet Brit. Flow. Gard. t. 118. *I. nertchinskia* Lodd. Bot. Cab. t. 1843.—Young leaves tinged with red. Flowers larger, more fugitive; blade of the falls orbicular, 1-1 $\frac{1}{2}$  in. broad.

Var. *I. TRIGONOCARPA* Braun, Koch & Bouche. — Dwarfier and more laxly tufted than the type. Leaves narrower. Flowers and capsule smaller.

Hab. The type spread through Central and Southern Europe, reaching into Eastern Siberia. Var. *orientalis*, Eastern Siberia and Japan; *flexuosa* is an old garden form, noticed by Lobel and Parkinson. Var. *trigonocarpa*, which is also Japanese, resembles *graminea* in habit and foliage.

26. *I. MISSOURIENSIS* Nutt. in Journ. Acad. Philad. vii. 58. *I. Tolmieana* Herb. — Rootstock stout, short-creeping; sheath-leaves brown, rigid, not splitting into fibres. Leaves linear, firm, pale green, finely ribbed, 1-1 $\frac{1}{2}$  ft. long at the flowering time,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem 1-headed, 1-2 ft. long, bearing only a single large linear leaf low down. Spathe 2-4-flowered; pedicels long; outer valves lanceolate, moderately firm, 2-3 in. long. Perianth-tube very short; limb 1 $\frac{1}{2}$ -2 in. long, lilac; falls obovate-cuneate,  $\frac{3}{4}$ -1 in.

broad, with a blade as long as the haft; standards oblong-unguiculate,  $\frac{1}{4}$ - $\frac{1}{4}$  in. broad. Style-branches an inch long; crests broad. Capsule oblong,  $1\frac{1}{2}$ -2 in. long, deeply 3-grooved, narrowed to both apex and base.

Hab. Rocky Mountains (from Washington territory and Colorado) and California to North Mexico, where it ascends to 10,000 ft.

27. *I. LONGIPETALA* Herb. in Hook. & Arn. Bot. Beech. 395; Hook. fil. in Bot. Mag. t. 5298. — Rhizome stout, short-creeping; sheaths slitting into coarse fibres. Leaves linear, moderately firm,  $1-1\frac{1}{2}$  ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem stout, solid, compressed,  $1-1\frac{1}{2}$  ft. long, bearing 1-2 linear leaves and a single head. Spathes 2-4-flowered; outer valves green, linear or lanceolate, 3-4 in. long; pedicels 1-3 in. long. Perianth-tube nearly obsolete; limb bright lilac,  $2\frac{1}{2}$ -3 in. long; falls obovate-unguiculate, an inch or more broad, reflexing from halfway down, the claw keeled with yellow and copiously veined with violet on a white ground; standards much shorter, oblanceolate-unguiculate,  $\frac{1}{4}$  in. broad. Style-branches  $1\frac{1}{2}$  in. long; crests large, deltoid. Capsule oblong,  $1\frac{1}{2}$ -2 in. long, narrowed to the base and apex.

Var. *MONTANA* Baker. *I. missouriensis* Bot. Mag. t. 6579, non Nuttall.—Much dwarfer, with narrower leaves and smaller flowers.

Hab. Widely spread in California, first gathered by Douglas in 1833.

28. *I. TRIPETALA* Walt. Fl. Carol. 66, non Linn. fil. *I. tridentata* Pursh.; Sweet, Brit. Flow. Gard. t. 274.—Rhizome moderately stout. Leaves linear,  $1-1\frac{1}{2}$  ft. long,  $\frac{1}{4}$  in. broad, moderately firm, finely ribbed. Stem  $1\frac{1}{2}$ -2 ft. long, 1-3-headed. Spathes 1-flowered, both valves rigid and lanceolate, the outer much shorter than the inner, which is  $2-2\frac{1}{2}$  in. long; pedicel long. Perianth-tube narrowly funnel-shaped, under an inch long; limb bright lilac,  $2\frac{1}{2}$ -3 in. long; falls with an orbicular blade an inch or more broad, as long as the haft; standards oblanceolate, cuspidate, erect,  $\frac{1}{2}$  in. long. Style branches an inch long; crests lanceolate.

Hab. Southern United States from Carolina to Florida. Very distinct. Differs from all the other linear-leaved Apogons by its very small standards.

29. *I. MACULATA* Baker in Gard. Chron. 1876, ii. 517.—Rhizome slender, short-creeping. Leaves ensiform, falcate, moderately firm,  $\frac{1}{2}$  ft. long at the flowering time,  $\frac{1}{4}$ - $\frac{3}{4}$  in. broad. Stem one-headed, 3-4 in. long, bearing a single leaf low down. Spathe 2-3 in. long, 1-flowered; valves loose, lanceolate-acuminate; pedicel short. Perianth-tube an inch long; limb pale,  $2\frac{1}{2}$  in. long; falls obovate-cuneate, an inch broad, pale, marked with a blue or lilac central spot, reflexing from halfway down; standards as long, oblong-unguiculate, cuspidate,  $\frac{1}{2}$  in. broad. Style-branches an inch long; crests broad, obtuse, subentire.

Hab. Mesopotamia, *Aucher Eloy!* Habit of *I. caucasica*.

30. *I. HOOKERI* Penny. *I. tripetala* Hook. in Bot. Mag. t. 2886, non Walt. *I. tridentata* Hook. non Pursh. *Xyridion tridentatum* Klatt.—Rhizome short-creeping. Leaves ensiform, glaucescent, mode-

rately firm, 1-1½ ft. long, ¾ in. broad. Stem 2-3-headed, overtopping the leaves, bearing 2-3 large leaves. Spathes 2-3-flowered, 2-3 in. long; outer valves thin, green, lanceolate; pedicels an inch or more long. Perianth-tube cylindrical, ¼-½ in. long; limb bright lilac, 2-2½ in. long; falls with a suborbicular blade an inch broad, about as long as the copiously veined haft and narrowed to it suddenly; standards, erect, obovate, cuspidate, ½ in. long. Style-branches an inch long; crests small, deltoid. Capsule oblong-trigonal, 1-1½ in. long.

Hab. Canada. Habit of *I. versicolor*, but easily recognised by its small cuneate cuspidate standards. Nearly allied to *I. setosa*.

31. *I. SETOSA* Pallas; Led. Fl. Ross, iv. 96; Regel Gartenfl. t. 322. *I. brachycuspis* Fisch. in Bot. Mag. t. 2326. *Xiphion brachycuspis* Alefeld. *Xyridion setosum* Klatt.—Rhizome stout, oblique; sheaths splitting up into fine fibres. Leaves thin, green, ensiform, 1-1½ ft. long, ½-1 in. broad. Stem deeply forked, much overtopping the leaves, bearing 2-3 heads and 2-3 large leaves. Spathes 2-3-flowered, 1½-2 in. long; outer valves thin, green, lanceolate; pedicels 1-1½ in. long. Perianth-tube cylindrical, ¼ in. long; limb bright lilac, 2-2½ in. long; falls with an orbicular blade above an inch broad, narrowed suddenly to the copiously veined haft; standards ½ in. long, cuneate with a large cusp. Style-branches an inch long; crests deltoid. Capsule oblong-trigonal, 1½ in. long, suddenly narrowed at the base, truncate and inflated at the apex.

Hab. Eastern Siberia, Japan and North-western America.

32. *I. PSEUDACORUS* Linn, Sp. Plant. 56; Engl. Bot. t. 578; Fl. Dan. t. 494. *I. lutea* Lam. *I. palustris* Moench. *I. longifolia* DC. *Xiphion Pseudacorus* Parl. *Xyridion Pseudacorus* Klatt.—Rhizome stout, short-creeping; sheaths not breaking up into fibres. Leaves thin, ensiform, glaucous, finely ribbed, 1½-2 ft. long, ¾-1 in. broad. Peduncle stout, terete, 2-3 ft. long, forked low down, bearing several long leaves and several clusters of flowers. Spathes 2-3-flowered, 2½-3 in. long; outer valves lanceolate, green with white edges; pedicels shorter than the spathes. Perianth-tube ½ in. long; limb bright yellow, 2-2½ in. long; falls with an orbicular blade 1-1½ in. broad, longer than the haft, which has a brighter spot at the throat and radiating brownish veins; standards erect, lanceolate, ¼-¾ in. long. Style-branches an inch long; crests deltoid. Capsule oblong, obtusely angled, 2½-3 in. long, with a large slender beak.

Var. *I. ACOROIDES* Spach. (Bot. Mag. t. 2239).—Limb of the falls pale yellow, haft without the usual callosities, which fit into the standards, which are longer than usual.

Var. *I. BASTARDI* Boreau Fl. Cent. edit. ii. 635.—Flower pale ochraceous yellow; falls with a round-oval blade, prominently veined, but not blotched at the base, the claw not more than half as long as the blade, furnished, as in the type, with two callosities at its base.

Var. *I. ACORIFORMIS* Boreau *loc. cit.*—Blade of the falls round,

with a deeper-coloured blotch at the base, veined with radiating purple lines. Standards pale yellow, very small, the spoon-shaped blade narrowed suddenly to the claw.

Hab. Throughout Europe; also Syria and the Barbary States.

33. *I. MAACKI* Maxim. in Bull. Acad. Peters. x. 740.—Habit of *I. Pseudacorus*. Leaves ensiform, above 2 ft. long. Stem forked, bearing several clusters. Spathes 3-4-flowered; pedicels much shorter than the capsule. Perianth unknown. Capsule drooping, oblong,  $2\frac{1}{2}$ - $3\frac{1}{2}$  in. long,  $\frac{3}{8}$  in. diam., 6-ribbed, suddenly narrowed into a conic beak.

Hab. Manchuria, on the banks of the River Usuri, *Maack*.

34. *I. TENUIS* S. Wats. in Proc. Amer. Acad. xvii. 380; Garden, 1888, t. i.—Rhizome slender. Produced leaves few in a tuft, ensiform, very thin, green, 12-15 in. long,  $\frac{1}{2}$  in. broad at the middle, narrowed gradually to the point. Stem very slender, about a foot long, forked, 2-headed; leaves small, linear, upper subscariose; spathes 1-flowered; valves lanceolate, pale, scariose,  $1\frac{1}{2}$  in. long. Ovary stipitate,  $\frac{1}{4}$  in. long; perianth-tube very short; limb white,  $1\frac{1}{2}$  in. long, faintly veined with yellow and lilac; blade of falls oblong,  $\frac{1}{2}$  in. broad, as long as the haft; inner segments rather shorter, oblanceolate-unguiculate. Style-branches an inch long.

Hab. Oregon; Washington county, *Henderson*! Discovered in 1881.

35. *I. VERSICOLOR* Linn. Sp. Plant. 57 (Dill. Hort. Elth. tab. 155); Curt. in Bot. Mag. t. 21; Red. Lil. 339. *I. sativa* and *picta* Miller. *Xiphion versicolor* Alefeld.—Rhizome stout, short-creeping; sheaths slitting into fine fibres. Leaves ensiform, slightly glaucous,  $1\frac{1}{2}$ -2 ft. long, an inch broad, moderately firm. Stems  $1\frac{1}{2}$ -2 ft. long, deeply forked, 2-3-headed, bearing 2-3 large leaves. Spathes 2-3-flowered; outer valves lanceolate, thin, green,  $1\frac{1}{2}$ -2 in. long; pedicels much shorter than the spathe. Perianth-tube very short; limb  $1\frac{1}{2}$ -2 in. long, claret-purple; falls obovate-cuneate,  $\frac{3}{4}$ -1 in. broad, spreading from halfway down, the claw veined with purple on a yellowish-white ground; standards much shorter, oblanceolate-unguiculate,  $\frac{1}{4}$  in. broad. Style-branches an inch long; crests small, subquadrate. Capsule obtusely trigonous,  $1-1\frac{1}{2}$  in. long, with a small cusp.

Var. 1. *VIRGIMEA* Linn. Sp. Plant. 58; Bot. Mag. t. 703; Jacq. Ic. t. 233. *I. caurina* Herb.—Limb longer, lighter lilac; falls with a larger suborbicular blade, much veined at the throat with violet on a pale ground. Style-branches longer.

Hab. The common Iris of British North America and the Northern United States, extending northward to Hudson's Bay. *I. flaccida* Spach is probably a form.

36. *I. CAROLINIANA* S. Wats. in Proc. Amer. Acad. xxv. 134.—Very near *I. versicolor*, from which it mainly differs by its erect, glaucous, much shorter leaves and very much smaller seeds, which are arranged in two distinct rows.

Hab. North Carolina. Sent in 1888 to the Cambridge Botanic Garden, U.S.A.

37. *I. HEXAGONA* Walt. Fl. Carol. 66; Baker in Bot. Mag. t. 6787.—Rhizome creeping to a length of 2 feet. Leaves ensiform, glaucous, finely veined, 2-3 ft. long, an inch broad. Stems 3-4 ft. long, with several heads and several large leaves. Spathes 3-4 flowered; outer valves lanceolate, green, sometimes long and leaf-like; pedicel produced. Ovary with 3 deep and 3 shallower grooves. Perianth-tube cylindrical, an inch long, with many grooves; limb 4-5 in. long, dark or pale lilac; falls with an obovate blade  $1\frac{1}{2}$ -2 in. broad, and a broad downy greenish claw with a distinct ridge down the centre; standards shorter, erect, oblanceolate. Style-branches  $1\frac{1}{2}$  in. long, very concave, green with a central lilac band, narrower than the claw of the fall; crests deltoid.

Hab. Southern United States from Kentucky to Texas and Florida.

38. *I. FÆTIDISSIMA* Linn. Sp. Plant. 57; Eng. Bot. t. 596; Red. Lil. t. 354; Reich. Ic. Germ. tab. 347. *I. fetida* Thunb. *Xiphion fetidissimum* Parl. *Xyridion fetidissimum* Klatt.—Rhizome stout, short-creeping; sheaths fibrous. Leaves ensiform, slightly glaucous, moderately firm, 1-1 $\frac{1}{2}$  ft. long,  $\frac{3}{4}$ -1 in. broad. Stem compressed, 2-3 ft. long, bearing 2-3 reduced leaves and 2-3 clusters of flowers. Spathes 2-3-flowered, 3 in. long; outer valves lanceolate, green, moderately firm; pedicels long. Perianth-tube greenish, funnel-shaped,  $\frac{1}{2}$  in. long; limb bright lilac,  $1\frac{1}{2}$ -2 in. long; falls with a suborbicular blade  $\frac{3}{4}$  in. broad, as long as the haft; standards shorter, oblanceolate,  $1\frac{1}{4}$  in. broad. Style-branches under an inch long; crests deltoid. Capsule oblong, obtusely trigonous, 2-2 $\frac{1}{2}$  in. long, rostrate.

Hab. Through Central and Southern Europe, from Madeira, Portugal and England to Afghanistan and Algeria. Easily recognised by the scent of the broken leaves. There is a whitish variety, with brown veins, figured Reich. Ic. Fl. Germ. fig. 975.

39. *I. TROJANA* Kerner; Stapf in Verh. Zool. Bot. Wien. 1887, 650.—Leaves ensiform, very acute, glaucescent. Stem above 3 ft. long, with many branches, much overtopping the leaves; outer spathe-valve entirely herbaceous; pedicel none. Perianth-tube longer than the ovary; limb bright violet-purple; falls obovate-violet, with blade longer than the haft, which is white bordered with yellow and veined with brown-purple; standards elliptic, bright violet, suddenly unguiculate. Crests of stigma broad, denticulate. Capsule cylindrical, apiculate, obtusely trigonous, not sulcate.

Hab. Introduced from the Troad by Sintenis to the Vienna Garden. Flower with the fragrance of *Robinia Pseudacacia*.

40. *I. LÆVIGATA* Fisch. et Mey, Ind. Sem. Hort. Petrop. x. 36; Regel Gartenfl. t. 442, fig. 1; Hook. fil. in Bot. Mag. t. 6132.—*I. Gmelini* Ledeb. *I. Kämpferi* Siebold; Ill. Hort. t. 157; Fl. des Serres, t. 2073-4. *I. itsihortsi* Hassk. *I. violacea* Klatt. *I. versicolor* Thunb. *Xyridion levigatum* and *violaceum* Klatt.—Rhizome stout, short-creeping. Leaves thin, ensiform, pale green, finely ribbed, 1-1 $\frac{1}{2}$  ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem much overtopping the leaves, bearing 2-3 reduced leaves and usually only a single cluster

of flowers. Spathe 2-3-flowered, 2-3 in. long; outer valves firm, green lanceolate; pedicels  $\frac{1}{2}$ -2 in. long. Perianth-tube funnel-shaped,  $\frac{1}{2}$  in. long; limb  $2\frac{1}{2}$ -3 in. long, deep or light violet, rarely white; falls with a spreading obovate limb longer than the haft, sometimes  $1\frac{1}{2}$ -2 in. broad; standards much shorter, oblanceolate-unguiculate,  $\frac{1}{2}$  in. broad. Style-branches above an inch long; crests large, deltoid. Capsule obtusely ovoid-oblong, 1-1 $\frac{1}{2}$  in. long.

Hab. Eastern Siberia and Japan. Widely cultivated by the Japanese in many varieties and latterly in Europe. It is much the most showy of all the Apogons, with the largest fall-blade.

41. *I. FULVA* Muhl.; Ker in Bot. Mag. t. 1496; Reich. Fl. Exot. t. 38. *I. cuprea* Purch. *Isis fulva* Tratt. tab. t. 689, *Neubeckia fulva* Alefeld.—Rhizome stout, short-creeping. Leaves thin, ensiform, bright green,  $1\frac{1}{2}$ -2 ft. long,  $\frac{1}{2}$ -1 in. broad. Stems 2-3 ft. long, forked low down, bearing about 3 heads, its lower leaves a foot or more long. Spathes 2-3-flowered, the valves except the outermost membranous; pedicels produced. Perianth-tube yellowish, about an inch long; limb 2 in. long, bright fulvous brown, all the segments spreading from below the middle; falls obovate-cuneate,  $\frac{3}{4}$ -1 in. broad, deeply emarginate, velvety on the face, with reddish-brown pubescence near the keel; standards shorter, oblanceolate-spathulate. Style-branches under an inch long; crests very small, broad. Capsule oblong, obtusely trigonous, 1-1 $\frac{1}{2}$  in. long.

Hab. United States, principally in the southern States. One of the latest species to flowering, not opening round London till late in June. Connects *Apogon* and *Pogoniris* and very distinct in appearance through its fulvous flowers, with all the six segments spreading like those of a *Moræa*.

42. *I. GULDENSTÆDTIANA* Lepech. in Act. Acad. Petrop. 1781, i. 292, t. 8. *I. halophila* Pallas. *I. stenogyna* Red. Lil. sub. t. 310. *I. Gawleri* Red. Lil. 310. *I. diluta* M. Bieb. Cent. Pl. Ross. t. 81. *I. dubia* Poir. *Xiphion Guldenstædtii* and *stenogynum* Alefeld. *Xyridion halophilum*, *stenogynum* and *Guldenstædtianum* Klatt.—Rhizome stout, oblique, short-creeping; sheaths fibrous. Leaves moderately firm, pale green, ensiform, 1-1 $\frac{1}{2}$  ft. long,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad. Stem stout, terete,  $1\frac{1}{2}$ -2 ft. long, bearing 2-3 reduced leaves and often 1-2 spicate clusters of flowers below the end one. Spathes 2-3-flowered; outer valves lanceolate, firm, green,  $2\frac{1}{2}$ -3 in. long; pedicels shorter than the spathes. Perianth-tube as long as the ovary; limb  $1\frac{1}{2}$ -2 in. long, pale yellow in the type; falls with an orbicular blade  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad, much shorter than the narrow haft, which has a bright yellow keel and faint lilac veins; standards rather shorter, oblanceolate-unguiculate, erect. Style-branches 1-1 $\frac{1}{4}$  in. long; crests deltoid. Capsule oblong-hexagonal, 1-1 $\frac{1}{2}$  in. long, with a persistent beak an inch long and the three valves strongly ribbed near the margin.

Hab. Transylvania and Moldavia and throughout Asia, from Asia Minor and the Caucasus to Kashmir and Mongolia. *I. sogdiana* Bunge, is a variety with grey-lilac flowers. We have a specimen of the type from Kew Gardens, dried by Bishop Goodenough in 1788. Sintenis has found an alpine variety with linear leaves at 5000 ft. in Armenia. It is very near *I. spuria*.

43. *I. SPURIA* Linn. Sp. Plant. 58; Bot. Mag. t. 58; Jacq. Fl.



Austr. t. 4; Reich. Fl. Germ. fig. 772, *I. spathulata* Lam. *I. Reichenbachiana* Klatt. *Xyridion spurium* and *Reichenbachianum* Klatt.—Rhizome stout, short-creeping, oblique; sheaths splitting into fibres. Leaves firm, linear, glaucescent, a foot long,  $\frac{1}{2}$  in. broad in the typical form. Stems overtopping the leaves, bearing 1-3 spicate heads and 3-4 reduced leaves. Spathes 2-3-flowered, 2-3 in. long; valves moderately firm, green, lanceolate; pedicels shorter than the spathe. Perianth-tube  $\frac{1}{2}$ - $\frac{3}{4}$  in. long; limb bright lilac,  $1\frac{1}{2}$ -2 in. long; falls with an orbicular blade  $\frac{1}{2}$  in. broad, which is half as long as the haft, which is keeled with yellow and veined with lilac on a pale ground; standards rather shorter, oblanceolate-unguiculate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad. Style-branches an inch long; crests small, deltoid. Capsule oblong-hexagonal, an inch long, conspicuously rostrate.

Var. I. SUBBARBATA JOO in Verh. Sieb. Ver. 1858, 98.—Falls faintly bearded down the haft. Spathe-valves puberulous at the apex. Transylvania.

Var. I. DAENENSIS Kotschy.—More robust. Flowers grey-lilac; falls whitish with lilac-blue veins, bright yellow at the base of the blade, the haft veined and spotted with red. Anthers reddish-yellow. South Persia.

Var. I. DESERTORUM Ker in Bot. Mag. t. 1514.—Segments pale lilac; haft of falls bright yellow; standards bordered with yellow.

Var. I. NOTHA M. Bieb. Cent. Ross. t. 77. *I. halophila* Ker in Bot. Mag. t. 875, non Pallas. *I. spuria* Red. Lil. t. 349. *Xyridion nothum* Klatt.—More robust than the type, with leaves an inch broad, flowering stems 2-3 ft. long and larger flowers and spathe-valves. Caucasus to Kashmir.

Hab. Central and Southern Europe from Spain and France to Persia and Algeria. *I. sordida* Retz, judging from the description, may be a form of this species.

44. I. AUREA Lindl. in Bot. Reg. xxxiii. t. 59. *I. crocea* Jacquem. *Xyridion aureum* Klatt.—Rhizome stout, oblique. Leaves ensiform, moderately firm, hardly at all glaucous,  $1\frac{1}{2}$ -2 ft. long,  $\frac{3}{4}$ -1 in. broad. Stem 3-3 $\frac{1}{2}$  ft. long, stout, terete, bearing several reduced leaves and about two sessile clusters beneath the end one. Spathes 2-3-flowered, 3-4 in. long; valves green, lanceolate; pedicels long. Perianth-tube as long as the ovary; limb bright yellow,  $2\frac{1}{2}$ -3 $\frac{1}{2}$  in. long; falls with an oblong blade an inch broad, as long as the claw; standards shorter, oblanceolate, under  $\frac{1}{2}$  in. broad. Style-branches  $1\frac{1}{4}$ -1 $\frac{1}{2}$  in. long; crests deltoid. Capsule oblong, hexagonal,  $1\frac{1}{2}$  in. long, conspicuously rostrate.

Hab. Western Himalayas. Introduced into cultivation by Dr. Royle. Flowers in England early in July.

45. I. MONNIERI DC. in Red. Lil. t. 236. *Xyridion Monnieri* Klatt.—Rhizome stout, short-creeping. Leaves ensiform, moderately firm, slightly glaucous, 2-3 ft. long, 1-1 $\frac{1}{4}$  in. broad. Stem stout, terete, 3-4 ft. long, with several reduced leaves and sessile clusters of flowers. Spathes 2-3-flowered, 4-5 in. long; outer valves firm, green, lanceolate, an inch broad; pedicels long.

Perianth-tube as long as the ovary; limb  $2\frac{1}{2}$ - $3\frac{1}{2}$  in. long, bright lemon yellow, without any dark veins; falls with an orbicular blade  $1-1\frac{1}{2}$  in broad, as long as the claw; standards shorter, oblong-unguiculate, an inch broad. Style-branches  $1\frac{1}{2}$  in. long; crests deltoid. Capsule oblong, hexagonal, 2 in. long, conspicuously rostrate.

Hab. Rhodes and Crete. Discovered and introduced into cultivation by Sieber in 1821. Does not flower round London till late in June. Very near *I. orientalis*.

46. *I. ORIENTALIS* Miller, Gard. Dict. edit. 6, No. 9 (1768). (Icones, t. 154), non Thunb. *I. ochroleuca* Linn. Mant. 175; Curt. in Bot. Mag. t. 61; Red. Lil. t. 350; Reich. Ic. Crit. fig. 1289. *I. gigantea* Carrière. *Xyridion ochroleucum* Klatt.—Rhizome short, stout, oblique. Leaves firm, ensiform, slightly glaucous, 2-3 ft. long, an inch broad. Stem 3 ft. long, stout, terete, with 2-3 reduced leaves and 2-3 spicate clusters of flowers. Spathes 2-3-flowered, 4-6 in. long; valves firm, green, lanceolate, acuminate, an inch broad; pedicels long. Perianth-tube as long as the ovary; limb bright yellow,  $3-3\frac{1}{2}$  in. long; blade of the falls obovate, an inch broad, as long as the haft; standards shorter, oblong-unguiculate, an inch broad. Style-branches  $1\frac{1}{2}$  in. long; crests deltoid. Capsule oblong, hexagonal,  $1\frac{1}{2}$ -2 in. long, distinctly rostrate.

Hab. Asia Minor and Syria; Island of Samos. *Dr. Major* 866! The Trojan *I. Kernneriana* Aschers. and Sint., only differs by its smaller flowers and narrower leaves and is probably the wild original of the species. Miller's name has priority over that of Linnæus. The plant that does duty for *I. ochroleuca* in the Linnean Herbarium is *I. Pseudacorus*.

### Subgenus II. PARDANTHOPSIS (Hance).

47. *I. VERNA* Linn. Sp. Plant. 58; Sweet, Brit. Flow. Gard. t. 68.—Rootstock wide-creeping; sheaths not splitting into fibres. Leaves linear, thin, slightly glaucous, finely veined, about  $1\frac{1}{2}$  ft. long at the flowering time,  $\frac{1}{4}$  in. broad. Stem scarcely any, 1-headed. Spathes 1-flowered, about 2 in. long; valves lanceolate, herbaceous green; pedicel short. Perianth-tube slender,  $1\frac{1}{2}$  in. long; limb deep violet,  $1\frac{1}{2}$  in. long; falls obovate-unguiculate,  $\frac{1}{2}$  in. broad, reflexing from halfway down, with a brilliant orange hairless keel down the claw; standards erect, plain violet, similar in shape. Style-branches  $\frac{3}{4}$  in. long; crests large, lanceolate-deltoid.

Hab. Ohio, Kentucky, Virginia and other Southern United States. Leaves a foot long in autumn, persistent through the winter.

48. *I. YEDOENSIS* Franch. et Savat. Enum. Jap. ii. 48, 522.—Habit and leaves of *I. tectorum*. Leaves ensiform, a foot long, nearly an inch broad at the middle, obliquely attenuate at the apex. Stem forked, about a foot long. Spathes 2-3-flowered; valves lanceolate, outer greenish, inner membranous. Perianth-tube  $\frac{1}{2}$  in. long; limb 3 in. long, deep violet-blue; falls obovate, with a short haft, yellow at the base of the blade, much spotted and veined

with red-brown; standards erect, obovate-unguiculate. Style-branches violet and yellow; crests very short.

Hab. Japan; Yedo, *Savatier* 1223.

49. *I. WATII* Baker—Leaves thin, ensiform,  $1\frac{1}{2}$  ft. long.  $1\frac{1}{2}$  in. broad at the middle at the flowering season. Stem not overtopping the leaves, bearing 5-6 heads on erecto-patent peduncles in a regular raceme. Spathes 2-3-flowered; outer valve thin, green, lanceolate-acuminate, 2 in. long; the next much shorter; pedicels about an inch long, articulated at the apex. Perianth-tube infundibuliform,  $\frac{1}{2}$  in. long; limb pale lavender-blue; falls with an obovate blade  $\frac{3}{4}$  in. broad, as long as the haft, spotted and striped with dark purple and at the throat with yellow, apparently not crested; standards rather shorter, oblong-unguiculate,  $\frac{1}{2}$  in. broad. Style-branches an inch long; crests deltoid, deeply lacinated. Capsule small, oblong, obtusely trigonous.

Hab. Manipur; summit of Kongui Hill, alt. 6000 ft., *Watt* 6337. Habit of *I. tectorum*.

50. *I. DICHOTOMA* Linn. fil. Suppl. 97; Bot. Reg. t. 246; Sweet Brit. Flow. Gard. t. 96; Baker in Bot. Mag. t. 6428. *I. pomeridiana* Fischer. *Pardanthus dichotomus* Ledeb.—Rhizome short, stout, oblique; sheaths not splitting into fibres. Leaves ensiform, falcate, moderately firm, a foot long, an inch broad. Stem slender, solid, terete, much overtopping the leaves, bearing 6-10 heads of flowers. Spathes  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, 5-6-flowered; outer valves subscariose, ovate or oblong; pedicels longer than the spathe, articulated at the apex. Flowers fugitive, twisting spirally. Perianth-tube obsolete; limb  $1-1\frac{1}{2}$  in. long, whitish, spotted with lilac-blue, expanding only once in the afternoon; falls with a suborbicular blade  $\frac{1}{2}$  in. broad; the claw obscurely bearded, white, spotted with purple; standards oblong-unguiculate, nearly as long. Style-branches  $\frac{3}{4}$  in. long; crests lanceolate-deltoid. Capsule oblong-cylindrical, obtuse, 1-2 in. long.

Hab. Davuria and North China. Decaisne, in Bull. Soc. Bot. France, xx. 300, places it in *Evansea*, and makes two species, *E. dichotoma* and *E. vespertina*.

### Subgenus III. ONCOCYCLUS (Siem.)

51. *I. SUSIANA* Linn. Sp. Plant. 55; Curt. in Bot. Mag. t. 91; Flore des Serres, t. 1067-1068. *I. punctata* Moench. *Oncocyclus susianus* K. Koch.—Rhizome stout, short-creeping. Leaves linear, very glaucous, moderately firm, 6-9 in. long at the flowering time,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad. Stem 1-headed,  $\frac{1}{2}$ -1 ft. long, bearing 2-3 long leaves. Spathes 1-2-flowered, 3-4 in. long; valves green, lanceolate, ventricose, scariose towards the tip at the flowering time; pedicels short. Perianth-tube cylindrical,  $1-1\frac{1}{4}$  in. long; limb 3-4 in. long, finely veined and dotted with brown-black on a brownish-white ground; falls obovate-cuneate, rather longer than broad, with a diffused brown beard an inch broad; standards with an orbicular blade broader than the fall, and a short claw. Style-branches an inch and a half long, convex on the back; crests very large, recurved.

Hab. Asia Minor and Persia. One of the most curious and best known species of the genus. It is mentioned by Lobel and Clusius, and is said to have been introduced into Europe in 1573. *I. livida* Tratt. (Red. Lil. t. 18) has smaller, more livid, less distinctly veined flowers than the type.

52. *I. GATESII* Foster in Gard. Chron. 1890, ii. 18, fig. 3.—Habit and foliage of *I. susiana*. Spathes 4 in. or more long; falls orbicular, reflexed, 3 in. broad, a delicate light grey, formed by fine veins of purple on a cream-white ground, sometimes sky-blue, with darker coloured veins, the throat densely hairy; standards ascending, 3-4 in. broad. Style-crests subquadrate.

Hab. Armenia. Named after the Rev. T. F. Gates, of the American Mission at Mardin.

53. *I. BISMARCKIANA* Hort. Damman; Wein Gartenzeit. 1892, 355, fig. 72.—Habit of *I. susiana*. Leaves ensiform, glaucous-green, 8 in. long. Stem 1-headed, above a foot long. Flower as large as in *susiana*; falls orbicular, ash-grey with darker veins and a dark spot at the base; standards sky-blue, with blackish veins.

Hab. Lebanon, *Hort. Damman*.

54. *I. LORTETII* Barbey Herbor. Levant. t. 7.—Rootstock stout, short-creeping. Leaves thin, glaucous, ensiform, under a foot long at the flowering time,  $\frac{3}{4}$  in. broad. Peduncle short, 1-headed. Spathes 1-flowered, 5-6 in. long; valves pale green, lanceolate. Perianth-tube  $1\frac{1}{2}$  in. long; limb about 4 in. long; falls obovate-cuneate, 3 in. broad, pale grey-lilac, copiously spotted and finely striped with red-brown, with a dark brown spot at the throat and short yellow hairs down the haft; standards orbicular-unguiculate, erect-inflexed, pale grey, veined with red-brown. Style-branches red-brown, an inch broad, with large reflexed quadrate crenate crests.

Hab. Southern slope of the Lebanon range, alt. 2000 ft., *Lortet*.

55. *I. HEYLANDIANA* Boiss. Fl. Orient. V. 130.—Rhizome short-creeping. Leaves linear, glaucescent, falcate, 8-9 in. long,  $\frac{1}{2}$  in. broad. Stem 1-headed, above a foot long. Spathes 1-flowered; valves lanceolate, green, membranous, 3 in. long; pedicel short. Perianth-tube an inch long; limb  $1\frac{1}{2}$ -2 in. long; falls obovate-cuneate, veined with brown-violet on a whitish ground, dark brown at the throat, diffusely bearded with white down the haft; standards rather broader, orbicular-unguiculate, white, veined with brown. Style-crests short, broad, crenulate. Capsule obscurely trigonous, narrowed to both ends.

Hab. Mesopotamia. Gathered by Olivier, Kotschy and Loftus.

56. *I. SARI* Schott; Baker in Gard. Chron. 1876, ii. 788.—Rhizome short, stout, oblique. Leaves pale green, linear-complicate, about  $\frac{1}{2}$  ft. long at the flowering time,  $\frac{1}{4}$ - $\frac{1}{3}$  in. broad. Stem 1-headed, 3-6 in. long, bearing about 2 lanceolate reduced leaves. Spathe 1-flowered, 2-3 in. long; valves lanceolate, green, membranous; pedicel very short. Perianth-tube cylindrical, an inch long; limb in the type bright lilac, 3 in. long; falls obovate-cuneate,  $1\frac{1}{2}$ -2 in. broad, reflexing from halfway down, with a

diffused beard down the haft; standards broader and a little longer, orbicular, with a short claw. Style-branches above an inch long; crests very large, reflexing.

Var. *LURIDA* Boiss.; Baker in Bot. Mag. t. 6960.—Falls with copious brown-black spots and lines on a pale brownish ground.

Hab. Asia Minor and Palestine. Introduced into cultivation by Leichtlin about 1875.

57. *I. HAYNEI* Baker in Gard. Chron. 1876, ii. 710.—Leaves weak, linear, not at all falcate, 6–9 in. long at the flowering time,  $1\frac{1}{3}$  in. broad. Stem 1-headed, 6–8 in. long, bearing about two thin lanceolate bract-leaves. Spathe 1-flowered; valves thin, greenish, lanceolate-acuminate, 3 in. long; pedicel short. Perianth-tube an inch long; falls with an orbicular blade  $1\frac{1}{2}$  in. broad, about as long as the ascending pilose haft; standards 3 in. long, orbicular, with a short claw. Style-branches above an inch long; crests quadrate.

Hab. Palestine, on Mount Gilboa. Known only from a couple of dried specimens, collected by the late Mr. W. A. Hayne in 1872. Perhaps not distinct from *I. Sari*.

58. *I. LUPINA* Foster in Gard. Chron. 1887, i. 738.—Rhizome short, fleshy. Leaves linear, light green, rather glaucous, a foot long at the flowering time,  $\frac{1}{2}$  in. broad. Stem  $\frac{1}{2}$  ft. long, 1-headed, bearing 2 long leaves. Spathe 1-flowered, 3–3 $\frac{1}{2}$  in. long; valves lanceolate, ventricose, persistent, pale green; pedicel short. Perianth-tube cylindrical, 2 in. long; limb 3 in. long, dull yellowish green, with fine red-brown veins; falls obovate-cuneate,  $1\frac{1}{2}$  in. broad, with a velvety dark brown patch at the throat and a diffused yellowish beard down the haft; standards orbicular, with a short claw, 2 in. broad. Style-branches above an inch long; crests large, quadrate, serrated. Capsule oblong-trigonal.

Hab. Turkish Armenia, near Kharput, *Sintenis* 450! Sent alive to Prof. Foster by Mrs. Barnum.

59. *I. HELENÆ* Barbey Herbor. Levant, 159.—Rhizome short, moderately stout. Leaves linear-complicate, pale green, very falcate, 3–4 in. long at the flowering time. Peduncle 1-headed, 3–6 in. long, bearing 2–4 short leaves. Spathes 1-flowered, 2–3 in. long; valves lanceolate, membranous, pale green; pedicel very short. Perianth-tube cylindrical, greenish,  $1\frac{1}{2}$  in. long; limb 2–2 $\frac{1}{2}$  in. long, pale lilac, with fine red-brown veins; falls orbicular-cuneate, an inch broad, dark purple and velvety at the throat; standards 2 in. broad, orbicular, with a short claw. Style-branches an inch long; crests quadrate.

Hab. Desert between Egypt and Palestine, in several places, *Burbey*! Discovered in 1880. Very near *I. Sari*.

60. *I. IBERICA* Hoffm. Comm. i. 41; Regel Gartenfl. t. 386 and 713; Flore des Serres, t. 1963; Bot. Mag. t. 5847. *Oncocyclus ibericus* Siems.—Tufts crowded on a short rhizome. Leaves linear-complicate, 3–6 in. long at the flowering time, falcate, glaucous,  $\frac{1}{2}$  in. broad. Peduncle none or very short, 1-headed. Spathe 1-flowered, 2 in. long; valves green, membranous, lanceolate;

pedicel very short. Perianth-tube greenish, cylindrical an inch long; limb 2 in. long; falls obovate, broadly cuneate,  $1\frac{1}{2}$ -2 in. broad, in the type closely veined with dark brown on a pale brown ground, with a patch of dark brown at throat and a short diffused brown beard; standards orbicular, with a short claw, 2 in. broad, faintly veined. Style-arms brown, an inch long, reflexing almost from the base; crests deltoid, entire.

Hab. Caucasus and mountains of Armenia and North Persia, ascending to 7000 ft. Var. *Perryana*, Florist, 1873, 25, with figure, has smaller flowers than the type and pale lilac standards. Var. *ochracea* Regel, has ochraceous-brown falls. Var. *Bellii* Baker, collected by Mr. Mark Bell in Luristan, has dark lilac standards. *I. Van Houttei* Hort. Leichtl., is a hybrid between this species and *susiana*.

61. *I. ACUTILOBA* C. A. Meyer, Ind. Cauc. 32; Regel Gartenfl. t. 812, fig. 1. *Oncocyclus acutilobus* Siems. *I. Helena* K. Koch.—Tufts crowded on a short rhizome. Leaves linear-complicate, very falcate, 3-4 in. long at the flowering time,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem 1-headed, very short. Spathe 1-flowered, 2 in. long; valves lanceolate, green, membranous; pedicel very short. Perianth-tube cylindrical, an inch long; limb 2 in. long; falls oblong,  $\frac{1}{2}$  in. broad, reflexing from halfway down, veined with brown-black on a pale brown ground, diffusely bearded with brown down the haft; standards oblong-unguiculate, erect, twice as broad as the falls, paler, copiously veined. Style-branches an inch long; crests small, deltoid.

Hab. Caucasus and mountains of Northern Persia.

62. *I. PARADOXA* Stev. in Mem. Mosc. V. 355; Regel Gartenfl. t. 386, fig. 3; Garden, xxxii. 584; Bot. Mag. t. 7081. *Oncocyclus paradoxus* Siems.—Tufts crowded on a short rhizome. Leaves linear-complicate, 3-6 in. long at the flowering time, glaucous, very falcate,  $\frac{1}{4}$  in. broad. Stem 1-headed, 2-6 in. long. Spathe 1-flowered, 2-3 in. long; valves green, membranous, lanceolate; pedicel very short. Perianth-tube cylindrical, under an inch long; falls linguulate, dark brown in the type, 1-1 $\frac{1}{2}$  in. long, with a very small orbicular blade  $\frac{1}{2}$  in. broad, and a diffusely-bearded claw; standards erect, white in the type, 1 $\frac{1}{2}$ -2 in. broad, 2-3 in. long, orbicular, with a short claw. Style-branches an inch long; crests small, deltoid.

Var. *VIOLACEA* Baker.—Standards dark violet; falls tinged with violet.

Hab. Mountains of Georgia and North Persia. Very distinct by its small linguulate falls.

#### Subgenus IV. REGELIA Foster.

63. *I. LEICHTLINI* Regel Descr. ix. 40. *I. voga* Foster; Regel Gartenfl. t. 1244, fig. 7.—Rootstock slender, wide-creeping; tufts non-contiguous. Leaves ensiform, scarcely glaucous, moderately firm, 1-1 $\frac{1}{2}$  ft. long,  $\frac{1}{2}$  in. broad. Stem 1 $\frac{1}{2}$  ft. long, 1-headed, bearing about 2 reduced leaves. Spathes 2-3-flowered, 2 $\frac{1}{2}$  in. long; valves oblong-lanceolate, green with a scariose tip at the

flowering time; pedicel short. Perianth-tube cylindrical,  $1\frac{1}{2}$  in. long; limb bright lilac,  $2-2\frac{1}{2}$  in. long; falls with an oblong blade an inch broad, as long as the broad claw; beard close, lavender-white; standards as broad, erect, oblong-unguiculate, the claw distinctly bearded. Style-branches an inch long; crests broad, obtuse.

Hab. Turkestan. Drawn for the Kew collection in May, 1888, from a plant flowered by Dr. Foster.

64. I. SUWAROWI Regel Descr. Pl. Nov. x. 45; Baker in Bot. Mag. t. 7029. *I. lineata* Foster; Regel Gartenfl. t. 1244, figs. 1-6.—Rhizome short-creeping. Leaves thin, linear, pale green, about a foot long at the flowering time,  $\frac{1}{4}$  in. broad. Stem 1-headed, about a foot long, bearing 2-3 reduced leaves. Spathes 2-flowered,  $2\frac{1}{2}-3$  in. long; valves lanceolate, green, membranous, ventricose; pedicel short. Perianth-tube cylindrical,  $\frac{3}{4}-1$  in. long; limb 2 in. long, both sets of segments finely closely veined all over with claret-purple on a pale greenish ground; falls oblong-lanceolate, subacute,  $\frac{1}{2}$  in. broad, with a violet-blue beard; standards as long, oblanceolate-unguiculate, the claw sometimes faintly bearded. Style-branches an inch long; crests deltoid, crenate.

Hab. Turkestan, Dr. Albert Regel! Discovered and introduced into cultivation in 1885.

65. I. KOROLKOWI Regel Enum. Turkest. 32; Gartenfl. t. 766; Baker in Bot. Mag. t. 7025. — Rhizome short-creeping. Leaves ensiform, moderately firm, glaucous, a foot long at the flowering time,  $\frac{3}{4}-1$  in. broad. Stem 1-headed, about a foot long, bearing a single reduced leaf. Spathe 1-2-flowered, 3-4 in. long; outer valves membranous, green, lanceolate, ventricose; pedicel short. Perianth-tube an inch long, cylindrical; limb  $2\frac{1}{2}-3$  in. long, in the type milk-white, veined with red-brown; falls reflexing from half-way down, with an oblong blade an inch broad, with a brown patch at the throat and dark brown beard; standards as long and as broad, erect, oblong-unguiculate. Style-branches an inch long; crests large, quadrate, crenulate. Capsule oblong, unequally hexagonal,  $1\frac{1}{2}-2$  in. long, narrowed to the point.

Hab. Turkestan. Sent alive by General Korolkow to St. Petersburg in 1870. Prof. Foster in Gard. Chron. 1888, ii. 36, describes four varieties, *Leichliniana*, *venosa* (Gartenfl. t. 1358), *violacea* and *concolor*, of which the last, which has bright lilac flowers, is the most remarkable.

66. I. BARNUMÆ Foster & Baker in Gard. Chron. 1888, ii. 182. — Rhizome slender, fleshy. Leaves weak, linear, glaucous,  $\frac{1}{2}$  ft. long at the flowering time,  $\frac{1}{4}-\frac{1}{3}$  in. broad. Stem 1-headed, 1-6 in. long, with a single sheathing leaf. Spathe 1-flowered,  $2-2\frac{1}{2}$  in. long; valves lanceolate, greenish white, tinged with purple; pedicel short. Perianth-tube greenish,  $\frac{1}{2}$  in. long; limb dark uniform claret-purple; falls oblong-cuneate, 2 in. long, above an inch broad, with a soft whitish beard down the haft; standards erect, obovate-unguiculate,  $2\frac{1}{2}$  in. long,  $1\frac{1}{2}$  in. broad, plain purplish black. Style-branches an inch long; crests short, broad, much recurved. Capsule ellipsoid-trigonus.

Hab. Mountains of Armenia, near Van. Sent alive to Prof. Foster, by Mrs. Barnum, of the American Mission at Kharput.

## Subgenus V. EVANSEA (Salisb.).

67. *I. GRACILIPES* A. Gray Bot. Jap. 412.—Rhizome slender, wide-creeping, branched; tufts crowded; sheaths membranous. Leaves thin, green, linear, finally a foot long,  $\frac{1}{3}$  in. broad at the middle, with a few strong veins. Stems very slender, about as long as the leaves, 1-3-headed. Spathe 1-flowered,  $\frac{1}{2}$  in. long; outer valve lanceolate, brown, membranous; pedicel none. Perianth-tube  $\frac{1}{2}$  in. long; limb lilac, very fugitive, an inch long; falls obovate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, with a yellow crest down the haft; standards oblanceolate. Style-branches  $\frac{1}{2}$  in. long; crests deltoid. Capsule small, oblong.

Hab. Northern Japan. First collected by the American Exploring Expedition in 1853-56.

68. *I. NEPALENSIS* D. Don Prodr. Nep. 54; Sweet Brit. Flow. Gard. ser. 2, t. 11, non Wallich. *I. decora* Wall. Pl. Asiat. Rar. t. 86. *I. sulcata* Wall. *Neubekia sulcata* and *decora* Klatt.—Rootstock short-creeping; root-fibres fleshy; sheaths splitting into a dense mass of fine fibres. Leaves thin, linear,  $\frac{1}{2}$  ft. long at the flowering time, finally graminoid,  $1\frac{1}{2}$ -2 ft. long,  $\frac{1}{4}$  in. broad. Peduncle slender,  $\frac{1}{2}$ -1 ft. long, 1-2-headed. Spathes 1-3-flowered,  $1\frac{1}{2}$ -2 in. long; outer valves thin, green, lanceolate, persistent; pedicels very short. Perianth-tube slender,  $1\frac{1}{2}$  in. long; limb fugitive, pale lilac,  $1-1\frac{1}{2}$  in. long; falls with an oblong blade  $\frac{1}{2}$  in. broad, as long as the haft, furnished with a narrow yellow crest; standards erect, oblong-unguiculate,  $\frac{1}{3}$  in. broad. Style-branches under an inch long; crests large, toothed. Capsules oblong-trigonus, chartaceous,  $1-1\frac{1}{2}$  in. long, clasped by the persistent spathe-valves.

Var. *KHASIANA* Baker.—Flowers smaller. Angles of the capsule more acute.—Khasia.

Hab. Temperate region of the Himalayas, from Simla eastward to Assam. A plant collected by Griffith in Bhotan has a much stouter compressed sulcate stem, 2 ft. long, with 3 long-stalked heads, with firmer green spathe-valves.

69. *I. SPECULATRIX* Hance in Journ. Bot. 1875, 196; Baker in Bot. Mag. t. 6306.—Rhizome tortuous, as thick as a goose-quill; sheaths splitting into fibres. Leaves linear, moderately firm, finally  $1-1\frac{1}{2}$  ft. long,  $\frac{1}{4}$  in. broad, strongly ribbed. Stems slender, 1-headed, under a foot long, bearing 2-3 small firm bract-leaves. Spathes 1-2-flowered; valves green, lanceolate, moderately firm,  $1\frac{1}{2}$ -2 in. long; pedicels long. Perianth-tube  $\frac{1}{2}$  in. long; limb lilac,  $1-1\frac{1}{4}$  in. long; falls with an obovate blade half as long as the haft, with a white blotch at the throat and a yellow crest; standards rather shorter, oblanceolate-unguiculate. Style-branches  $\frac{1}{2}$  in. long; crests deltoid; valves of capsule lanceolate-acuminate, an inch long.

Hab. Mountains of Hong-kong. Described from a plant that flowered at Kew in April, 1877, sent by Mr. C. Ford.

70. *I. LACUSTRIS* Nutt. Gen. Amer. i. 23.—Rhizome, stolons and leaves of *I. cristata*. Stem scarcely any, 1-headed. Spathe 1-flowered,  $1\frac{1}{2}$ -2 in. long; valves linear, green, membranous;



pedicel  $\frac{1}{2}$  in. long. Perianth-tube under an inch long; limb lilac, an inch long; falls with an obovate blade shorter than the haft, the crest of which is yellow; standards as broad as the falls. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Gravelly shores of Lakes Huron and Michigan, both on the States and Canadian sides. Very near *I. cristata*.

71. *I. CRISTATA* Ait. Hort. Kew, i. 71; Smith Spic. t. 13; Bot. Mag. t. 412; Red. Lil. t. 76. *I. odorata* Pers. *Neubeckia cristata* Alefeld.—Rhizome slender, wide-creeping, sending out long stolons. Leaves thin, ensiform, finally 6-8 in. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad at the middle, narrowed to both ends. Stem very short, 1-headed, with 2-3 membranous, lanceolate bract-leaves. Spathes 1-2-flowered,  $1\frac{1}{2}$ -2 in. long; outer valves lanceolate, green, membranous, very ventricose; pedicels short. Perianth-tube very slender,  $1\frac{1}{2}$ -2 in. long; limb pale lilac,  $1-1\frac{1}{2}$  in. long; fall with an obovate blade  $\frac{1}{2}$  in. broad, much shorter than the haft, the throat and crest yellow; standards rather shorter, oblanceolate-unguiculate,  $\frac{1}{4}$  in. broad. Style-branches  $\frac{3}{4}$  in. long; crests deltoid. Capsule small, oblong, sharply angled, hidden in the persistent spathe.

Hab. Mountains of Kentucky, Virginia and Carolina. There is a specimen at South Kensington, dried, from the garden of Collinson in 1766. It was confused by Linnæus with *verna*, and this is the plant of the herbarium of Gronovius.

72. *I. MILESH* Foster in Gard. Chron. 1883, i. 231; Baker in Bot. Mag. t. 6889.—Rootstock stout, wide-creeping; sheaths not splitting into fibres. Leaves thin, pale green, ensiform,  $1\frac{1}{2}$ -2 ft. long at the flowering time,  $1\frac{1}{2}$  in. broad at the middle. Stem overtopping the leaves, bearing 4-5 heads and several reduced leaves. Spathes many-flowered,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long; valves oblong, pale, subscarious; pedicels as long as the spathe, articulated at the apex. Perianth-tube  $\frac{1}{2}$  in. long; limb bright lilac,  $1\frac{1}{2}$ -2 in. long; falls with an oblong-cuneate claret-purple blade  $\frac{3}{4}$ -1 in. broad, spotted and veined with lilac in the centre and furnished with a sharply-toothed yellow crest; standards oblong-unguiculate, also spreading, rather shorter. Style-branches an inch long; crests large, quadrate, sharply toothed.

Hab. Kulu, North-western Himalayas. Collected by Sir D. Brandis in 1876. First flowered in cultivation by Max Leichtlin at Baden Baden, in June, 1881.

73. *I. TECTORUM* Maxim. in Bull. Acad. Peters. vii. 563; Regel Gartenfl. t. 716; Hook fil. in Bot. Mag. t. 6118; Flore des Serres, t. 2282. *I. tomiolopha* Hance. *I. cristata* Miquel.—Rhizome wide-creeping, thick, tortuous, its shoots sessile. Leaves thin, ensiform, pale green, strongly ribbed, a foot or more long,  $1-1\frac{1}{4}$  in. broad. Stem  $1\frac{1}{2}$  ft. long, bearing one or few heads on long peduncles; Spathes 2-3 flowered,  $1\frac{1}{2}$ -2 in. long; valves thin, green, lanceolate, acuminate; pedicels much shorter than the spathe. Perianth-tube above an inch long; limb bright lilac, 2 in. long; falls with an orbicular blade  $1\frac{1}{2}$  in. broad, narrowed suddenly to a short haft, variegated with darker lilac, white at the throat, with a deeply lacinated lilac and white crest; standards also spreading, nearly as

broad, plain lilac, oblong, with a short claw. Style-branches an inch long; crests quadrate, serrated. Capsule oblong-trigonal,  $1\frac{1}{2}$  in. long, minutely rostrate, the valves flat on the back.

Hab. China and Japan. Introduced into cultivation about 1874.

74. *I. JAPONICA* Thunb. in Trans. Linn. Soc. ii. 327. *I. chinensis* Curt. in Bot. Mag. t. 373; Regel Gartenfl. t. 511. *I. fimbriata* Vent. Hort. Cels. t. 9; Red. Lil. t. 152. *Evansia chinensis* Salisb. *Isis fimbriata* Tratt.—Rhizome thick, wide-creeping, sending out slender stolons; sheaths not splitting into fibres. Leaves thin, green, ensiform,  $1-1\frac{1}{2}$  ft. long at the flowering time,  $1-1\frac{1}{2}$  in. broad at the middle. Flowering-stem as long as the leaves, bearing many heads in a regular raceme. Spathes 3-4-flowered, under an inch long; outer valves oblong, pale green; pedicels as long as the spathes, articulated at the apex. Perianth-tube  $\frac{3}{4}$  in. long; limb pale lilac, fugitive,  $1-1\frac{1}{2}$  in. long; falls obovate-cuneate,  $\frac{1}{2}-\frac{3}{4}$  in. broad, crisped towards the edge, yellow at the throat and down the haft, with a central crest and other faint ridges; standards rather shorter, oblong-unguiculate, also spreading. Style-branches  $\frac{1}{2}-\frac{3}{4}$  in. long; crests deeply fimbriated.

Hab. Japan and North China. There is a specimen in the Banksian Herbarium, dried from Kew in 1792.

#### Subgenus VI. PSEUDEVANSIA.

75. *I. GILGITENSIS* Baker.—Tufts crowded; sheaths not splitting into fibres. Leaves weak, linear, 6-9 in. long at the flowering time,  $\frac{3}{8}-\frac{1}{2}$  in. broad. Peduncle slender, 1-headed, 4-6 in. long. Spathe 2-flowered,  $1\frac{1}{2}-2$  in. long; valves lanceolate, green, with a pale margin; pedicels short. Perianth-tube under an inch long; limb bright lilac,  $1\frac{1}{2}$  in. long; falls with an oblong blade  $\frac{1}{2}$  in. broad, much shorter than the haft, which is strongly bearded; standards oblong-unguiculate. Style-branches under an inch long; crests small, deltoid.

Hab. Gilgit, alt. 12,000 ft., Dr. Giles 185! Differs from *kumaonensis* by its small fall-blades.

76. *I. GONIOCARPA* Baker in Gard. Chron. 1876, ii. 710.—Sheaths short, splitting into a few slender fibres. Leaves weak, linear, 6-8 in. long at the flowering time,  $\frac{1}{3}$  in. broad. Stem slender, 1-headed,  $\frac{1}{2}$  ft. long, bearing a single linear leaf. Spathe 1-flowered; valves lanceolate, persistent, an inch long; pedicel none, or very short. Perianth-tube  $\frac{1}{2}-\frac{3}{4}$  in. long; limb probably lilac, an inch long; falls oblong-cuneate,  $\frac{1}{2}$  in. broad, with a strong beard down the keel; standards oblong-unguiculate. Style-branches  $\frac{1}{2}$  in. long; crests large, deltoid, acute. Capsule small, oblong.

Hab. Temperate region of Sikkim, 10,000-13,000 ft., Sir J. D. Hooker! Habit of *I. nepalensis*, but falls strongly bearded.

77. *I. KUMAONENSIS* Wall. Cat. No. 5052. *I. tigrina* Jacqem. *I. Kingiana* Foster in Gard. Chron. 1887, i. 611; Baker in Bot. Mag. t. 6957.—Rhizome stout, short-creeping; tufts crowded; outer sheaths breaking up into fine fibres. Leaves linear, pale

green, moderately firm, finally a foot or more long,  $\frac{1}{2}$  in. broad. Peduncle nearly obsolete in the typical form, 1-headed. Spathes 1-flowered; valves lanceolate, ventricose, pale green, 2-3 in. long; pedicels very short. Perianth-tube 2-2 $\frac{1}{2}$  in. long; limb bright lilac, 1 $\frac{1}{2}$ -2 in. long; falls obovate-cuneate, spreading from halfway down,  $\frac{3}{4}$  in. broad, blotched with darker lilac, furnished with a beard down the haft of yellow-tipped hairs, arising from a white crest; standards erect, oblong-unguiculate, above  $\frac{1}{2}$  in. broad. Style-branches under an inch long; crests deltoid. Capsule char-  
taceous, shortly rostrate, broad-oblong, 1-1 $\frac{1}{4}$  in. long.

VAR. CAULESCENS Baker.—Peduncle 4-6 in. long. Spathes sometimes 2-flowered. Perianth-tube much shorter.

Hab. Temperate region of the Western and Central Himalayas, ascending to 12,000 ft. in Kashmir.

78. I. DUTHIEI Foster in Gard. Chron. 1887, i. 611.—Rhizome gnarled and knotty. Leaves linear, pale green, finally 2 ft. long,  $\frac{1}{2}$  in. broad. Peduncle very short, 1-headed. Spathe 1-flowered; valves lanceolate, pale green, 1 $\frac{1}{2}$  in. long. Perianth-tube 3 in. or more long; limb 2 in. long; falls obovate-cuneate, reddish lilac, with deeper veins and blotches; claw bearded; standards oblong-unguiculate, erect. Style-branches reddish lilac; crests deltoid, crenate. Capsule broad-oblong, trigonous, 1 $\frac{1}{4}$  in. long, rostrate.

Hab. Temperate region of Kumaon. Gathered by Mr. Duthie. Flowered by Professor Foster in 1887. Is it not a variety of *I. kumaonensis*?

79. I. HOOKERIANA Foster in Gard. Chron. 1887, i. 611.—Rhizome less fleshy than in *Pogoniris*. Leaves linear, 6-8 in. long at the flowering time, finally 2 ft. long,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad, pale green, not rigid. Peduncle 5-6 in. long, 1-headed; spathe-valves green, lanceolate, ventricose. Perianth-tube  $\frac{1}{2}$  in. long; limb 1 $\frac{1}{2}$ -2 in. long; falls obovate-cuneate, under an inch broad, purplish blue, with darker blotches; claw white, with violet veins and a thick beard of yellow-tipped white hairs arising from an obscure crest; standards oblong-unguiculate, erect,  $\frac{1}{2}$  in. broad. Style-branches very convex on the back; crests deltoid, coarsely serrulate. Capsule small, oblong-trigonal, rostrate.

Hab. Lahul; sent by the Moravian missionaries to Max Leichtlin. Flowered by Prof. Foster in 1887.

80. I. CLARKEI Baker.—Rhizome stout, wide-creeping; sheaths long, splitting into fine fibres. Leaves linear, moderately firm, finally 1 $\frac{1}{2}$ -2 ft. long,  $\frac{1}{2}$ - $\frac{1}{4}$  in. broad. Stem about a foot long, 1-2 headed, bearing 2-3 reduced leaves. Spathes 1-2-flowered, 2 $\frac{1}{2}$ -3 in. long; valves lanceolate, green, persistent; pedicels nearly as long as the spathe. Perianth-tube infundibuliform,  $\frac{1}{2}$  in. long; limb bright lilac, 2 in. long; falls oblong-cuneate,  $\frac{3}{4}$  in. broad, with a bright yellow throat and beard arising from a crest; standards with a small oblong blade and long slender claw. Style-branches an inch long, bright lilac; crests quadrate. Capsule oblong-trigonous, 1 $\frac{1}{2}$  in. long; valves rigid, brown, with a raised keel.

Hab. Temperate region of Sikkim, at Tenglo and Yakla, alt. 10,000 ft., Sir J. D. Hooker! Clarke! We have at Kew a coloured sketch made by Sir J. D. Hooker in 1848.

81. *I. ALBERTI* Regel Gartenfl. t. 999; Baker in Bot. Mag. t. 7020.—Rhizome stout, short-creeping. Leaves ensiform, slightly glaucous,  $1\frac{1}{2}$ -2 ft. long, above an inch broad. Stem 5-6-headed, overlapping the leaves. Spathes 2-3-flowered,  $1\frac{1}{2}$ -2 in. long; valves ovate, quite scarious at the flowering time; pedicels short. Perianth-tube under an inch long; limb bright lilac, 2 in. long; falls obovate-cuneate, under an inch broad, reflexing from halfway down; beard white tipped with yellow, springing from a rudimentary crest; standards as long as the falls, broader, orbicular-unguiculate. Deltoid crest of the stigma not reaching the top of the beard.

Hab. Turkestan. Gathered by Fetisov and Dr. Albert Regel. Introduced lately into England by Professor Foster. Habit and foliage of *I. pallida* and *germanica*, and very different from the other species of the group.

#### Subgenus VII. POGONIRIS.

82. *I. PUMILA* Linn. Sp. Plant. 56 ex parte; Curt. in Bot. Mag. t. 9; Red. Lil. t. 261; Jacq. Fl. Austr. t. 1; Reich. Ic. Fl. Germ. tab. 327, fig. 752. *I. Clusiana* Reich. Ic. Fl. Germ. tab. 328, fig. 755.—Tufts crowded on a short rhizome. Leaves linear, 2-4 in. long at the flowering time, slightly glaucous,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem none or very short, 1-headed. Spathe 1-flowered,  $1\frac{1}{2}$ -2 in. long; valves lanceolate, scarious towards the tip at the flowering time; pedicel none or very short. Flowers not fragrant. Perianth-tube green, filiform, 2-2 $\frac{1}{2}$  in. long; limb  $1\frac{1}{2}$ -2 in. long, fugitive, yellow or light or dark lilac; falls oblong-cuneate,  $\frac{3}{4}$  in. broad, reflexing from halfway down, densely bearded; standards as long, oblong-unguiculate, the same breadth as the falls. Style-branches an inch long; crests lanceolate-deltoid. Capsule oblong-trigonus, 1-1 $\frac{1}{2}$  in. long.

Hab. Central and South-eastern Europe, from Austria to the Caucasus, Greece and Asia Minor. *I. attica* Boiss. et Held.; Regel Gartenfl. t. 377, fig. 2, is a variety with falcate narrow leaves, pale yellow flowers with the divisions veined with brown-lilac on the claw; *I. cerulea* Spach (Bot. Mag. t. 1261) has bright blue flowers, with a rather shorter tube than in the type; *I. stenoloba* Herb. DC., from Moldavia, a lilac or yellow limb  $1\frac{1}{2}$  in. long, with divisions  $\frac{1}{2}$  in. broad and a tube the same length as the limb; and the Crimean *I. equiloba* Led., a short stem, narrower lilac or yellow perianth-segments, and larger stigmatic crests. I cannot distinguish from the type *I. transilvanica* Schur.

83. *I. PSEUDO-PUMILA* Tineo Cat. Hort. Panarm. 1827, 28. *I. panarmitana* Todaro.—Rhizome short, oblique, as thick as a man's finger. Leaves ensiform, glaucescent, 6-9 in. long at the flowering time,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad, narrowed suddenly to an oblique tip. Stem 1-headed, sometimes 6-8 in. long. Spathes 1-flowered, 3 in. long, quite hidden by the sheathing leaves; valves lanceolate, membranous, green, rather ventricose; pedicels short. Perianth-tube slender, 2-2 $\frac{1}{2}$  in. long; limb varying from yellow to bright lilac, 2-2 $\frac{1}{2}$  in. long; falls oblong-unguiculate,  $\frac{3}{4}$  in. broad, reflexing from halfway down, bearded down the haft; standards rather broader, oblong-unguiculate. Style-branches an inch long; crests lanceolate-deltoid,  $\frac{1}{3}$  in. long.

Hab. Mountains of Sicily, flowering from March to May. Intermediate between *pumila* and *Chamaeiris*. I cannot separate clearly a plant received through Dr. Reichenbach from the Botanic Garden of Gottingen, called "*I. valentina*."

84. *I. SUAVEOLENS* Boiss. Diagn. xiii. 15. — Stems 3-5 in. long, 1-flowered. Leaves ensiform, glaucescent, overtopping the flower, finally a foot long. Spathe of two little-inflated green acutely-keeled lanceolate valves. Flowers greenish yellow, very fragrant; tube one-third longer than the limb; segments much smaller than in *I. pumila*; falls oblong-cuneate, with a central patch of lilac-blue and a yellow beard; standards rather broader and crisped at the edge. Crests lanceolate, toothed on the outer edge.

Hab. Plains of Bulgaria. Cultivated by Boissier at Geneva.

85. *I. REGELI* Maxim. in Bull. Acad. Peters. x. 718. — Root-stock short, oblique; tufts crowded; sheaths long, brown, rigid. Leaves narrow linear, strongly veined, much overtopping the flower. Stem obsolete, 1-headed; spathe 1-flowered,  $1\frac{1}{2}$  in. long; valves rigid, green, lanceolate; pedicel short. Perianth-tube filiform, 2 in. long; limb lilac, an inch long; falls with a small oblong blade, not more than half as long as the bearded haft; standards as long as the falls, oblanceolate-unguiculate. Style-branches  $\frac{3}{4}$  in. long; crests small.

Hab. Mountains of Songaria and Turkestan. First gathered by Semenow. Very distinct. Most like *I. tenuifolia* in habit, but bearded.

86. *I. POTANINI* Maxim. in Bull. Acad. Peters. x. 721. — Rhizome short-creeping; tufts crowded; sheaths splitting up into fibres. Leaves narrow linear, two overtopping the flower, 6-8 in. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem nearly obsolete, 1-headed. Spathe 1-flowered,  $1\frac{1}{2}$  in. long; valves lanceolate, acute, lax, green, membranous; pedicel short. Perianth-tube above an inch long; limb sulphur-yellow,  $1\frac{1}{4}$  in. long; falls obovate-cuneate, densely bearded, under  $\frac{1}{2}$  in. broad; standards oblong unguiculate,  $\frac{3}{4}$ - $\frac{1}{2}$  in. broad. Style-branches  $\frac{3}{4}$  in. long; crests deltoid-acuminate.

Hab. Eastern Siberia and Mongolia. Is in the Smithian Herbarium, from Pallas, labelled "*pumila*."

87. *I. CHAMÆIRIS* Bertol. Fl. Ital. iii. 609. *I. pumila* Linn. Herb. ! *I. lutescens* Red. Lil. t. 263, non Lam. — Rhizome stout, short-creeping. Leaves ensiform, pale green, 3-4 in. long at the flowering time,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Peduncle very short, 1-headed. Spathe 1-flowered,  $1\frac{1}{2}$ -2 in. long; valves lanceolate, ventricose, entirely green or scarious towards the tip at the flowering time; pedicel very short. Flowers not fragrant. Perianth-tube greenish, about an inch long, funnel-shaped in the upper half; limb bright yellow; falls obovate-cuneate, an inch broad, with a dense yellow beard and haft tinged and veined with brown; standards as long and broad, oblong-unguiculate. Style-branches an inch long; crests deltoid. Capsule oblong-trigonous,  $1\frac{1}{2}$  in. long, narrowed to the point.

Var. *I. ITALICA* Parl. Fl. Ital. iii. 185. — Stature and foliage of the type, but limb dark violet.

Var. I. *OLBIENSIS* Henon in Ann. Soc. Agric. Lyon, viii. 462, with figure; Hook. fil. in Bot. Mag. t. 6110.—More robust, with broader leaves, dark violet flowers and stem sometimes 6–9 in. long.

Hab. North Italy and the South of France to Dalmatia and the Banat. Was included under *pumila* by Linneus and many of the older authors. It flowers with us late in April.

88. I. *TIGRIDIA* Bunge in Led. Fl, Alt. i. 60; Led. Ic. t. 342.—Rhizome short-creeping; tufts crowded; root-fibres long, cylindrical; sheaths splitting into copious fibres. Leaves firm, narrow, linear, erect, strongly ribbed, 3–4 in. long. Stem nearly obsolete, 1-headed. Spathe 1-flowered, 1–1 $\frac{1}{4}$  in. long; valves lanceolate, greenish or subscarious; pedicel short. Perianth-tube slender, an inch long; limb bright lilac, 1 $\frac{1}{4}$  in. long; falls oblong-unguiculate,  $\frac{1}{2}$  in. broad, densely bearded, reflexing from halfway down; standards as long, oblong-unguiculate. Style-branches lilac,  $\frac{3}{4}$  in. long; crests lanceolate-deltoid, acuminate.

Hab. Altai, Eastern Siberia and Mongolia.

89. I. *GRACILIS* Maxim in Bull. Acad. Peters. x. 720.—Rhizome oblique; tufts cæspitose; root-fibres slender; sheaths short, fibrellose. Leaves narrow linear, grass-like, shorter than the stem. Stem 1-headed, a foot long. Spathe short, 1-flowered; valves oblong-lanceolate, acute, green; pedicel obsolete. Perianth-tube shorter than the ovary; limb pale blue; falls obovate-oblong, with a yellow beard; standards oblong with a short claw, shorter than the falls, emarginate. Style-crests half-deltoid.

Hab. Western China, in the province of Kansui. Collected by Przewalski in 1873. Habit and leaves of *I. nepalensis*.

90. I. *MEDA* Stapf Bot. Polak. 20; Baker in Bot. Mag. t. 7040.—Rhizome more slender than in *I. pumila*; sheaths splitting up into fibres. Leaves linear, glaucous, not rigid, 4–5 inches long at the flowering time,  $\frac{3}{8}$  in. broad. Stem 1-headed, 4–5 in. long. Spathe 1-flowered, 2–2 $\frac{1}{2}$  in. long; valves green, lanceolate, acutely keeled; pedicel short. Perianth-tube cylindrical, green, under an inch long; falls obovate-cuneate, 2 in. long, above  $\frac{1}{2}$  in. broad, reflexing from halfway down, greenish yellow, with a brown centre, with copious brown veins and a dense yellow beard; standards as long and nearly as broad, oblong-unguiculate. Style-branches an inch long; crests small, deltoid.

Hab. Persia. Discovered by Polak in 1882 and brought to Vienna. Introduced into England by Dr. Foster in 1888.

91. I. *POLAKII* Stapf in Bot. Polak, 20.—Rhizome very short. Leaves narrow, linear, as long as the stem. Stem 1-headed, 3–4 in. long. Spathe 1-flowered, 2 in. long; valves pale, lanceolate; pedicel short. Perianth-tube  $\frac{1}{2}$  in. long; falls obovate-cuneate, 2 in. long, an inch broad, deflexed from below the middle, with a dark violet beard and dark violet spot above it; falls oblong-unguiculate, rather shorter than the standards, lilac veined with violet. Style-branches an inch long; crests deltoid.

Hab. Persia; at Haideri, alt. 8000—9000 ft. *Polak*. Differs from *I. Chamæiris* by its linear leaves.

92. *I. ARENARIA* Waldst. & Kit, Pl. Rar. Hung. t. 57; Red. Lil. t. 296; Lindl. in Bot. Reg. t. 549; Reich. Ic. Fl. Germ. tab. 380, fig. 757.—Rhizome much branched, cylindrical, wide-creeping, so that the tufts are non-contiguous; sheaths not splitting into fibres. Leaves few in a tuft, linear, moderately firm, 3-4 in. long at the flowering time,  $\frac{1}{4}$ - $\frac{1}{8}$  in. broad. Peduncle very short, 1-headed. Spathe 1-2-flowered; valves oblong or lanceolate, green, ventricose,  $\frac{1}{2}$ - $1\frac{1}{4}$  in. long; pedicel as long as the ovary. Perianth-tube  $\frac{1}{2}$  in. long; limb bright yellow,  $1-1\frac{1}{4}$  in. long; falls oblong-cuneate,  $\frac{1}{2}$ - $\frac{1}{4}$  in. broad, reflexing from halfway down; beard bright yellow; standards rather shorter and narrower than the falls. Style-branches  $\frac{1}{2}$  in. long; crests lanceolate. Capsule oblong-trigonus, an inch long.

Hab. Hungary, Transylvania and the South of Russia, growing in dry sand. Very distinct. It forms the section *Psammiris* of Spach.

93. *I. FLAVISSIMA* Pallas Iter. iii. 715; Jacq. Ic. t. 220.—Rhizome moderately stout, short-creeping; tufts crowded; sheaths splitting into fibres. Leaves thin, linear, 4-8 in. long at the flowering time,  $\frac{1}{4}$ - $\frac{1}{3}$  in. broad. Stem 1-headed, 1-6 in. long. Spathe 1-2-flowered,  $1-1\frac{1}{2}$  in. long; valves oblong or lanceolate, ventricose, green with a scariose edge; pedicel as long as the ovary. Perianth-tube  $\frac{1}{2}$  in. long; limb bright yellow,  $1-1\frac{1}{2}$  in. long; falls oblong-cuneate,  $\frac{1}{2}$ - $\frac{1}{4}$  in. broad, reflexing from halfway down; beard bright yellow; standards rather shorter, oblong-unguiculate,  $\frac{1}{2}$  in. broad. Style-branches  $\frac{1}{4}$ - $\frac{1}{4}$  in. long; crests deltoid.

Var. *I. BLODOVII* Led. Fl. Alt. iii. 381; Ic. t. 101.—More robust, with broader leaves, a longer stem and larger flowers.

Hab. Siberia and Mongolia, ascending to 6000 ft. on the mountains of Turkestan.

94. *I. PANDURATA* Maxim. in Bull. Acad. Peters. x. 723.—Root-stock slender; radical fibres a span long; tufts crowded; sheaths hyaline, not splitting into fibres,  $1\frac{1}{2}$  in. long. Leaves green, not rigid, linear, 4-5 in. long. Stem 1-headed, shorter than the leaves. Spathe 2-flowered,  $1\frac{1}{2}$  in. long; valves lanceolate-acuminate; pedicels obsolete. Perianth-tube half as long again as the ovary, which is  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; limb blue, above an inch long; falls ovate-oblong, shortly unguiculate, bearded with yellow; standards shorter, panduriform, emarginate. Style-branches nearly an inch long; crests oblique, ovate, acute.

Hab. West China; province of Kansui, *Przewalski*.

95. *I. STOLONIFERA* Maxim. in Bull. Acad. Petersb. x. 732.—Rhizome very short, bearing long fusiform root-fibres and stolons from its neck; sheaths splitting up into a few fine fibres. Leaves linear, pale green, moderately firm, about a foot long at the flowering time,  $\frac{1}{4}$ - $\frac{1}{4}$  in. broad. Stem 1-headed,  $\frac{1}{2}$ -1 ft. long. Spathe 1-2-flowered, about 2 in. long; valves pale green, membranous, lanceolate; pedicels very short. Perianth-tube an inch long; limb pale or dark lilac;  $1\frac{1}{2}$ -2 in. long; falls obovate-cuneate, nearly an inch

broad, with a densely-bearded haft; standards shorter and narrower. Style-branches an inch long; crests deltoid, crenate. Capsule elliptico-hexagonal.

Hab. Mountains of Turkestan, alt. 2500—7000 ft., *Dr. A. Regel*.

96. *I. LONGISCAPA* Ledeb. Fl. Ross. iv. 93. *I. filifolia* Bunge.—Rhizome short; tufts crowded; inner sheaths membranous, outer splitting into fibres. Leaves slender, subterete, moderately firm,  $\frac{1}{2}$  ft. long, sometimes falcate. Stem slender, 1-headed, 3–6 in. long. Spathe 1–2-flowered; valves lanceolate, scariose towards the tip at the flowering time; pedicels very short. Perianth-tube an inch long; limb pale lilac-blue, as long as the tube; falls with a bearded oblong blade  $\frac{1}{3}$  in. broad, much shorter than the haft; standards oblanceolate-unguiculate; claw faintly bearded. Style-branches  $\frac{1}{4}$  in. long; crests lanceolate-deltoid.

Hab. Central Asia; from the shores of the Caspian to Turkestan, where it ascends the mountains to 10,000 ft.

97. *I. FALCIFOLIA* Bunge, Rel. Lehm. 329. — Rhizome short-creeping; tufts crowded; inner sheaths membranous; outer splitting into fine fibres. Leaves narrow linear, moderately firm, falcate, 6–9 in. long,  $\frac{1}{2}$  in. broad. Stem 1-headed, 6–9 in. long. Spathes 1–3-flowered, 1–1 $\frac{1}{2}$  in. long; valves lanceolate, scariose towards the edge and tip at the flowering time; pedicels none or very short. Perianth-tube 1–1 $\frac{1}{2}$  in. long, narrowly funnel-shaped in the upper third; limb 1–1 $\frac{1}{2}$  in. long, pale lilac-blue; falls with an oblong blade  $\frac{1}{2}$  in. broad, much shorter than the bearded haft; standards oblanceolate-unguiculate, with a faintly bearded claw. Style-branches  $\frac{1}{4}$ –1 in. long; crests large, lanceolate-deltoid. Capsule oblong, acutely angled, 1–1 $\frac{1}{2}$  in. long.

Hab. Central Asia, Beluchistan and Afghanistan. Gathered lately abundantly by Dr. Aitchison. Nearly allied to *I. nepalensis* and *goniocarpa*, although the three species, in the classification here followed, fall in three different groups.

98. *I. RUBROMARGINATA* Baker in Gard. Chron. 1875, i. 524.—Rhizome stout, short-creeping; tufts crowded. Leaves ensiform, green with a red margin, falcate, 2–4 in. long at the flowering time,  $\frac{1}{2}$ – $\frac{1}{4}$  in. broad. Peduncle very short, 1-headed. Spathes 1–2-flowered, 2–3 in. long; valves lanceolate, green, membranous, acutely keeled, tinged with red on the keel and margin; pedicel very short. Perianth-tube very slender, greenish, 1 $\frac{1}{2}$ –2 in. long; limb yellow or lilac, 2–2 $\frac{1}{2}$  in. long; falls obovate-cuneate,  $\frac{1}{4}$  in. broad, reflexing from halfway down, densely bearded; standards as long, obovate-unguiculate, an inch broad. Style-branches an inch long; crests small, deltoid.

Hab. Scutari, *Barbey*! Troy, *Sintenis* 388! Mountains of Central Asia Minor, *Mrs. Danford*! Described from living plants sent by Leichtlin in April, 1875. Near *I. pumila*, but fragrant.

99. *I. MELLITA* Janka, Adat. Erd. 272.—Rhizome stout, oblique. Leaves ensiform, falcate, about as long as the stem. Stem 3–4 in. long, 1-headed. Spathe 2-flowered, 3 in. long; valves green, lanceolate, acutely keeled; pedicel short. Perianth-tube as long as



the limb; limb dark lilac, 2 in. long; falls obovate-cuneate,  $\frac{3}{4}$ -1 in. broad; beard blue; standards obovate-unguiculate, as long and as broad as the falls. Style-branches an inch long; crests deltoid.

Hab. Northern Thrace, near Phillipolis. Described from a specimen gathered by Janka, lent to me by Leichtlin.

100. I. BALKANA Janka, Adat. Erd. 173. — Rhizome stout, oblique; tufts crowded. Leaves ensiform, glaucescent, 3-4 in. long at the flowering time. Stem 6-9 in. long, 1-headed. Spathes 1-2-flowered, 2 in. long; valves lanceolate, green; pedicel short. Perianth-tube an inch long; limb dark claret-lilac,  $2\frac{1}{2}$ -3 in. long; falls obovate-cuneate,  $1-1\frac{1}{2}$  in. broad, reflexing from low down, the dense white beard tipped with lilac; standards erect, oblong-unguiculate,  $1\frac{1}{2}$  in. broad, the same colour. Style-branches an inch long; crests deltoid.

Hab. Balkans. Sent alive to Kew by Leichtlin in 1878. Flowers early in May.

101. I. ATROVIOLACEA Lange in Bot. Tids. 1882, 18.—Rhizome stout, short-creeping. Leaves ensiform, very glaucous, a foot long at the flowering time,  $\frac{3}{4}$ -1 in. broad. Stem 1-headed, about as long as the leaves. Spathes 2-3-flowered; valves oblong, ventricose,  $1-1\frac{1}{2}$  in. long, entirely scariose at the flowering time; pedicel very short. Flowers dark violet, very fragrant. Perianth-tube under an inch long; falls obovate-cuneate, 3 in. long,  $1\frac{1}{2}$  in. broad, reflexing from halfway down; beard white, tipped with yellow; standards as long, orbicular-unguiculate, 2 in. broad. Style-branches above an inch long; crests deltoid.

Hab. Known only in cultivation. Probably a hybrid between *Chanæiris* and *pallida*. Flowers with us late in May.

102. I. MANDSHURICA Maxim. in Bull. Acad. Peters. x. 724.—Rhizome short-creeping; sheaths not split into fibres. Leaves ensiform, green,  $\frac{1}{2}$  ft. long,  $\frac{1}{2}$  in. broad. Stem very short, 1-headed. Spathe 2-flowered,  $1\frac{1}{2}$  in. long; valves lanceolate, green, with a scariose edge; pedicel short. Perianth-tube  $\frac{1}{2}$  in. long; limb yellow; falls obovate-cuneate, truncate,  $1\frac{1}{2}$ -2 in. long,  $\frac{1}{2}$  in. broad; beard yellow; standards shorter, rather narrower. Style-branches above an inch long; crests obtuse, dentate.

Hab. Southern Manchuria, flowering late in May, *Guldenstadt*. Near *I. flavissima*.

103. I. SCARIOSA Willd. in Spreng. Schrad. & Link Jahrb. iii. 71. *1. glaucescens* Bunge in Ledeb. Fl. Alt. i. 58; Ledeb. Ic. t. 102.—Rhizome short-creeping, as thick as a man's finger; tufts crowded; sheaths fibrous. Leaves ensiform, glaucescent,  $\frac{1}{2}$ -1 ft. long at the flowering time,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad, the outer falcate. Peduncle 1-headed, 2-6 in. long. Spathes 2-3-flowered, 2-2 $\frac{1}{2}$  in. long; valves green, lanceolate, membranous; pedicel very short. Perianth-tube greenish,  $1\frac{1}{2}$ -2 in. long; limb yellow or lilac, 2 in. long; falls obovate-unguiculate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, reflexing from halfway down, densely bearded; standards as long and as broad. Style-branches

an inch long; crests lanceolate-deltoid. Capsule oblong-trigonal, 2 in. long, narrowed gradually to the point.

Var. *I. EULEFELDI* Regel Gartenfl. t. 954; Baker in Bot. Mag. t. 6902.—More robust, with stem about a foot long, larger lilac flowers and broader leaves.

Hab. Siberia; from the Caspian to Songaria, Turkestan and Mongolia. Flowers with us late in May.

104. *I. GRIFFITHII* Baker.—Rhizome nearly an inch thick. Leaves ensiform, 6–9 in. long at the flowering time,  $\frac{1}{2}$ – $\frac{3}{4}$  in. broad. Stems slender, 1-headed, 3–4 in. long. Spathe 2-flowered; valves lanceolate, membranous, green to the top, 3–8 in. long; pedicel obsolete. Perianth-tube slender, 2 in. long; limb  $1\frac{1}{2}$ –2 in. long, dark lilac; falls oblong-cuneate, under an inch broad, bearded more than halfway up; standards oblong-unguiculate.

Hab. Afghanistan; Kaffiristan, *Griffith* 5904! Allied to *I. scariosa*. Another Afghan plant collected by Griffith (5915, ex parte) has a 2-inch tube, much longer stems, and green acute spathe-valves  $2\frac{1}{2}$ –3 in. long.

105. *I. DARWASICA* Regel Descr. x. 39.—Rhizome stout; sheaths splitting into fibres. Leaves rigid, narrowly ensiform, as long as the stem,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem 1-headed. Spathe 2-flowered, oblong, scariose above the base; pedicels obsolete; white flower 3– $3\frac{1}{2}$  in. long. Perianth-tube longer than the ovary; limb violet-brown, with deeper-coloured veins; segments subequal, obovate, the outer bearded.

Hab. Eastern Bokhara, alt. 7000 ft. Discovered by Dr. Albert Regel in 1883.

106. *I. VIRESCENS* DC. in Red. Lil. t. 925.—Rhizome stout, short-creeping. Leaves ensiform, slightly glaucous, 8–9 in. long at the flowering time,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem 1-headed, 9–12 in. long; bearing about 2 reduced leaves. Spathe 1–2-flowered, 2– $2\frac{1}{2}$  in. long; valves oblong, ventricose, membranous, green with a scariose edge and tip at the flowering time; pedicel very short. Perianth-tube about an inch long; limb 2– $2\frac{1}{2}$  in. long; falls obovate-cuneate,  $\frac{3}{4}$ –1 in. broad, reflexing halfway down, greenish-yellow, veined on the haft with dull purple; beard bright yellow; standards as long and broad, obovate-unguiculate, dull yellow. Style-branches an inch long; crests lanceolate-deltoid, acute, serrulate.

Hab. Valais, near Sion, *Gay! Boissier!* Flowers fugitive, appearing at the end of April. Janka refers here the Transylvanian *I. binata* Schur.

107. *I. REICHENBACHIANA* Heuff. (Ester. Bot. Zeit. 1858, 28.—Rhizome short, stout. Leaves ensiform, 6–8 in. long at the flowering time,  $\frac{3}{4}$  in. broad. Stem slender, 1-headed, nearly a foot long. Spathe very ventricose, 2 in. long; valves oblong, subscariose at the flowering season. Perianth bright pale yellow; tube reaching to the top of the spathe; limb 2 in. long; falls obovate-cuneate, about an inch broad, with a bright yellow beard; standards as long and broad. Style-branches above an inch long; crests small.

Hab. Servia, *Ilitsch!* Flowers in May. Allied to *lutescens*.

108. *I. LUTESCENS* Lam. Encyc. iii. 297; Bot. Mag. t. 2861; Reich. Ic. Germ. t. 329, fig. 756.—Rhizome stout, short-creeping, Leaves ensiform, slightly glaucous, 6–9 in. long at the flowering time,  $\frac{1}{2}$ –1 in. broad. Stem 1-headed, about as long as the leaves. Spathes 2-flowered, 2–2½ in. long; valves oblong or oblong-lanceolate, green or subscariose at the flowering time; pedicels very short. Perianth-tube greenish yellow, an inch long; limb pale yellow, 2–2½ in. long; falls obovate-cuneate,  $\frac{3}{4}$ –1 in. broad, reflexing from halfway down; beard bright yellow; standards broader, narrowed suddenly to the claw. Style-branches above an inch long; crests subquadrate, toothed.

Var. *I. STATELLÆ* Todaro Hort. Bot. Panorm. t. 6.; Baker in Bot. Mag. t. 6894.—Spathe-valves shorter, less pointed and more scariose. Perianth-segments broader. Sicily.

Hab. The type the South of France, where I cannot draw any definite line between it and *Chamaeiris*. It flowers with us early in May.

109. *I. BIFLORA* Linn. Sp. Plant. 56. *I. subbiflora* Brotero Fl. Lusit. t. 98. *I. fragrans* Salisb. *I. nudicaulis* Bot. Mag. t. 5806, non Lam.—Rhizome stout, short-creeping. Leaves ensiform, rather glaucous, 6–9 in. long at the flowering time,  $\frac{1}{2}$ –1 in. broad. Stem 1-headed,  $\frac{1}{2}$ –1 ft. long. Spathe 2-flowered, 2–2½ in. long; valves oblong, green or subscariose at the flowering time, ventricose; pedicel very short. Flowers fragrant. Perianth-tube an inch long; limb bright violet-purple, 2–2½ in. long; falls obovate-cuneate, an inch broad, reflexing from halfway down; beard bright yellow; standards orbicular-unguiculate, 1½–1¾ in. broad. Style-branches above an inch long; crests deltoid. Capsule oblong, obtusely angled, 1–1½ in. long.

Hab. Portugal and North Morocco. Flowers with us late in April.

110. *I. BURNATI* Baker.—Rhizome stout. Leaves ensiform, above a foot long at the flowering time,  $\frac{3}{4}$  in. broad. Stem 1-headed, 1–2 ft. long, bearing about 2 reduced leaves. Spathe 2-flowered, 2 in. long; valves oblong, entirely scariose at the flowering time; pedicel short. Perianth-tube an inch long, funnel-shaped in the upper half; limb 2½ in. long, bright violet-purple; falls obovate-cuneate, under an inch broad, reflexing from halfway down, densely bearded; standards as long, oblong-unguiculate, an inch broad. Style-branches above an inch long; crests deltoid.

Hab. Maritime Alps, on rocks below Eza. Collected in full flower by Messrs. Burnat & Townsend, Feb. 28, 1872. Between *biflora* and *pallida*.

111. *I. APHYLLA* Linn. Sp. Plant. 56. *I. nudicaulis* Lam.; Reich. Ic. Germ. tab. 331, fig. 758, non Bot. Mag. *I. bohémica* Schmidt. *I. hungarica* Waldst. & Kit. Pl. Rar. Hung. t. 226. *I. biflora* Reich. Ic. Fl. Germ. tab. 332, fig. 759, non Linn. *I. biflora* Host. *I. furcata* M.B. Fl. Taur. iii. 42; Bot. Mag. t. 2361; Bot. Reg. t. 801. *I. falcata* and *Clusiana* Tausch. *I. Fieberi* Siedl. *I. rigida* and *subbiflora* Fieber.—Rhizome stout, short-creeping. Leaves ensiform, glaucescent,  $\frac{1}{2}$ –1 ft. long at the flowering time, under an inch broad. Stems  $\frac{1}{2}$ –1 ft. long, usually more than 1-headed, sometimes forked low down. Spathes 1–2-

flowered,  $1\frac{1}{2}$ -2 in. long; valves oblong or oblong-lanceolate, greenish at the flowering time; pedicels very short. Perianth-tube cylindrical,  $\frac{3}{4}$ -1 in. long; limb dark lilac, 2-2 $\frac{1}{2}$  in. long; falls obovate-cuneate, about an inch broad, reflexing from halfway down; beard white; standards unguiculate, a little broader than the falls. Style-branches an inch long; crests deltoid.

Hab. Eastern Europe, from Hungary and Silesia to the Caucasus.

112. I. CIENGIALTI Ambrosi Fl. Tyrol, i. 648. — Rhizome stout, short-creeping. Leaves ensiform, glaucous,  $\frac{1}{2}$  ft. long at the flowering time,  $\frac{1}{4}$  in. broad. Stem about as long as the leaves, 1-3-headed. Spathes 2-flowered, about an inch long; valves ovate or oblong, entirely scarious at the flowering time; pedicel obsolete or very short. Perianth-tube  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; limb bright lilac, 2 in. long; falls obovate-cuneate, 1-1 $\frac{1}{4}$  in. broad, reflexing from halfway down; beard bright yellow; standards as long and as broad, orbicular-unguiculate. Style-branches an inch long; crests deltoid, denticulate.

Hab. Lombardy and South Tyrol. On this and its allies see a paper by Professor Foster in Gard. Chron. 1886, i. 554, 586.

118. I. VARIEGATA Linn. Sp. Plant. 56; Jacq. Fl. Austr. t. 5; Curt. Bot. Mag. t. 16; Red. Lil. t. 292; Reich. Ic. Fl. Germ. tab. 884, fig. 761.—Rhizome stout, short-creeping. Leaves ensiform, slightly glaucous, 1-1 $\frac{1}{2}$  ft. long, an inch broad. Stem about as long as the leaves, 3-4-headed. Spathes 2-3-flowered, 1 $\frac{1}{4}$ -1 $\frac{1}{2}$  in. long; valves oblong, very ventricose, greenish or subscarious when the flowers expand; pedicels very short. Perianth-tube yellowish green, cylindrical,  $\frac{3}{4}$ -1 in. long; limb 2 in. long; falls oblong-cuneate, under an inch broad, claret-brown towards the tip, the centre much veined with brown on a yellow ground, the haft entirely yellow; beard bright yellow; standards oblong-unguiculate, bright yellow, only the claw veined with brown. Style-branches yellow, an inch long; crests oblong-deltoid, denticulate.

Hab. Austria, Turkey and South Russia. Long cultivated and connected in gardens with *squalens* by various intermediates.

114. I. MOGGRIDGEI Baker.—Rhizome stout. Leaves ensiform, a foot long at the flowering time,  $\frac{3}{4}$  in. broad. Stem a little overtopping the leaves, 1-headed, or bearing a second sessile head a short space below the end one. Spathes 1-2-flowered, 2 in. long; valves oblong, scarious at the flowering time; pedicel short. Perianth-tube an inch long; limb yellow, 2 $\frac{1}{2}$  in. long; falls oblong-cuneate, about an inch broad, reflexing from halfway down, densely bearded; standards the same length and breadth. Style-branches above an inch long; crests deltoid.

Hab. Maritime Alps; valley of the Loup river. Described from a plant, cultivated at Cannes, in the herbarium of the late J. T. Moggridge, F.L.S., author of 'Contributions to the Flora of Mentone.' It flowers in the middle of March and was called *I. parnassiana* Ker, by the son of that botanist. Intermediate between *Chamæiris* and *pallida*.

115. I. LURIDA Ait. Hort. Kew, 68; Bot. Mag. t. 986, non 669; Red. Lil. t. 418.—Rhizome stout, short-creeping. Leaves ensiform,

a foot long, slightly glaucous. Stem 3-4-headed, not much overtopping the leaves. Spathes 2-3-flowered,  $1\frac{1}{2}$ -2 in. long; valves very ventricose, green at the flowering time; pedicel very short. Perianth-tube greenish, cylindrical, an inch long; limb 2-2 $\frac{1}{2}$  in. long; falls obovate-cuneate, an inch broad, reflexing from halfway down, a plain dead purple at the top, the lower half veined with dull purple on a yellowish ground; beard bright yellow; standards rather broader, dull purple. Style-branches an inch long; crests deltoid.

Hab. South-east of Europe. Is connected with *squalens* by intermediate garden forms. Var. *I. Redouteana* Spach, has a more slender taller stem and a bright claret-purple flower.

116. *I. BENACENSIS* Kerner; Stapf in Verh. Zool. Bot. Wien 1887, 649.—Leaves ensiform, about a foot long. Stem about as long as the leaves, 3-headed; outer spathe-valves lanceolate, herbaceous, tinged with purple, scarious at the tip when flowering. Perianth-tube longer than the ovary; limb dark violet; falls with an obovate blade or haft veined with brown-violet, and a yellow-white beard; standards oblong-unguiculate, bright violet. Crests of the stigma deltoid. Capsule oblong-cylindrical.

Hab. South Tyrol, on calcareous rocks over Arco. Gathered and introduced into cultivation at Vienna by Kerner.

117. *I. KOCHII* Kerner; Stapf in Verh. Zool. Bot. Wien 1887, 649.—Leaves ensiform, subglaucous. Stems 12-15 in. long, 3-4-headed, about as long as the leaves; spathe-valves lanceolate, only the outermost herbaceous at flowering time. Perianth-tube longer than the ovary; limb dark violet; falls with an obovate blade, a haft veined with brown, and a yellow beard; standards obovate-unguiculate. Crests of style obovate-deltoid. Capsule oblong-trigonal.

Hab. Istria, near Trieste and Rovigno. Sent by Tommasini to the Vienna Botanic Garden in 1871.

118. *I. FLAVESCENS* DC. in Red. Lil. t. 375; Sweet Brit. Flow. Gard. ser. 2, t. 56; Reich. Ic. Crit. t. 921. *I. imbricata* Lindl. in Bot. Reg. 1845, t. 35. *I. sulphurea* K. Koch.—Rhizome stout, short-creeping. Leaves ensiform, glaucous, 12-15 in. long at the flowering time, about an inch broad. Stem 3-4-headed, 2-3 ft. long. Spathes 2-3-flowered; valves oblong, subscarious, imbricated, not more than  $1-1\frac{1}{2}$  in. long; pedicel very short. Perianth-tube cylindrical, under an inch long; limb bright lemon-yellow,  $2\frac{1}{2}$  in. long; falls obovate-cuneate, above an inch broad, reflexing from halfway down; beard deeper yellow; standards obovate-unguiculate, rather broader, pale yellow. Style-branches above an inch long; crests deltoid.

Hab. Bosnia and the Caucasus and Armenia. Flowers with us late in May. Not scented.

119. *I. SORDIDA* Willd. Suppl. Enum. Hort. Berol. i. 4, non Retz.—Habit and leaves of *I. lutescens*. Stem 2-headed, overtopping the leaves. Spathes 2-flowered,  $1\frac{1}{4}$ - $1\frac{3}{4}$  in. long; valves lanceolate, green at the flowering time; pedicel short. Perianth-

tube greenish, cylindrical, 1-1½ in. long; limb sulphur-yellow, above 2 in. long; falls with an oblong blade as long as the haft, both copiously veined with claret-purple; beard bright yellow; standards as long, oblong-cuneate, ¾ in. broad. Style-branches an inch long; crests deltoid-cuspidate.

Hab. Known in cultivation only. Described from a drawing made from a plant that flowered at Kew, May 12, 1830. Between *I. lutescens* and *flavescens*.

120. *I. SQUALENS* Linn. Sp. Plant. 56; Bot. Mag. t. 787; Jacq. Fl. Austr. t. 5; Reich. Ic. Crit. t. 993; Ic. Fl. Germ. t. 336, fig. 763. *I. lepida* Heuffel.—Rhizome stout, short-creeping. Leaves ensiform, glaucous, 1-1½ ft. long, 1-1½ in. broad. Stems 3-4-headed, 2-3 ft. long. Spathes 2-3-flowered, 1½-2 in. long; valves oblong, subscariose; pedicel short. Perianth-tube under an inch long; limb 2½-3 in. long; falls obovate-cuneate, reflexing from halfway down, the upper part plain bright lilac-purple, the claw veined with lilac-purple on a whitish or yellowish ground; beard bright yellow; standards obovate-unguiculate, as long and as broad as the falls, plain dull lilac and yellow or brownish and yellow. Style-branches above an inch long; crests deltoid.

Hab. Central Europe to the Caucasus and North Persia. Flowers with us late in May, and has a faint scent like that of elder. Includes a large number of the forms of the German Iris of cultivators.

121. *I. SAMBUCINA* Linn. Sp. Plant. 55; Jacq. Hort. Vind. t. 2; Curt. in Bot. Mag. t. 187; Reich. Ic. Fl. Germ. t. 335, fig. 762.—Very near *I. squalens*, from which it differs by its less robust habit, narrower perianth-segments, falls coloured and veined with claret-, not lilac-purple, conspicuously emarginate standards and more decided elder-like scent.

Hab. Central Europe to the Caucasus and Armenia. Flowers with us late in May.

122. *I. NEGLECTA* Horn. Hort. Hafn. i. 55; Bot. Mag. t. 2435.—Rhizome stout, short-creeping. Leaves ensiform, slightly glaucous, purple at the base, 12-15 in. long, 1-1½ in. broad. Stems 3-4-headed, 1½-2 in. long. Spathes 2-3-flowered; valves oblong, 1-1½ in. long, green in the lower part at the flowering time, much tinged with purple; pedicel very short. Perianth-tube greenish, under an inch long; limb 2 in. long; falls obovate-cuneate, 1-1½ in. broad, the tip bright lilac, the haft much striped with lilac on a white ground; beard bright yellow; standards as long and as broad, bright light lilac. Style-branches an inch long; crests deltoid.

Hab. Known only in cultivation. Flowers at the beginning of June. Not scented. A living plant received at Kew from Dr. Lange under the name of *I. Corygei*, differs from *neglecta* by its green leaves, orbicular spathe-valves an inch long, and falls pale lilac towards the tip, and veined on the haft with drab-yellow on a white ground. Both are doubtless derived from *I. squalens*.

123. *I. HYBRIDA* Retz. Obs. Bot. iv. 6. *I. amœna* DC. in Red. Lil. t. 336; Sweet Brit. Flow. Gard. ser. 2, t. 165.—Differs from *neglecta* by its rather longer spathe-valves, falls pure white or faintly tinged with lilac and white style-branches.

Hab. Known in cultivation only. Flowers early in June. Has no decided scent.

124. *I. GERMANICA* Linn. Sp. Plant. 55; Bot. Mag. t. 670; Red. Lil. t. 309; Reich. Ic. Crit. t. 924; Ic. Fl. Germ. t. 338, fig. 565. — Rhizome stout, short-creeping. Leaves ensiform, glaucous, 1-1½ ft. long, 1-1½ in. broad. Stem 3-4-headed, 2-3 ft. long. Spathes 2-3-flowered, 1½-2 in. long; valves oblong-lanceolate, tinged with purple, green in the lower half at the flowering time; pedicels short. Perianth-tube cylindrical, greenish, an inch long; limb 2½-3 in. long; falls obovate-cuneate, dark violet-purple, 1-1½ in. broad, reflexing from halfway down; beard bright yellow; standards as long and as broad as the falls, bright lilac, obovate-unguiculate. Style-branches above an inch long; crests deltoid. Capsule oblong-trigonal, 1½-2 in. long.

Hab. Central and Southern Europe. Is quite hardy in English gardens. It flowers early in May and the flowers are not fragrant. The principal garden varieties are 1, flowers white; claws veined with lilac; 2, standards as dark purple as the falls; 3, standards sky-blue; 4, stem not overtopping the leaves.

125. *I. DEFLEXA* Knowles & West. Floral Cab. ii. 19, t. 51. *I. nepalensis* Wall. in Lindl. Bot. Reg. t. 818, non D. Don. — Rhizome stout. Leaves ensiform, glaucous, 1-1½ ft. long, 1-1½ in. broad. Stem 3-5-headed, overtopping the leaves. Spathes 2-3-flowered, 1½-2 in. long; valves scarious in the upper half at the flowering time. Perianth-tube cylindrical, an inch long; limb 2-3 in. long; falls obovate-cuneate, dark purple, reflexing from halfway down, 1-1½ in. broad; beard bright yellow; standards obovate-unguiculate, bright lilac, as long and as broad as the falls. Style-branches above an inch long; crests deltoid.

Hab. Temperate region of the Himalayas; Kashmir, Kumaon, &c. Not certainly wild there. Flowers fragrant. Intermediate between *I. germanica* and *pallida*.

126. *I. BILIOTTI* Foster in Gard. Chron. 1887, v. 738. — Rhizome as in *I. germanica*. Leaves darker green, more distinctly striated and more rigid. Stem several-headed, 2½-3 ft. long. Spathes 2-3-flowered, 3 in. long, ventricose, scarious only towards the tip at the flowering time; pedicel very short. Perianth-tube ½ in. long; falls obovate-cuneate, 3-3½ in. long, 1½ in. broad, reddish purple with many dark veins; beard white, tipped with yellow; standards as long, orbicular-unguiculate, 2 in. broad, bright blue-purple. Style-branches 1½ in. long; crests deltoid. Capsule ellipsoid, 2½ in. long, deeply 6-grooved.

Hab. Trebizond. Received alive by Dr. Foster from Consul Biliotti. Very near *I. germanica*. Flowers with us in June.

127. *I. CYPRIANA* Foster & Baker in Gard. Chron. 1888, ii. 182. — Nearly allied to *I. pallida*, from which it differs by its longer, more oblong-navicular spathe-valves, not entirely scarious at the flowering time, rather longer perianth-tube and more obovate perianth-segments of both rows. Style-branches longer and crests larger. Flowers fragrant, bright lilac, 6-7 in. diam. when expanded.

Hab. Cyprus. Sent alive to Kew by Mrs. Kenyon. Flowers late in June.

128. *I. BARTONI* Foster in Gard. Chron. 1883, xix. 275; Baker

in Bot. Mag. t. 6869.—Rhizome stout, short-creeping. Leaves ensiform, pale green,  $1\frac{1}{2}$  ft. long,  $1\frac{1}{2}$ –2 in. broad. Stem overtopping the leaves, usually once forked. Spathes 2–3-flowered; valves oblong-lanceolate,  $4$ – $4\frac{1}{2}$  in. long, green at the flowering time; pedicels short. Flowers creamy white, fragrant. Perianth-tube greenish, an inch long; falls obovate-cuneate, white tinged with green,  $3\frac{1}{2}$ –4 in. long,  $1\frac{1}{2}$  in. broad, reflexing from below the middle, veined with purple on the haft; beard white, tipped with orange-yellow; standards pure white, obovate-unguiculate,  $1\frac{1}{2}$  in. broad. Style-branches above an inch long; crests large, deltoid.

Hab. Sent alive from Kandahar to Professor Foster in 1880, by Colonel Barton.

129. I. KASHMIRIANA Baker in Gard. Chron. 1877, ii. 744.—Rhizome stout, short-creeping. Leaves ensiform, slightly glaucous,  $1\frac{1}{2}$  ft. long, above an inch broad. Stem 3 ft. long, bearing several clusters. Spathes 2–3-flowered, 3 in. long; valves scarioso towards the tip at the flowering time; pedicels short. Perianth-tube cylindrical, above an inch long; limb 3 in. long, pure white; standards and falls each  $1\frac{1}{4}$ – $1\frac{1}{2}$  in. broad; beard  $1\frac{1}{2}$  in. long, white tipped with yellow; falls obovate-cuneate, reflexing halfway down. Style-branches  $1\frac{1}{2}$  in. long; crests large, ovate.

Hab. Kashmir. Introduced to Kew by Dr. Aitchison about 1875. Flowers sweet-scented, produced late in May.

130. I. FLORENTINA Linn. Sp. Plant. 55; Bot. Mag. t. 671; Red. Lil. t. 23; Sibth. Fl. Græc. t. 39; Reich. Ic. Fl. Germ. tab. 339, fig. 766. *I. alba* Savi.—Rhizome stout, wide-creeping, fragrant when dried (orris-root). Leaves ensiform, glaucous,  $1$ – $1\frac{1}{2}$  ft. long,  $1$ – $1\frac{1}{2}$  in. broad. Stems 3–4-headed, overtopping the leaves. Spathes 2–3-flowered,  $1\frac{1}{2}$ –2 in. long; valves oblong, subscarioso at the flowering time; pedicel short. Perianth-tube greenish, an inch long; limb 3– $3\frac{1}{2}$  in. long; falls obovate-cuneate,  $1\frac{1}{2}$  in. broad, white slightly tinged with lavender; beard bright yellow; standards as long and broad, purer white. Style-branches  $1\frac{1}{2}$  in. long; crests deltoid, toothed.

Var. I. ALBICANS Lange Ic. Plant. Hisp. t. 33.—Flowers pure white. Perianth-tube and spathe-valves shorter. Spain to Cyprus.

Hab. Central and Southern Europe. Flowers with *germanica* early in May. Not scented.

131. I. PALLIDA Lam. Encyc. iii. 294; Bot. Mag. t. 685; Red. Lil. t. 366; Reich. Ic. Crit. fig. 1243; Ic. Fl. Germ. tab. 340, fig. 767. *I. germanica* Sibth. & Sm. Fl. Græc. t. 40. *I. pallide-cærulea* Pers. *I. odoratissima* Jacq. Hort. Schoen. t. 9. *I. glauca* Salisb. *I. hortensis* Tausch.—Rhizome stout, short-creeping. Leaves ensiform, glaucous,  $1$ – $1\frac{1}{2}$  ft. long,  $1$ – $1\frac{1}{2}$  in. broad. Stems several-headed, much overtopping the leaves. Spathes 2–3-flowered; valves oblong,  $1$ – $1\frac{1}{2}$  in. long, quite scarioso at the flowering time; pedicel very short. Flowers fragrant. Perianth-tube cylindrical, an inch long; limb light or dark violet, rarely white,  $2\frac{1}{2}$ – $3\frac{1}{2}$  in. long; falls obovate-cuneate,  $1\frac{1}{2}$  in. broad, reflexing from halfway down; beard bright yellow; standards orbicular-unguiculate,  $1\frac{1}{4}$ –2



in. broad. Style-branches  $1\frac{1}{2}$  in. long; crests deltoid. Capsule oblong-triangular,  $1-1\frac{1}{2}$  in. long.

Hab. South Europe and West Asia, ascending to 7000 ft. on the Altas mountains. The type differs from *germanica* by its fragrant flowers, shorter entirely scariose spathe-valves, and flowers a month later; but there are many varieties and intermediates, amongst which are *I. cucullata* Schur, *I. Junonia* Schott & Kotschy, *I. asiatica* Stapf, and *I. australis*, *Mandalisææ*, *Tinei* and *sicula* Todaro.

182. *I. Plicata* Lam. Encyc. iii. 294. *I. aphylla*, var *plicata* Ker.—Rhizome, leaves, stem and spathe-valves exactly as in *I. pallida*. Tube greenish,  $\frac{1}{2}$  in. long; limb  $2-2\frac{1}{2}$  in. long; falls obovate-cuneate,  $1\frac{1}{2}$  in. broad, pure white in the centre, conspicuously veined with lilac towards the margin and on the claw; standards as long and as broad, very plicate, white in the centre, flushed with violet at the edge.

Hab. Known in cultivation only. Flowers early in July. Derived no doubt from *I. pallida*.

183. *I. Swertii* Lam. Encyc. iii. 294 (Swert Floril. tab. 41, fig. 1); Red. Lil. t. 306; Sweet Brit. Flow. Gard. ser. 2, t. 254; Reich. Ic. Crit. fig. 1239. *I. aphylla* var. *Swertii* Ker. *I. desertorum* Balbis. *I. portugalsensis* Besler.—Much dwarfer than *I. pallida* and *plicata*. Stem  $1-1\frac{1}{2}$  ft. long, 3-4-headed. Spathe-valves oblong, scariose, an inch long, flushed with violet. Perianth-tube  $\frac{1}{2}$  in. long; limb  $2-2\frac{1}{2}$  in. long; falls obovate-cuneate, an inch broad, white, faintly veined with lilac, flushed with purple towards the edge; standards as long and broad, much crisped, pure white except the purple keel and margin.

Hab. Known in cultivation only. Fragrant, flowering with us at the end of May or early in June, long before *pallida*.

#### Subgenus VIII. XIPHION (Miller).

184. *I. Xiphium* Linn. Sp. Plant. 58, ex parte; Bot. Mag. t. 656; Red. Lil. t. 337. *I. variabilis* Jacq. *Xiphion vulgare* Miller. *X. angustifolium* Tourn.—Bulb ovoid,  $\frac{3}{4}-1$  in. diam.; tunics membranous, brown. Leaves several, superposed, subterete, glaucous, the lower a foot long. Stem 1-headed,  $1-2$  ft. long. Spathe 1-2-flowered,  $2-4$  in. long; outer valves green, lanceolate; pedicels long. Perianth-tube obsolete; limb  $2-2\frac{1}{2}$  in. long, violet-purple in the typical form; falls with an orbicular blade an inch broad, much shorter than the panduriform haft; standards as long, oblong-unguiculate,  $\frac{1}{4}-\frac{1}{2}$  in. broad. Style-branches above an inch long; crests large, quadrate. Capsule clavate.

Hab. Spain, ascending to 6000 ft; North Africa, Corsica and the South of France. This is the long-cultivated and well-known Spanish Iris of the gardens. With us it flowers in June. The principal varieties are *I. lusitanica* Ker in Bot. Mag. t. 679, in which the flowers are yellow; and *Xiphion sordidum* Salisb., *I. spectabilis* Spach., the Thunderbolt Iris, in which the habit is more robust and the flowers are darker yellow flushed with brown. These two are natives of Portugal. I cannot separate from *I. Xiphium* by any botanical character, a plant from Tangiers cultivated by Mr. Elwes, which flowers in England a month earlier and pushes its leaves in autumn instead of spring. See Foster in Garden 1881, 422 tab. 308.

135. *I. SEROTINA* Willk. Prodr. Fl. Hisp. i. 141. — Differs from *I. Xiphium* by its solid 2-3-flowered stem, lower leaves faded at the flowering time, upper linear-setaceous, pedicels 2-4 in. long, finally considerably protruded from the reddish spathe-valves, and falls with an oblong-lanceolate limb narrowed to a short linear claw.

Hab. Spain; mountains of Jaen, alt. 3500 ft., flowering in August and September, *Willkomm*.

136. *I. XIPHIODES* Ehrh. Beitr. vii. 140; Bot. Mag. t. 687; Red. Lil. t. 212. *I. Xiphium* Linn. ex parte. *I. pyrenaica* Bubani. *Xiphion latifolium* Miller.—Bulb ovoid,  $1\frac{1}{2}$ -2 in. diam.; tunics brown, splitting into fibres at the top. Leaves glaucous, linear-complicate, the lower a foot long. Stem stout, 1-headed,  $1\frac{1}{2}$ -2 ft. long. Spathes 2-3-flowered; valves green, lanceolate, ventricose, 3-4 in. long; pedicels much shorter than the spathe. Perianth-tube obsolete; limb 2-3 in. long, dark violet-purple in the typical form; falls with an orbicular blade  $1\frac{1}{2}$  in. broad, usually yellow in the centre, narrowed to and shorter than the cuneate haft; standards shorter, oblong- or obovate-unguiculate,  $\frac{1}{2}$ -1 in. broad. Style-branches above an inch long; crests large, subquadrate. Capsule clavate, 2-2 $\frac{1}{2}$  in. long,  $\frac{1}{2}$  in. diam. at the middle.

Hab. French and Spanish Pyrenees, and extending to Asturias. Is the well-known English Iris of the gardens, of which several colour-varieties were already cultivated 250 years ago. It flowers in England in July, after the Spanish Iris has faded.

137. *I. FONTANESII* Godr. Fl. France iii. 245. *Xiphion Fontanesii* Baker.—Bulb ovoid, 1 in. diam.; tunics brown, membranous. Leaves superposed, subterete from a linear base, the lower a foot or more long. Stem 1-headed, 1-1 $\frac{1}{2}$  ft. long. Spathes 1-2-flowered; valves green, lanceolate, 2-3 in. long; pedicel about as long as the ovary. Perianth-tube cylindrical, an inch long; limb 2-3 in. long, bright lilac-purple; falls with an orbicular blade an inch broad, much shorter than the panduriform haft; standards as long, oblanceolate,  $\frac{1}{2}$  in. broad. Style-branches above an inch long; crests large, subquadrate.

Hab. Plains of Algeria, where it flowers in April. Differs only from *I. Xiphium* by having a tube to the perianth.

138. *I. TINGITANA* Boiss. et Reut. Pugell. 113; Baker in Bot. Mag. t. 6775. *Xiphion tingitanum* Baker.—Bulb ovoid,  $1\frac{1}{2}$  in. diam. Leaves linear-complicate, the lower 1-1 $\frac{1}{2}$  ft. long. Stems as stout as in *I. xiphioides*, 1-2-headed. Spathes 1-2-flowered, 4-6 in. long; valves green, lanceolate; pedicel as long as the ovary. Perianth-tube cylindrical, 1-1 $\frac{1}{2}$  in. long; limb bright lilac, 3 in. long; falls with a reflexing obovate limb 1-1 $\frac{1}{2}$  in. broad, shorter than the claw, flushed with yellow in the centre; standards rather shorter, oblanceolate-unguiculate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad. Style-branches above an inch long; crests very large, subquadrate.

Hab. Tangiers. Introduced into cultivation by Mr. Elwes in 1875. Is in the Smithian herbarium, collected by Durand in 1803. Perhaps not distinct specifically from *I. Fontanesii*

139. *I. FILIFOLIA* Boiss. Voy. Esp. 602, t. 170. *Xiphion*

*filifolium* Klatt; Hook. fil. in Bot. Mag. t. 5928.—Bulb globose, an inch diam.; tunics long, horny, membranous. Leaves slender, terete, 1–1½ ft. long. Stem 1-headed, 2 ft. or more long, bearing many reduced leaves. Spathes 1–2-flowered, 3–4 in. long; outer valves green, lanceolate; pedicel 1½ in. long. Perianth-tube slender, cylindrical, under an inch long, limb 2½ in. long, bright dark purple; falls with an orbicular lamina an inch broad, shorter than the haft, bright yellow in the centre; standards shorter, oblanceolate, ½ in. broad. Style-branches above an inch long; crests large, subquadrate.

Hab. South of Spain. Introduced into cultivation in 1869 from Gibraltar by Mr. Geo. Maw. The Tangiers plant, figured Bot. Mag. t. 5981, is intermediate between *filifolia* and *tingitana*.

140. I. JUNCEA Desf. Fl. Atlant. i. 39, t. 4; Bot. Mag. t. 5890. *I. imberbis* Poir. *I. mauritanica* (Clusius) Ker. *Xiphion junceum* Klatt. *Diaphane stylosa* Salisb.—Bulb globose, 1 in. diam.; tunics brown, rigid, slitting into long stiff fibres at the tip. Leaves superposed, slender, subterete, firm, the lower a foot long. Stems slender, flexuose, 1-headed, 1–1½ ft. long. Spathes 1–2-flowered, 2½–3 in. long; valves greenish, lanceolate; pedicels short. Perianth-tube very slender, 1½ in. long; limb 1½–2 in. long, always primrose-yellow; falls with an orbicular blade an inch broad, shorter than the cuneate haft; standards shorter, oblanceolate-unguiculate, ½ in. broad. Style-branches an inch long; crests large, erectopatent, quadrate.

Hab. Algeria, Tunis, Morocco, Sicily and Italy, flowering in May and June.

141. I. BOISSIERI Henr. in Bol. Soc. Brot. iii. 183, with fig.; Willk. Ill. Pl. Hisp. t. 118; Baker in Bot. Mag. t. 7097.—Bulb ovoid, under 1 in. diam.; tunics splitting into fibres at the top. Leaves subterete, a foot long. Stem 1-headed, a foot long, with 2 reduced lanceolate leaves. Spathe 2-flowered, 2½ in. long; outer valves lanceolate, green; pedicels short. Perianth-tube cylindrical, 1–1½ in. long; limb dark lilac, 1½ in. long; falls with an oblong blade ½ in. broad. as long as the distinctly bearded haft, flushed with yellow in the centre; standards as long, oblanceolate-unguiculate, ¼ in. broad. Style-branches an inch long; crests large, subquadrate.

Hab. South Portugal, on the Serra de Gerez, alt. 2000–8000 ft. Sent lately by Mr. A. W. Tait to Dr. Foster. We have a specimen at Kew, gathered by Dr. Winkler in May, 1876. Flowers earlier than *I. Xiphium*.

142. I. RETICULATA M.B. Fl. Taur. Cauc. 34, t. 1; Cent. Pl. Ross. t. 11; Bot. Mag. t. 5577; Regel Gartenfl. t. 779, fig. 1. *Neubeckia reticulata* Alefeld. *Xiphion reticulatum* Klatt.—Bulb ovoid, 1 in. diam.; outer tunics composed of fine interwoven fibres. Leaves generally two in a tuft, acutely quadrangular, very short at the flowering time, finally a foot or more long. Stem very short. Spathe 1-flowered, about 3 in. long; valves green, wrapped tightly round the slender perianth-tube, which is 2–3 in. long. Limb bright violet-purple in the type, 1½–2 in. long; falls with an ovate

blade  $\frac{1}{2}$  in. broad, much shorter than the claw, with a pale patch at the throat and a low orange-yellow crest; standards nearly as long, oblanceolate-unguiculate,  $\frac{1}{4}$  in. broad. Style-branches an inch long; crests quadrate. Flower very fragrant.

Var. *KRELAGEI* Regel Animad. 15 (Gartenfl. t. 279, fig. 2, Sweet Brit. Flow. Gard. ser. ii. t. 189; Lodd. Bot. Cab. t. 189).—Flower red-purple, varying greatly in shade, with more conspicuously veined claw, with a yellow crest down it. The common wild form of the Caucasus. Nearly inodorous.

Var. *CYANEA* Regel Gartenfl. t. 797.—Limb of the falls slaty blue, much variegated.

Var. *SOPHENENSIS* Foster in Gard. Chron. 1885, i. 470.—Flower smaller, more spreading, less turbinate. Falls with a light red-purple blade and long narrow claw with a wavy yellow crest. Kharput, Asia Minor, *Mrs. Barnum*. Flowers in the middle of February.

Var. *HISTRIOIDES* Foster; Journ. Hort. 1891, 121, fig. 18.—Falls much mottled with white and lilac, both on the claw and broader orbicular blade. Eastern Anatolia, *Bormuller*.

Hab. Asia Minor to Persia and the Caucasus. For a full account of the varieties see Foster in Gard. Chron. 1885, i. 507.

143. *I. HISTRIO* Reich. fil. in Bot. Zeit. 1871, 488; Garden tab. 653, fig. 1. *I. Libani* Reut. *Xiphion Histrio* Hook. fil. in Bot. Mag. t. 6033.—Bulb cæspitose  $\frac{1}{2}$  in. diam.; outer tunics reticulated. Leaves 2 to a stem, acutely quadrangular, much overtopping the flower. Stem not produced, 1-headed. Spathe 1-flowered, 2-3 in. long; outer valve linear, green, clasping tightly the tube. Perianth-tube exserted from the spathe; limb lilac,  $1\frac{1}{2}$ -2 in. long; blade of the fall ovate, shorter than the haft, with a yellow line in the centre, bordered with white, and much spotted with dark lilac; standards as long, oblanceolate-unguiculate,  $\frac{1}{4}$  in. broad. Style-branches pale lilac, an inch long; crests lanceolate-deltoid, much shorter than the blade.

Hab. Mountains of Palestine. Introduced into cultivation 1873. Not fragrant. Flowers in February. Scarcely more than a variety of *I. reticulata*.

144. *I. BAKERIANA* Foster in Bot. Mag. t. 7084.—Bulb ovoid; outer tunics with strong parallel fibres, connected by oblique strands. Leaves 3-4 to a bulb, subulate, hollow, glaucous green, with about 8 conspicuous ridges, 6-9 in. long at the flowering time, furnished with a horny tip. Peduncle very short; flower single. Spathe cylindrical, 3 in. long; valves green, very unequal. Perianth-tube 3 in. long, slightly exserted from the spathe; limb 3 in. long; falls with a long claw and short ovate reflexing blade, bright violet on the edge, white in the centre with violet spots, with an inconspicuous yellow streak down the claw; standards erect, oblanceolate, rather shorter, plain lilac. Style-branches an inch long; crests large, subquadrate.

Hab. Mountains of Armenia near Mardin. Introduced into cultivation recently by the Rev. G. F. Gates. Gathered previously in Kurdistan in 1877, by Mr. E. A. Floyer, and on the Anti-Lebanon range near the Euphrates in 1879, by Mrs. Danford. Very fragrant, with a scent of violets. Flowers in England at the end of February.

145. *I. VARTANI* Foster in Gard. Chron. 1885, i. 438; Bot. Mag. t. 6942. — Bulbs cæspitose,  $\frac{1}{2}$  in. diam.; outer tunics reticulated. Leaves 2, acutely quadrangular, much overtopping the flower, finally a foot long. Stem 1-headed, not produced. Spathes 1-flowered,  $1\frac{1}{2}$ –2 in. long; valves lanceolate, greenish. Perianth-tube  $2\frac{1}{2}$  in. long, much exserted; limb  $1\frac{1}{2}$ –2 in. long, pale slaty lilac; falls with an oblong blade  $\frac{1}{2}$  in. broad, much shorter than the haft, with a distinct yellow ridge down the keel; standards nearly as long, oblanceolate-unguiculate. Style-branches  $\frac{3}{4}$  in. long; crests lanceolate, longer than the blade.

Hab. Palestine, near Nazareth; sent to Dr. Foster by Dr. Vartan. Flowers with us in December. Not scented.

146. *I. KOLPAKOWSKIANA* Regel, Descr. v. 47; Gartenfl. t. 939; Garden, t. 658, fig. 4. *Xiphion Kolpakowskianum* Baker in Bot. Mag. t. 6489. — Bulb ovoid,  $\frac{1}{2}$  in. diam.; tunics short, cancellate. Leaves 4–6, linear-subterete, pale green, channelled down the face and white-vittate, 2–3 in. long at the flowering time, spreading. Stem 1-headed, not produced. Spathe 1-flowered, 2 in. long; valves green, lanceolate. Perianth-tube 2 in. long; limb bright lilac,  $1\frac{1}{2}$ –2 in. long; falls with an ovate or oblong blade  $\frac{1}{2}$  in. broad, with a yellow line at the throat, much shorter than the haft; standards as long as the falls, oblanceolate-unguiculate. Style-branches an inch long; crests large, lanceolate-deltoid.

Hab. Mountains of Turkestan, Dr. Albert Regel. Nearly allied to *I. reticulata*. It flowers at the same time, and has a violet-like scent.

147. *I. WINKLERI* Regel, Descr. ix. 37. — Bulb ovoid; tunics membranous. Leaves narrow linear, 3-nerved, glabrous, equalling or overtopping the flower. Stem very short, 1-headed. Spathe 1-flowered; outer valve lanceolate, herbaceous, not reaching to the top of the perianth-tube. Perianth-tube as long as the blue limb; falls oblong-cuneate; standards oblanceolate, longer than the falls.

Hab. Mountains of Eastern Turkestan, alt. 9000–11,000 ft. Discovered lately by Dr. Albert Regel.

#### Subgenus IX.—GYNANDRIRIS (Parl.).

148. *I. SISYRINCHIUM* Linn. Sp. Plant. 59; Sibth. et Smith, Fl. Græc. t. 42; Red. Lil. t. 29. *I. fugax* Tenore. *I. aegyptia* Delile. *I. Samaritani* Heldr. *Xiphion Sisyrrinchium* Baker; Bot. Mag. t. 6096. *Moræa Sisyrrinchium* Ker in Bot. Mag. t. 1407. *M. Tenoreana* Sweet, Brit. Flow. Gard. t. 110. *M. sicula* Todaro, Hort. Bot. Panorm. t. 34. *Diaphane edulis* Salisb. — Bulb edible, globose, 1 in. diam.; outer tunics entirely fibrous. Leaves 2, suprabasal, linear, arcuate,  $\frac{1}{2}$ –1 ft. long, strongly veined. Stem slender, terete,  $\frac{1}{2}$ –1 ft. long; heads 1–3, the lateral sessile. Spathes 2–3-flowered, 2–2 $\frac{1}{2}$  in. long; valves lanceolate, the outer subscariose at the flowering time; pedicels very short. Flowers fugitive, lilac. Perianth-tube slender, an inch long; limb 1–1 $\frac{1}{2}$  in. long; falls with an oblong blade  $\frac{1}{2}$  in. broad, as long as the haft, with a faint yellow spot bordered with white in the centre; standards rather shorter, oblanceolate-unguiculate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad.

Style-branches under an inch long; crests large, lanceolate-deltoid. Capsule oblong-trigonal, 1-1½ in. long, hidden by the persistent scarious spathe-valves.

Hab. Portugal and Spain, through the Mediterranean region to Punjab. It has a faint scent of violets, and flowers in April and May. *G. monophylla* Klatt. is a dwarf variety, with a single leaf and a single cluster of flowers. *I. maricoides* Regel, Deser. iv. 36, from the high mountains of Bokhara, alt. 10,000-12,000 ft., has exactly the same bulb, leaves and spathes, but the filaments are said to be distinct from one another and the style.

Subgenus IX. JUNO (Tratt.). (*Thelysia* Salisb. *Coresanthe* Alefeld).

149. *I. AITCHISONI* Boiss. Fl. Orient. v. 123. *Xiphion Aitchisoni* Baker. — Bulb ovoid, 1-1½ in. diam., with fleshy root-fibres and brown membranous tunics. Leaves linear-subterete, 1-1½ ft. long at the flowering time. Stem ½-1½ ft. long, 1-3-headed. Spathes 1-flowered, 2-2½ in. long; valves green, lanceolate. Perianth-tube 1-1½ in. long; limb 1½-2 in. long, bright lilac in the type; falls with an obovate blade ½ in. broad, ¼-½ the length of haft; standards spreading, tricuspidate, under an inch long. Style-branches 1½ in. long; crests lanceolate-deltoid.

Var. *CHRYSANTHA* Baker.—Flowers bright yellow.

Hab. Punjab and Afghanistan. Flowers in March. Habit and leaves of *I. Xiphium*, but standards small and spreading. We have original drawings of both varieties, made from fresh specimens by Mrs. Aitchison.

150. *I. DANFORDIÆ* Boiss. Fl. Orient. v. 124; Hook. fil. in Bot. Mag. t. 7140. *I. Bornmulleri* Haussk. *I. amasiana* Born. *Xiphion Danfordiæ* Baker.—Bulb small, oblong; tunics membranous, brown. Leaves not produced till after the flowers, hollow, tetragonous, finally a foot long. Stem very short, 1-headed. Spathes cylindrical, 2 in. long; valves lanceolate, subscarious; pedicel as long as the ovary. Perianth-tube 1½ in. long; limb 1½ in. long, bright yellow; falls with an orbicular blade ½ in. broad, spotted with brown, half as long as the cuneate claw; standards reduced to a minute spreading cusp. Style-branches ¾ in. long; crests large, ovate.

Hab. Cilician Taurus, *Mrs. Danford!* Amasia, Eastern Anatolia, *Bornmuller!* Introduced into cultivation through Leichtlin in 1889. Flowers in March. Habit of *I. reticulata*.

151. *I. PERSICA* Linn. Sp. Plant. 59; Bot. Mag. t. 1; Red. Lil. t. 189. *Xiphion persicum* Miller. — Bulb ovoid, ½-1 in. diam.; tunics brown, membranous. Leaves 4-5, linear-complicate, falcate, 2-3 in. long at the flowering time. Stem very short, 1-headed. Spathe 1-flowered, 2 in. long; valves green, lanceolate. Perianth-tube 2-3 in. long; limb pale lilac, 1½-2 in. long; falls with a short orbicular emarginate blade ½ in. broad, with a dark purple blotch at the top, an orange keel, and purple lines and spots; haft with two large deltoid auricles at the top; standards small, spreading. Style-branches above an inch long; crests large, quadrate.

Hab. Asia Minor and Persia, ascending the mountains to 6000 ft. Flowers fragrant, produced with us in February and March. Was introduced early in the 17th century. Var. *purpurea* Hort. has bright violet-purple perianth-segments.

152. *I. PALÆSTINA* Boiss. Fl. Orient. v. 122. *Xiphion palæstinum* Baker. *Juno palastina* Klatt.—Bulb ovoid, 1–1½ in. diam.; tunics membranous, brown. Leaves about 6, lanceolate-acuminate, falcate, 3–6 in. long at the flowering time. Stem very short, 1-headed. Spathes 1-flowered, 2–3 in. long; valves green, lanceolate. Perianth-tube 2–3 in. long; limb 1½–2 in. long, pale yellow or tinged with lilac; falls with a small orbicular blade ½ in. broad; haft auricled at the top; standards small, spreading, oblanceolate. Style-branches 1½ in. long; crests large, quadrate.

Hab. Mountains of Palestine, flowering in winter. Intermediate between *alata* and *caucasica*. Var. *cærulea* Post is a form with blue flowers.

153. *I. ALATA* Poir. Voy. Barb. ii. 86; Bot. Reg. t. 1876. *I. scorpioides* Desf. Fl. Atlant. i. 40, t. 6; Red. Lil. t. 211. *I. transtagana* and *trialata* Brot. *I. microptera* Vahl. *Xiphion planifolium* Miller. *X. alatum* Baker. *Thelysia grandiflora* Salisb.—Bulb ovoid, 1½–2 in. diam., with thick root-fibres and long-produced brown membranous tunics. Leaves about 6, lanceolate-acuminate, 6–9 in. long at the flowering time. Stem very short, 1-headed. Spathe 1–2-flowered; valves lanceolate, subscariose, 3–4 in. long. Perianth-tube 3–6 in. long; limb bright lilac, 3–4 in. long; falls obovate-cuneate, with a blade 1–1½ in. broad, shorter than the haft, and a yellow keel; standards spreading, obovate-unguiculate, an inch long. Style-branches 1½–2 in. long; crests large, subquadrate. Capsule oblong-trigonus, 2 in. long.

Hab. Portugal and Spain to Sicily and Algeria, flowering in winter. First noticed by Clusius.

154. *I. CAUCASICA* Hoffm. Comm. Soc. Physic. Med. Mosc. i. 40; Sweet, Brit. Flow. Gard. t. 255. *Xiphion caucasicum* Baker.—Bulb ovoid, 1 in. diam.; tunics membranous, brown. Leaves about 6, lanceolate, falcate, bright green, 3–6 in. long at the flowering time, with a horny border. Stem short, 3–6 headed. Spathes 1-flowered, 1½–2 in. long; valves lanceolate. Perianth-tube 1½–2 in. long; limb 1½–2 in. long, pale or bright yellow; falls with a small ovate blade and a very broad rhomboidal claw, with transparent auricles and a toothed often ciliated crest; standards small, oblanceolate, toothed, spreading or deflexed. Style-branches an inch long; crests lanceolate-deltoid. Capsule oblong-trigonus, 1½ in. long.

Hab. Caucasus to Asia Minor, Persia, Kurdistan, and Turkestan, ascending to 6000 ft. Flowers not fragrant, produced in March and April. A form grown by Prof. Foster from Kharput has stems nearly a foot long.

155. *I. ORCHIOIDES* Carriere in Rev. Hort. 1880, 337, fig. 68; Baker in Bot. Mag. t. 7111. — Bulb ovoid, 1–1½ in. diam.; tunics brown, membranous. Leaves about 6, lanceolate-acuminate, 6–9 in. long at the flowering time, the border not horny. Stem 3–6-headed, often 12–15 in. long, with distinct internodes. Spathes adpressed, 1-flowered, 2 in. long; valves green, lanceolate; ovary stalked. Perianth-tube 1½–2 in. long; limb 2 in. long; falls with an obovate blade ½ in. broad, bright yellow in the type, with a blotch of purple on each side of a crest which runs down the cuneate exauriculate claw; standards oblanceolate, under an inch long, often sharply

deflexed, with a long filiform claw. Style-branches an inch long; crests deltoid. Capsule oblong-trigonal,  $1\frac{1}{2}$  in. long.

Var. *OCULATA* Maxim.—Blade of falls more spotted.

Var. *CÆRULEA* Hort.—Flowers lilac, with a bright yellow blotch in the centre of the blade of the fall.

Hab. Mountains of Turkestan; introduced into cultivation by Dr. Regel.

156. *I. ROSENBACHIANA* Regel, Desc. ix. 35; Garden, tab. 653, fig. 2; Baker in Bot. Mag. t. 7135. — Bulb ovoid,  $\frac{3}{4}$ –1 in. diam., with thick root-fibres and brown membranous tunics. Leaves 4–5, lanceolate, very short at the flowering time, finally 6–8 in. long, without any conspicuous horny border. Stem very short, 1–3-headed. Spathes 1-flowered; valves lanceolate, green, 2–3 in. long. Perianth-tube varying in length from 1 to 6 in.; limb  $1\frac{1}{2}$ –2 in. long; falls with an oblong blade  $\frac{1}{2}$  in. broad, in the type white at the top, deep red-purple in the middle, at the base creamy white or slaty white, with red-purple veins, with a conspicuous lacinated crest running down the ligulate claw, which is narrowed abruptly at the base; standards obovate-unguiculate, an inch long, the blade much channelled. Style-branches 1– $1\frac{1}{4}$  in. long; crests large, quadrate.

Hab. Mountains of Bokhara and Turkestan, alt. 6000–9000 ft. Flowers in March.

157. *I. STOCKSII* Boiss. Fl. Orient. v. 123. *Xiphion Stocksii* Baker. — Bulb ovoid, 1– $1\frac{1}{2}$  in. diam.; tunics brown, membranous, produced 2–4 in. above its neck. Leaves 4–6, lanceolate-acuminate, falcate, 4–6 in. long, moderately firm, with a distinct white edge. Stem very short, 1–3-headed. Spathes 1-flowered; valves lanceolate, greenish,  $1\frac{1}{2}$ –2 in. long. Perianth-tube 1– $1\frac{1}{2}$  in. long; limb bright lilac,  $1\frac{1}{2}$  in. long; falls with an oblong blade  $\frac{1}{2}$  in. broad, much shorter than the broadly auricled haft; standards small, spreading, tricuspidate. Style-branches an inch long; crests large, deltoid. Capsule oblong-trigonal,  $1\frac{1}{2}$  in. long.

Hab. Afghanistan and Beluchistan; first gathered by Griffith and Stocks. Very near *I. caucasica*.

158. *I. DREPANOPHYLLA* Aitch. et Baker in Trans. Linn. Soc. ser. 2, Bot. iii. 115.—Bulb ovoid, 1 in. diam., with thick root-fibres and brown membranous tunics. Leaves 4–6, lanceolate-acuminate, very falcate, 4–6 in. long at the flowering time. Stem short, 2–3-headed. Spathes 1-flowered; valves lanceolate, greenish, 2 in. long. Perianth-tube about an inch long; limb bright yellow,  $1\frac{1}{2}$  in. long; falls with an obovate blade one-third the length of the narrow non-auricled haft; standards small, spreading. Style-branches an inch long; crests deltoid.

Hab. Afghan and Russian boundary; flowering in April. Discovered by Dr. Aitchison in 1885. Near *I. Stocksii*.

159. *I. FOSTERIANA* Aitch. et Baker in Trans. Linn. Soc. 2 ser. Bot. iii. 114; Bot. Mag. t. 7215. — Bulb oblong, 1 in. diam., with thick fibres and long brown membranous tunics. Leaves 4–6, lanceolate-acuminate, falcate, 4–6 in. long at the flowering time,



$\frac{1}{2}$  in. broad low down, firm in texture, with a distinct white margin. Stem short, 1-2-headed. Spathes 1-flowered,  $1\frac{1}{2}$ -2 in. long; valves pale green, lanceolate. Perianth-tube shortly exerted from the spathe; falls pale yellow,  $1\frac{1}{2}$ -2 in. long, with an orbicular blade above  $\frac{1}{2}$  in. broad, a third as long as the non-auricled haft; standards bright purple, an inch long, with an obovate blade sometimes  $\frac{1}{2}$  in. broad. Style-branches an inch long; crests large, subquadrate.

Hab. Afghan and Russian boundary; flowering in March. Discovered by Dr. Aitchison in 1885.

160. *I. SINDJARENSIS* Boiss. et Haussk. Fl. Orient. v. 123; Baker in Bot. Mag. t. 7145. — Bulb oblong. Leaves about 8, crowded, lanceolate, distichous, firm, bright green, 5-6 in. long at the flowering time, an inch broad. Stem very short, bearing 1-2 clusters of flowers; spathe 2 in. long; valves lanceolate, pale green. Perianth slaty lilac; tube an inch longer than the spathe; falls oblong-cuneate, 2 in. long, slaty lilac, with radiating lines of darker lilac and an inconspicuous yellow crest down the lower two-thirds; standards oblong-unguiculate, deflexed, an inch long. Style-branches above an inch long; crests large, deltoid.

Hab. Mesopotamia; discovered in 1865 by Dr. Haussknecht. Introduced into cultivation lately by Leichtlin.

161. *I. FUMOSA* Boiss. & Haussk. Fl. Orient. v. 123. *Xiphion Aucheri* Baker. — Bulb ovoid, 1-1 $\frac{1}{2}$  in. diam.; tunics brown, membranous. Leaves about 10, lanceolate, falcate, moderately firm, 4-6 in. long, an inch broad. Stem  $\frac{1}{2}$  ft. long, 4-5-headed. Spathes 1-flowered; valves greenish, lanceolate, 3-4 in. long. Perianth-tube 2-2 $\frac{1}{2}$  in. long; limb  $1\frac{1}{2}$  in. long, pale yellow, tinged with grey-lilac; falls with a suborbicular limb  $\frac{1}{2}$  in. broad, much shorter than the auricled haft; standards spreading, unguiculate, an inch long. Style-branches an inch long; crests large, deltoid. Capsule cylindrical-trigonal, 3 in. long.

Hab. Mountains over Aleppo; first gathered by Aucher Eloy. Haussknecht's 907, from the desert near Koluh-hassar, has leaves half as long and twice as broad as the Aleppo plant, and as long a stem with only a single terminal flower.

## 2. HERMODACTYLUS (*Tourn.*) *Adans.*

*Perianth-tube* short, cylindrical; limb funnel-shaped; outer segments obovate-cuneate, reflexing in the upper third; inner segments small, ascending, lanceolate, with a long cusp. *Stamens* and *styles* as in *Iris*, but the ovary 1-celled, with 3 parietal placentas. *Seeds* subglobose.

1. *H. TUBEROSUS* Salisb. in Trans. Hort. Soc. i. 304. *Iris tuberosa* Linn.; Bot. Mag. t. 531; Red. Lil. t. 48; Sibth. & Sm. Fl. Græc. t. 41; Eng. Bot. 3rd ed. t. 1496; Fl. des Serres, t. 1083; Reich. Ic. Fl. Germ. tab. 348.—Rootstock of 2-4 cylindrical digitate tubers an inch long. Stem 1-headed, a foot or more long. Produced leaves 2-3, glaucous, tetragonal, 1-2 ft. long. Spathes 1-flowered, with usually only 1 large lanceolate valve; pedicel 1-2 in. long.

Perianth-limb about 2 in. long; falls with a suborbicular reflexing dark brown blade  $\frac{1}{2}$  in. broad. Capsule turbinate,  $1\frac{1}{2}$ -2 in. long.

Hab. Through the Mediterranean region from the South of France to Greece. *H. longifolius* Sweet is a form with leaves 3-4 ft. long, and *H. bispathaceus* Sweet a form with a second valve to the spathe.

### 3. MORÆA Linn.

*Perianth-tube* obsolete; outer segments obovate-cuneate, with a reflexing limb; inner similar, smaller, or in subgenus *Viusseuxia* small, tricuspidate. *Stamens* with anthers like those of *Iris*, but filaments more or less connate. *Ovary*, style, capsule, and seed as in *Iris*.—*Rootstock* a globose corm, except in subgenus *Dietes*. *Leaves* few, linear or ensiform. *Flowers* two or more in a cluster, various in colour, usually fugitive. The line of demarcation between *Iris* and *Moræa* has been drawn in different places by different authorities. Here I have followed Bentham, with whom *Iris* belong entirely to the North Temperate zone, and *Moræa* to the Cape and Tropical Africa, with one species Australian.

Subgenus I. MORÆA PROPER. — *Rootstock* a tunicated corm. *Ovary* not beaked. Inner segments of the perianth oblanceolate, erect.

Dwarf; stems simple or forked low down . . . . .	Sp. 1-7.
Stems elongated . . . . .	Sp. 8-16.
Stems elongated; heads few or many, distinctly peduncled.	
Branchlets glabrous . . . . .	Sp. 17-28.
Branchlets viscose . . . . .	Sp. 29-33.
Stems elongated; heads few or many, sessile or shortly peduncled.	Sp. 34-40.

Subgenus II. HELIXYRA (Salisb.).—*Rootstock* a tunicated corm; *Ovary* produced into a filiform beak. Inner segments of the perianth oblanceolate, erect . . . . . Sp. 41-46.

Subgenus III. VIUSSEUXIA (Delar.).—*Rootstock* a tunicated corm. Inner segments of the perianth small, usually tricuspidate. Sp. 47-54.

Subgenus IV. DIETES (Salisb.). — *Rootstock* a short rhizome. Inner segments of the perianth oblong-unguiculate, spreading like the outer segments . . . . . Sp. 55-57.

1. *M. ciliata* Ker in König & Sims Ann. i. 241; Bot. Mag. t. 1061. *Iris ciliata* Linn. fil. Suppl. 98. — Whole plant 4-6 in. long. Corm globose,  $\frac{1}{2}$  in. diam.; tunics of stout flexuose strands. Basal leaves 3-5, spreading, lanceolate-acuminate, finely pubescent, sometimes crisped, 4-5 in. long. Spathe single, sessile in the centre of the rosette of leaves; outer valve largest, green, lanceolate, very ventricose,  $1\frac{1}{2}$ -2 in. long; pedicels generally exserted. Perianth lilac, with a yellow eye or yellow, fugitive, above an inch long; falls with an obovate blade  $\frac{1}{3}$  in. broad, as long as the finely pilose claw;

standards nearly as long, erect. Ovary clavate. Style-branches narrow,  $\frac{1}{2}$  in. long; crests lanceolate.

Var. *M. BARBIGERA* Salisb. (Bot. Mag. t. 1012). *M. pilosa* Wendl. *M. triolor* Andr. Bot. Rep. t. 88. *M. hantamensis* Klatt.—Perianth bright red; falls yellow, and finely pilose at the throat of the blade and on the claw.

Var. *M. MINUTA* Ker. *Iris minuta* Linn. fil. Suppl. 98.—Leaves linear, 2–3 in. long, glabrous or finely ciliated on the edge. Spathe  $\frac{3}{4}$ –1 in. long. Perianth yellow,  $\frac{3}{4}$  in. long.

Hab. Cape Colony; south-western district.

2. *M. MACROCHLAMYS* Baker.—Corm not seen. Basal leaves 8–6, rosulate, lanceolate-acuminate, glabrous, complicate, moderately firm,  $\frac{1}{2}$ –1 ft. long, erect or spreading. Cluster one sessile in the centre of the rosette of leaves; spathe 4 in. long; outer valve green, lanceolate, very ventricose. Perianth fugitive, an inch long; falls obovate-cuneate. Ovary clavate,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; on the Sneewbergen, alt. 4000–6000 ft., *Drège*, 2186!

3. *M. GALAXIODES* Baker in Journ. Linn. Soc. xvi. 130.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics of parallel wiry stands with fine short cross-fibres. Leaves many, crowded, linear, spreading, glabrous, 1–1 $\frac{1}{2}$  in. long. Spathe single, sessile in the centre of the rosette of leaves; outer valves lanceolate, membranous,  $\frac{1}{2}$  in. long. Perianth lilac, fugitive,  $\frac{3}{4}$  in. long; falls obovate-cuneate,  $\frac{3}{4}$  in. broad; standards oblanceolate, erect. Ovary clavate,  $\frac{1}{2}$  in. long.

Hab. Transvaal; rocky ground at the diamond-fields. First received from Mrs. Barber in 1872.

4. *M. FASCICULATA* Klatt, *Erganz.* 32. *M. polyphylla* Baker in Journ. Linn. Soc. xvi. 130 (name only).—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics of wiry fibres, finely reticulated towards the top. Leaves many, crowded, linear-complicate, falcate, glabrous, 2–3 in. long. Spathe single, solitary in the centre of the rosette of leaves; outer valves green, lanceolate, shorter than the pedicels. Perianth fugitive,  $\frac{3}{4}$  in. long (colour uncertain); falls obovate-cuneate,  $\frac{1}{2}$  in. broad; standards oblanceolate, erect. Ovary cylindrical, glabrous,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; north-west district, *Drège*, 2301! 2600!

5. *M. FALCIFOLIA* Klatt, *Erganz.* 32. — Corm ovoid; tunics of rigid fibres. Leaves crowded, lanceolate, falcate, glabrous, 1 $\frac{1}{2}$ –2 in. long. Clusters 3–4, sessile; spathes an inch long; valves unequal, the outer half-herbaceous, curved, acute. Perianth reddish,  $\frac{1}{2}$  in. long; falls obovate; standards oblanceolate. Ovary turbinate,  $\frac{1}{2}$  in. long.

Hab. Cape Colony: Hantam Mountains, *Dr. Meyer*, collected in 1869 (Herb. Berol.).

6. *M. PAPILIONACEA* Ker in Bot. Mag. t. 750. *M. hirsuta* Ker. *Iris papilionacea* Linn. fil. Suppl. 98; Thunb. Diss. No. 37, tab. 2, fig. 1; Jacq. Coll. Suppl. 159, tab. 3, fig. 2. *Vioussouxia ciliata* and *nervosa* Eckl. — Whole plant 4–6 in. long. Corm globose,  $\frac{1}{2}$  in.

diam.; tunics of stout fibres, produced as a ring of short bristles above its neck. Basal leaves 2, linear, spreading, rigid, pubescent, 3-6 in. long. Stem simple or forked low down, bearing 1-6 clusters on short erect peduncles. Spathes cylindrical, pubescent, 1-2 in. long. Perianth bright lilac or red, fugitive, an inch long; falls with an obovate limb, with a yellow spot at the throat, as long as the pilose claw; standards nearly as long, oblanceolate-unguiculate, erect. Style-branches  $\frac{1}{2}$  in. long; crests large. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western district.

7. *M. FIMBRIATA* Klatt in Linn. xxxiv. 561. *Vieusseuxia crispa* Eckl. — Whole plant 4-6 in. long. Corm globose,  $\frac{1}{2}$  in. diam.; tunics of wiry fibres, produced as short bristles over its neck. Leaves 3-10 in a basal tuft, linear, rigid, much crisped, obscurely ciliated. Stems simple or forked low down, bearing 1-4 clusters on erect peduncles. Spathes cylindrical, glabrous, 2-3-flowered,  $1\frac{1}{2}$ -2 in. long; valves lanceolate, outer half as long as the next. Perianth lilac, fugitive,  $\frac{3}{4}$  in. long; limb of the falls obovate, as long as the claw; standards erect, oblanceolate. Style-branches  $\frac{1}{2}$  in. long; crests small, lanceolate. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; Caledon, Zeyher, 4091!

8. *M. BAURII* Baker. — Corm not seen. Stem a foot long, simple, slender, 1-headed, bearing about 4 superposed sheathing leaves with short fine erect enrolled linear tips. Spathe cylindrical, 1-2-flowered, 2 in. long; valves rigid, lanceolate-acuminate, nearly equal. Ovary clavate,  $\frac{1}{2}$  in. long. Perianth yellow; outer segments  $1\frac{1}{2}$  in. long, with a reflexing obovate-cuneate blade  $\frac{1}{2}$  in. broad, as long as the claw; inner shorter, oblong-unguiculate, erect. Filaments connate only at the base, shorter than the anthers. Style-branches above  $\frac{1}{2}$  in. long; crests  $\frac{1}{2}$  in. long. Capsule clavate, an inch long.

Hab. Mountains of Transkeian Kaffraria, alt. 2000-3000 ft., Baur, 247!

9. *M. LURIDA* Ker in Bot. Reg. t. 312. — Corm globose,  $\frac{1}{2}$  in. diam. Produced leaf single, elongated, linear, glabrous. Stem very slender, 1-headed,  $\frac{1}{2}$  ft. long, with 1-2 rudimentary leaves higher up. Spathe cylindrical,  $1\frac{1}{2}$  in. long. Perianth fugitive, bright red-brown, an inch long; falls with an orbicular-cuspidate blade  $\frac{1}{2}$  in. broad, as long as the papillose claw; standards oblanceolate,  $\frac{1}{2}$  in. broad. Ovary cylindrical,  $\frac{1}{2}$  in. long. Crests of the style linear.

Hab. Cape Colony. Known to me only from Ker's figure and description.

10. *M. ANGUSTA* Ker in Bot. Mag. t. 1276. *Iris angusta* Thunb. Diss. No. 28. — Corm globose, 1 in. diam.; tunics of many thick wiry strands often produced as bristles above its neck. Produced leaf single, slender, wiry, terete, a foot or more long. Stem 1-headed, 1-1 $\frac{1}{2}$  ft. long, with 1-2 lanceolate rudimentary leaves above the long one. Spathe cylindrical, 2 $\frac{1}{2}$ -3 in. long; valves rigid, green; outer short, oblong. Perianth fugitive, yellow,  $1\frac{1}{2}$  in. long; falls obovate-cuneate,  $\frac{1}{2}$  in. broad; standards oblanceolate.

Ovary cylindrical-trigonus,  $\frac{1}{2}$  in. long; crests of style large, lanceolate.

Hab. Cape Colony; south-western district.

11. *M. SPATHACEA* Ker in Bot. Mag. sub t. 1103. *M. longispatha* Klatt. *Dictes Huttoni* Hook. fil. in Bot. Mag. t. 6174. *Iris spathacea* Thunb. *I. spathulata* Linn. fil.—Corm large, with a thick coat of brown-black wiry fibres. Produced leaf single, thick, linear-ensiform, strongly ribbed,  $1\frac{1}{2}$ –2 ft. long. Stem stout, 2–3 ft. long, usually 1-headed, with several rudimentary leaves above the long one. Spathes 2–4-flowered, 3–5 in. long; valves with a long cusp; outer short. Perianth bright yellow,  $1\frac{1}{2}$ –2 in. long; falls obovate-cuneate,  $\frac{1}{2}$ – $\frac{3}{4}$  in. broad; standards oblanceolate, erect. Ovary cylindrical,  $\frac{1}{2}$  in. long; crests of style large, lanceolate.

Hab. Cape Colony; eastern district, from Albany northward to the Tropic, ascending the mountains to 4000 ft. There is a single flower, closely resembling that of this species, in a collection made by the late Bishop Hannington in the mountains of East Tropical Africa, between 2° and 7° S. lat.

12. *M. GRACILIS* Baker in Trans. Linn. Soc. n. s. i. 272.—Corm globose,  $\frac{3}{4}$ –1 in. diam.; tunics of fine fibres. Stem very slender, simple,  $\frac{1}{2}$ –1 ft. long; produced leaf rigid, linear-subulate,  $\frac{1}{2}$  ft. long. Spathe 1–6-flowered, cylindrical, 2–2 $\frac{1}{2}$  in. long; valves rigid, green, lanceolate, the outer short. Perianth yellow, fugacious, under an inch long; segments narrow, nearly equal in length, the falls with a spreading blade as long as the claw. Style-branches  $\frac{1}{2}$  in. long; crests lanceolate. Capsule oblong,  $\frac{1}{3}$  in. long.

Hab. Angola; temperate zone of the province of Huilla, *Welwitsch* 1545!

13. *M. WELWITSCHII* Baker in Trans. Linn. Soc. n. s. i. 270.—Corm ovoid, 1 in. diam., with brown rigid tunics, produced 3–4 in. above its neck. Produced leaf single, basal, rigid, ensiform,  $1\frac{1}{2}$ –2 $\frac{1}{2}$  ft. long. Stem simple, a foot long. Spathe 2–3-flowered; outer valve lanceolate, scarioso, 3–4 in. long. Perianth dark lilac, not fugitive, 2 in. long; falls with a spreading blade  $\frac{1}{2}$  in. broad, as long as the claw; standards oblanceolate, erect. Style-branches 1–1 $\frac{1}{4}$  in. long; crests large, lanceolate. Capsule linear-oblong,  $1\frac{1}{4}$  in. long.

Hab. Angola; temperate region of Huilla, in swamps, *Welwitsch* 1548!

14. *M. ZAMBESIACA* Baker in Journ. Linn. Soc. xvi. 130.—Corm not seen. Produced leaf single, ensiform, glabrous, moderately firm, 1–1 $\frac{1}{2}$  ft. long. Stem simple, about a foot long, with 1–2 rudimentary leaves. Spathes 2–4-flowered; outer valves rigid, lanceolate, 3–4 in. long. Ovary clavate,  $\frac{3}{4}$  in. long. Perianth dark lilac,  $1\frac{1}{2}$ –2 in. long; falls with a spreading oblong blade  $\frac{1}{2}$  in. broad, exceeding the claw; standards nearly as long, oblanceolate, erect,  $\frac{1}{4}$  in. broad. Style-branches an inch long; crests large, lanceolate. Capsule cylindrical-trigonus, above an inch long.

Hab. Zambesi highlands. First gathered by Dr. Meller and Sir John Kirk. Mountains about Lakes Nyassa and Tanyanika, ascending to 8000 ft., *Joseph Thomson!* *Rev. W. Johnson!* Huilla and Cunone, Angola, *H. H. Johnston!*

15. *M. TEXTILIS* Baker in Trans. Linn. Soc. ser. 2, i. 270.—Corm globose,  $1\frac{1}{2}$ –2 in. diam.; tunics of parallel wiry fibres, produced above its neck as bristles. Produced leaf solitary, linear, rigid, glabrous, sometimes 4–5 ft. long. Stem simple, 2–3 ft. long, bearing several rudimentary leaves. Spathes 3–5-flowered, 4–5 in. long; valves purple, outer shorter than the next. Ovary clavate, an inch long. Perianth dark purple, 2 in. long, not fugitive; outer segments with an obovate limb shorter than the claw; inner as long, erect, oblanceolate, emarginate. Style-branches above an inch long; crests large, lanceolate.

Hab. Angola; temperate region of the province of Huilla, *Welwitsch* 1549!

16. *M. DIVERSIFOLIA* Baker in Journ. Linn. Soc. xvi. 130. *Iris diversifolia* Steud. *Hymenostigma Schimperii* and *tridentatum* Hochst. —Corm 1 in. diam., with brown rigid sheaths, produced 2–3 in. above its neck. Produced leaf single, rigid, linear, subbasal, a foot or more long. Stem simple,  $\frac{1}{2}$ –1 ft. long, bearing a single sheath-leaf. Spathe 2–3-flowered; outer valves green, lanceolate, acuminate, 3 in. long. Perianth fugitive (colour uncertain); outer segments 1–1 $\frac{1}{2}$  in. long, with a spreading blade  $\frac{1}{2}$  in. broad, as long as the narrow claw; inner nearly as long, oblanceolate-unguiculate, erect. Style-branches  $\frac{3}{4}$  in. long; crests large, lanceolate. Capsule oblong, obtusely angled,  $\frac{3}{4}$  in. long.

Hab. Mountains of Abyssinia, *Schimper* 1173! 1196!

17. *M. JUNCEA* Linn. Sp. Plant. 59.—Corm  $\frac{1}{4}$  in. diam.; tunics of unequal wiry strands. Produced leaves 2, falcate, linear-complicate, firm, glabrous, 2–3 in. long. Stem very slender, glabrous, 6–8 in. long. Clusters 2–3, on produced erect peduncles; spathe  $\frac{1}{2}$  in. long; outer valve short. Perianth fugitive, lilac,  $\frac{1}{2}$  in. long; falls obovate-cuneate; standards oblanceolate. Ovary oblong,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western district. Described from the type specimen in the Linnean herbarium.

18. *M. ARENARIA* Baker.—Whole plant 3–6 in. long. Corm not seen. Produced leaves 2–3, subterete, coriaceous, glabrous, much twisted spirally, 2–3 in. long. Spathes 3–4, on short erect peduncles, under an inch long, outer valve short, lanceolate. Perianth fugitive,  $\frac{1}{2}$  in. long (colour uncertain); falls obovate-cuneate. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; north-west district, on Ebenezer sandhills, *Drege* 8324!

19. *M. SERPENTINA* Baker.—Whole plant 5–6 in. high. Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics of black wiry fibres, honeycombed towards the top. Produced leaves 2, spreading, linear, rigidly coriaceous, pilose, 3–4 in. long, very flexuose. Clusters 2–4 on erect peduncles an inch long. Spathes an inch long; outer valve lanceolate, half as long as the next. Perianth fugitive,  $\frac{1}{2}$  in. long (colour uncertain). Capsule small, oblong.

Hab. Mountains of Namaqualand, alt. 3000–5000 ft., *Drege* 2599!  
*Bolus* 6571! 6572!

20. *M. MIRA* Klatt in Trans. Cape Phil. Soc. iii. 2, 202.—Whole plant 3-4 in. high. Corm small, scaly. Leaves 1-2, rigid, linear, ascending, glabrous, 2-4 in. long. Spathes 2-3 on short erect peduncles, cylindrical,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long; valves green, lanceolate, acute; outer much shorter than the next. Perianth bright lilac, fugitive,  $\frac{1}{2}$  in. long; falls oblong-cuneate, with a yellow spot at the throat; standards oblanceolate. Ovary oblong,  $\frac{1}{8}$  in. long.

Hab. Cape Colony; on the Zwarteberg, prov. Caledon. Collected by Templeman in 1884, *Macowan* 2612!

21. *M. IRIOPETALA* Linn. fil. Suppl. 100. *M. vegeta* Linn. herb. ! *M. plumaria* Ker. *Iris plumaria* Thunb. *Vieusseuxia plumaria* Eckl.—Whole plant  $\frac{1}{2}$ -1 ft. long. Corm ovoid,  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics of flattened strands, produced as bristles above its neck. Produced leaf single, ascending, narrow linear, rigid, plane,  $\frac{1}{2}$ -1 ft. long. Clusters 1-4 on produced erect peduncles; spathes cylindrical,  $1\frac{1}{2}$ - $1\frac{1}{2}$  in. long; valves firm, green, lanceolate; outer half as long as the next. Perianth fugitive, lilac, rarely yellow,  $\frac{1}{2}$  in. long; falls obovate-unguiculate, with a limb as long as the claw; standards erect, oblanceolate. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western district.

22. *M. TRISTIS* Ker in Konig & Sims Ann. i. 241. *M. sordescens* Jacq. Ic. t. 225; Red. Lil. t. 71. *Iris tristis* Linn. fil. Suppl. 97; Ker. in Bot. Mag. t. 577. *Vieusseuxia tristis* Eckl.—Whole plant 1- $1\frac{1}{2}$  ft. long. Corm  $\frac{1}{2}$  in. diam.; tunics of matted parallel fibres. Produced leaves 2-3, linear, glabrous, not rigid,  $\frac{1}{2}$ - $1\frac{1}{2}$  ft. long. Clusters several on produced erect peduncles; spathes 1- $1\frac{1}{2}$  in. long; outer valve shorter than the next. Perianth fugitive, dull purple,  $\frac{3}{4}$  in. long; falls oblong-cuneate, with a yellow spot at the base of the limb; standards erect, oblanceolate. Capsule oblong,  $\frac{1}{3}$  in. long. Style-crests lanceolate.

Hab. Cape Colony; south-western district. Figured in Miller's 'Icones,' tab. 238.

23. *M. CRISPA* Ker in Bot. Mag. t. 1284. *M. decussata* Klatt. *Iris crispa* Linn. fil. *Vieusseuxia crispa* Eckl.—Whole plant 1- $1\frac{1}{2}$  ft. high. Corm  $\frac{1}{2}$  in. diam.; tunics of wiry strands. Produced leaves 2, subbasal, linear, rigid, spreading, glabrous,  $\frac{1}{2}$  ft. long. Panicle lax; lower branches compound; clusters many; spathes  $\frac{3}{4}$  in. long, on long erect peduncles; valves green, lanceolate; outer shorter than the next. Perianth lilac or yellow, fugitive,  $\frac{1}{2}$  in. long; falls obovate-cuneate; standards oblanceolate. Capsule oblong,  $\frac{1}{4}$  in. long; crests of style, lanceolate.

Var. *RECTIFOLIA* Baker (Bot. Mag. t. 759).—Leaves not at all crisped.

Hab. Cape Colony; south-western district.

24. *M. POLYANTHOS* Thunb. Diss. No. 14. *Vieusseuxia graminifolia* Eckl.—Whole plant 1- $1\frac{1}{2}$  ft. long. Corm  $\frac{3}{4}$  in. diam.; tunics of flattened blackish wiry strands. Produced leaves usually 2, linear, glabrous, ascending, overtopping the flowers. Clusters 5-30, on produced erect peduncles; spathe  $1\frac{1}{2}$ -2 in. long, green,

lanceolate; outer shorter than the next. Perianth fugitive, lilac, an inch long; falls with an obovate blade as long as the claw; with a yellow spot at the base; standards oblanceolate. Style-crests large, lanceolate. Capsule clavate or oblong,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long.

Hab. Cape Colony, northward to the Transvaal.

25. *M. COOPERI* Baker.—Corm not seen. Stem slender, terete, 1-1 $\frac{1}{2}$  ft. long. Produced leaves 2-4, long, firm, linear-subulate. Inflorescence of 6-20 clusters on erect glabrous bracteated peduncles. Spathes cylindrical, 1-1 $\frac{1}{2}$  in. long; valves acute, rigid to the tip. Perianth fugitive, lilac,  $\frac{3}{4}$ -1 in. long; falls oblong-cuneate; standards oblanceolate. Ovary small, turbinate.

Hab. Cape Colony; province of Worcester, *Cooper* 1661! Tulbagh, *Bolus* 5248! Habit of *M. viscaria*, but not at all viscose.

26. *M. POLYSTACHYA* Ker in *Konig & Sims Ann.* i. 240. *I. polystachya* Thunb. *I. lacera* Lam. *Vieusseuxia polystachya* Eckl.—Whole plant 2-3 ft. long. Corm 1 in. diam.; tunics of many flattened rigid strands. Produced leaves firm, linear, rigid, strongly ribbed, 1-2 ft. long. Clusters many, on erect peduncles. Spathes cylindrical, 2 in. long; valves green, lanceolate-acuminate. Perianth fugitive, bright lilac, 1-1 $\frac{1}{2}$  in. long; falls oblong-cuneate, with a bright yellow spot at the base of the limb; standards oblong-unguiculate, erect. Capsule oblong,  $\frac{1}{2}$  in. long. Style-crests large, lanceolate.

Hab. Cape Colony, ascending to 2500 ft. in the province of Graaf Reinet.

27. *M. GIGANTEA* Klatt in *Linn.* xxxv. 381.—Corm not seen. Produced leaves 2, rigid, ensiform, erect, the lower 2-3 ft. long, above an inch broad, acuminate. Stem stout, 2-3 ft. long, bearing a dense corymb of 20-30 clusters, on short erect peduncles. Spathes 1 $\frac{1}{2}$  in. long; valves green, with a scarioso, linear cusp. Perianth fugitive, yellow, an inch long. Capsule clavate,  $\frac{1}{2}$  in. long.

Hab. Cape Colony, in the central desert, *Burchell* 1388! 1431! Very distinct.

28. *M. RAMOSA* Ker in *Bot. Mag.* t. 771. *M. bulbifera* Jacq. *Hort. Schoen.* t. 197; *Hook fil.* in *Bot. Mag.* t. 5785. *Iris ramosa* Thunb. *I. ramosissima* Linn. fil. *Freuchenia bulbifera* Eckl.—Corm globose, hidden by copious sessile bulbillæ. Produced leaves 4-6, linear, ascending, the lower 1-1 $\frac{1}{2}$  ft. long. Stem stout, erect, 2-3 ft. long, bearing a lax corymb of 20-30 clusters, the lower branches copiously compound. Spathes cylindrical, an inch long; outer valve very small. Perianth bright yellow, 1-1 $\frac{1}{4}$  in. long; falls obovate, spotted with brown at the base of the limb; standards erect, oblong-unguiculate. Style-crests large, lanceolate. Capsule small, globose or turbinate.

Hab. Cape Colony; southern district. Very distinct.

29. *M. CANDELABRUM* Baker in *Trans. Linn. Soc. n. s. i.* 271.—Corm small, globose. Leaves many, linear, moderately firm, glabrous, the lowest above a foot long. Stem 2-3 ft. long, copiously branched in the upper half, viscose below the nodes,



bearing numerous clusters on ascending peduncles 1-2 in. long. Spathes 4-5-flowered, cylindrical, an inch long; outer valve small, oblong. Perianth small, lilac, fugitive; segments about equal in length. Ovary turbinate,  $\frac{1}{3}$  in. long.

Hab. Angola; mountains of the province of Huilla, alt. 5000 ft., *Welwitsch* 1544!

30. *M. ANDONGENSIS* Baker in Trans. Linn. Soc. n. s. i. 271.—Corm small, globose. Produced leaves 2-3, narrow linear, rigid, glabrous, the lowest 12-15 in. long. Stem very slender,  $\frac{1}{2}$ -1 ft. long, bearing 2-8 clusters on long flexuose peduncles, viscose upwards. Spathes cylindrical, under an inch long; outer valve short. Perianth sulphur-yellow, fugitive,  $\frac{1}{2}$  in. long; segments about equal in length, inner erect, oblanceolate. Capsule depresso-globose,  $\frac{1}{4}$ - $\frac{1}{2}$  in. diam.

Hab. Angola; mountains of the province of Pungo Andongo, *Welwitsch* 1532!

31. *M. GLUTINOSA* Baker in Trans. Linn. Soc. n. s. i. 271.—Corm 1-1 $\frac{1}{2}$  in. diam. Leaves of the sterile tufts firm, linear-ensiform, a foot long. Stem  $\frac{1}{2}$  ft. long below the inflorescence, bearing 3-4 rudimentary leaves. Panicle a foot long, bearing 3-4 clusters on long ascending peduncles, viscose below the spathes. Spathes 2-3-flowered, 1 $\frac{1}{4}$ -1 $\frac{1}{2}$  in. long; valves green, oblong-lanceolate; outer shorter than the next. Perianth lilac, fugitive, an inch long; segments about equal in length; falls with an oblong blade  $\frac{1}{4}$  in. broad; standards oblanceolate. Ovary turbinate,  $\frac{1}{3}$  in. long.

Hab. Angola; subtemperate region of Huilla, *Welwitsch* 1543!

32. *M. SPITHAMEA* Baker in Trans. Linn. Soc. n. s. i. 271.—Corm globose,  $\frac{1}{4}$ - $\frac{1}{2}$  in. diam. Stem slender, a few inches long, viscose below the spathes, bearing 2-3 clusters on erect peduncles an inch long, its leaves all rudimentary. Spathes 2-3-flowered, 1-1 $\frac{1}{4}$  in. long; valves green, lanceolate, outer shorter than the next. Perianth yellow, fugacious,  $\frac{3}{4}$  in. long; segments narrow, about equal in length, the falls with a black spot at the base of the limb. Ovary turbinate,  $\frac{1}{3}$  in. long.

Hab. Angola; subtemperate region of Huilla, *Welwitsch* 1567!

33. *M. VISCARIA* Ker in König & Sims Ann. i. 240. *Iris viscaria* Linn. fil.; Ker in Bot. Mag. t. 587. *Vieusseuxia viscaria* Eckl.—Whole plant 1-1 $\frac{1}{2}$  ft. long. Corm about 1 in. diam.; tunics of feathered wiry strands produced as bristles above its neck. Produced leaves 2, long, rigid, linear-complicate. Stem copiously branched low down, with many clusters on arcuate viscose brown peduncles; spathes cylindrical, 1- $\frac{1}{4}$  in. long; outer valves subequal, green, firm, lanceolate. Perianth very fugitive, under an inch long; segments yellowish brown, outer oblong-cuneate, inner oblanceolate, erect. Style-crests lanceolate. Capsule small, oblong.

Var. *M. BITUMINOSA* Ker in König & Sims Ann. i. 240; Bot. Mag. t. 1045. *Iris bituminosa* Linn. fil.—Flowers bright yellow. Peduncles green.

Hab. Cape Colony; southern district.

84. *M. SETACEA* Ker in König & Sims Ann. i. 240. *I. setacea* Thunb. Diss. No. 29, t. i. fig. 2. *I. setifolia* Linn. fil. *Viuosseuvia setacea* Eckl.—Corm small, ovoid; tunics thick, fibrous. Stem slender,  $\frac{1}{2}$ –1 ft. long, bearing 1–2 very slender subulate leaves  $\frac{1}{2}$ –1 ft. long. Clusters 1–3 erect, nearly sessile; spathes about an inch long; valves subequal. Perianth lilac, fugitive,  $\frac{1}{2}$  in. long; falls spreading,  $\frac{1}{4}$  in. broad; standards oblanceolate, erect. Capsule oblong,  $\frac{1}{2}$  in. long; style-crests lanceolate.

Hab. Cape Colony; south-western district. Described from specimens gathered by Thunberg & Masson. A similar plant from Bechuanaland, with yellow flowers, gathered by Burchell, is probably distinct specifically.

85. *M. UNDULATA* Ker Gen. Irid. 43. *M. crispa* Thunb. Diss. No. 17, non Ker.—Whole plant  $\frac{1}{2}$  ft. long. Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics of flattened wiry strands, connected upwards with short cross fibres. Produced leaf single, spreading, narrow linear, coriaceous, glabrous,  $\frac{1}{2}$ –1 ft. long. Spathes 1–3, shortly peduncled, cylindrical,  $1\frac{1}{2}$  in. long; outer valve shorter than the next. Perianth fugitive, lilac,  $\frac{3}{4}$  in. long; falls with an obovate limb as long as the claw; standards oblanceolate. Ovary turbinate  $\frac{1}{8}$  in. long.

Hab. Cape Colony; south-western district.

86. *M. FILICAULIS* Baker.—Corm not seen. Stem very slender, 3–4 in. long below the single cluster, which is nearly sessile and subtended by 2 very slender setaceous leaves. Spathe  $\frac{3}{4}$  in. long; outer valve small, acute. Perianth fugitive,  $\frac{1}{2}$  in. long. Ovary small, clavate.

Hab. Cape Colony; north-west district, alt. 4000–5000 ft., *Drège* 2605! May be an extreme form of *M. edulis*.

87. *M. NATALENSIS* Baker.—Corm not seen. Stem slender, wiry,  $1\frac{1}{2}$  ft. long, without any produced leaf below the inflorescence, which is subtended by a rigid subulate leaf 3–6 in. long. Clusters 2–5, shortly peduncled. Spathes cylindrical,  $1\frac{1}{2}$  in. long; valves rigid; outer short, lanceolate. Perianth fugitive, lilac,  $\frac{3}{4}$ –1 in. long. Capsule oblong,  $\frac{1}{2}$ – $\frac{1}{4}$  in. long.

Hab. Mountains of Natal, alt. 2000–3000 ft. Collected by Dr. Sutherland and Mr. Sanderson. Allied to *M. edulis*; differs by its short bract-leaf and oblong capsule.

88. *M. EDULIS* Ker in König & Sims Ann. i. 241; Bot. Mag. t. 613. *Iris edulis* Linn. fil. *I. capensis* Burm. *M. vegeta* Jacq. Ic. t. 224, non Linn. *Viuosseuvia edulis* Eckl.—Corm small, globose; coats of wiry strands, connected by short cross-fibres. Stem naked for  $\frac{1}{2}$ – $1\frac{1}{2}$  ft., bearing a long rigid linear-subulate leaf from the base of the inflorescence, which consists of few or many erect shortly-peduncled clusters. Spathe  $1\frac{1}{2}$ –2 in. long; valves rigid; outer short, lanceolate. Perianth fugitive, lilac, fragrant,  $1\frac{1}{2}$  in. long; falls oblong-cuneate; standards erect, oblanceolate. Capsule cylindrical-trigonal,  $\frac{3}{4}$ –1 in. long.

Hab. Cape Colony; southern district. *M. odora* Salisb. Parad. t. 10, is a form with white, and *M. longifolia* Sweet (Bot. Mag. t. 1238) with yellow flowers. *M. umbellata* Thunb. has many clusters crowded on a short axis. Var. *gracilis* Baker, *Zeyher* 1647! has slender spathes an inch long and much smaller flowers and capsules than in the type, and may be a distinct species.

39. *M. BOLUSII* Baker.—Corm not seen. Produced leaf solitary, spreading, basal, linear, coriaceous, much crisped, 6–8 in. long,  $\frac{1}{4}$  in. broad. Flowering stem 4–6 in. long, bearing several erect sessile clusters. Spathe  $1\frac{1}{4}$ – $1\frac{1}{2}$  in. long; outer valve shorter than the next. Perianth fugitive, yellow, an inch long; outer segments obovate,  $\frac{1}{2}$  in. broad; inner rather smaller. Filaments monadelphous, longer than the anthers. Style-crests lanceolate.

Hab. Lesser Namaqualand, at Ookiep. alt. 3000 ft., *Bolus* 6574!

40. *M. THOMSONI* Baker.—Corm and leaves not seen. Upper part of very slender stem bearing 1–2 rudimentary leaves. Inflorescence a panicle of 2–3 laxly disposed clusters, the side ones sessile and erect. Spathe 2–3-flowered, cylindrical, an inch long; valves lanceolate. Perianth small, fugitive. Capsule oblong,  $\frac{1}{4}$  in. long, like those of *M. trisits* and *iriopetala*.

Hab. High plateau north of Lyke Nyassa. Collected by Mr. Joseph Thomson in 1880.

#### Subgenus II. HELIXYRA (Salisb.).

41. *M. LONGIFLORA* Ker in Bot. Mag. t. 712. *Helixyra flava* Salisb. — Corm small, ovoid. Produced leaves 1–2, subulate, glabrous,  $\frac{1}{2}$  ft. long. Stem very slender, short, ending in 2 sessile clusters. Spathes cylindrical,  $1\frac{1}{2}$ –2 in. long; valves lanceolate. Ovary with a long filiform beak. Perianth bright yellow, fugacious, an inch long; falls obovate-unguiculate,  $\frac{1}{3}$ – $\frac{1}{4}$  in. broad; inner shorter, oblanceolate. Style-crests small, lanceolate.

Hab. Cape Colony. Known to me only from the figure cited.

42. *M. BURCHELLII* Baker in Journ. Linn. Soc. xvi. 132.—Corm not seen. Stem very short, bearing a single slender firm terete leaf,  $\frac{1}{2}$ –1 ft. long from the base of the inflorescence. Clusters 1–3, the side ones sessile, erect. Spathes 1– $1\frac{1}{4}$  in. long; outer valves acute or acuminate. Ovary narrowed into a filiform beak an inch long. Perianth fugitive, pale lilac,  $\frac{1}{2}$  in. long; falls with an oblong blade as long as the claw. Style-crests lanceolate.

Hab. Cape Colony; Bechuanaland, *Burchell* 2250!

43. *M. SPIRALIS* Baker.—Corm not seen. Stem short, very slender, with a single firm subulate leaf 3–6 in. long, which is more or less spirally twisted, from the base of the inflorescence. Clusters 1–5, contiguous, sessile on a flexuose rachis, erecto-patent. Spathes  $\frac{1}{2}$ – $\frac{3}{4}$  in. long; valves rigid, lanceolate. Ovary clavate, narrowed into a beak above  $\frac{1}{4}$  in. long. Perianth lilac, fugitive, under  $\frac{1}{2}$  in. long.

Hab. Cape Colony; north-western district, *Drège* 2604! and re-gathered lately by the Rev. W. Morris (*Bolus* 5788!).

44. *M. ROGERSII* Baker.—Corm not seen. Stem very short, with a single sessile cluster and from the base of it a single linear-subulate firm falcate leaf 3–4 in. long. Spathe cylindrical, an inch long; valves lanceolate, subscariose. Ovary narrowed into a filiform beak  $\frac{1}{2}$  in. long. Perianth lilac, fugitive,  $\frac{1}{2}$  in. long; falls obovate-cuneate, with a yellow spot at the base of the blade.

Hab. Cape Colony; Mossel bay. Gathered by the Rev. W. M. Rogers in 1862.

45. *M. SIMULANS* Baker.—Corm small, ovoid. Stem varying from a few inches to a foot long, bearing 1–2 linear rigid leaves from the base of the inflorescence, sometimes with a bulbil in their axil. Clusters 2–4, the side ones sessile or shortly peduncled, erect. Spathes  $1\frac{1}{2}$ –2 in. long; valves scariose, very acute. Ovary cylindrical, narrowed into a long beak. Perianth lilac, fugacious, under an inch long; falls with a spreading obovate blade. Style-crests small.

Hab. Cape Colony; banks of the Vaal river, Nelson 203! *Scott Elliot* 1250! Habit of *Iris Sisyrinchium*.

46. *M. CLADOSTACHYA* Baker.—Corm not seen. Produced leaf single, linear, rigid, 2 ft. or more long, with a large bulbil in its axil. Spikes 1–3, bearing each several sessile erect clusters. Spathes scariose,  $1\frac{1}{2}$ –2 in. long; valves acute. Ovary narrowed into a slender beak nearly an inch long. Perianth small, fugacious.

Hab. Cape Colony; north-west district, *Drège* 2610! Eastern frontier, *Mrs. Barber*! Gathered also by Burchell. Nearly allied to *M. simulans*.

### Subgenus III. *VIUSSEUXIA* (Delar.).

47. *M. ELLIOTII* Baker.—Corm not seen. Basal leaf single, rudimentary. Stem slender, 1– $1\frac{1}{2}$  ft. long, bearing a large linear leaf from the middle. Clusters of flowers 1–2; spathe cylindrical, 2-flowered,  $1\frac{1}{2}$  in. long; valves lanceolate, rigid, the outer much shorter than the inner. Outer perianth-segments oblong-unguiculate,  $\frac{3}{8}$  in. long, bright lilac with a pale spot at the base of the blade; inner about half as long. Style-crests lanceolate. Capsule small, oblong-clavate.

Hab. Transvaal; marshes at Lake Chrissie, *Scott Elliot* 1592! Habit of *M. tenuis*.

48. *M. TENUIS* Ker in Bot. Mag. t. 1047. *I. tricuspis*, var. Jacq. Ic. t. 222. *Viusseuxia tenuis* R. & S. *Iris gracilis* Lichten.—Corm small, globose; tunics thick fibrous or cancellate. Produced leaf 1, basal, long, narrow linear. Stem long, very slender, terete, simple or with 1–2 short erect branches. Spathes cylindrical, 2–3-flowered,  $1\frac{1}{2}$  in. long; valves scariose at the tip only; outer much shorter than the inner. Perianth with yellow-brown oblong-unguiculate, outer segments under an inch long; inner with a long claw and 3 linear cusps. Crests of stigma large, lanceolate. Capsule small, clavate-oblong.

Hab. Cape Colony; south-eastern provinces to Natal.

49. *M. TRICUSPIS* Ker in Bot. Mag. t. 696. *Iris tricuspidata* Linn. fil. *I. tricuspis* Jacq. Ic. t. 292, ex parte. *Viusseuxia tricuspis* Spreng. *V. aristata* Houtt. Handl. xii. 105, t. 80. — Corm small, globose; coats thick, fibrous. Produced leaf single, sub-basal, long, firm, narrow linear, glabrous. Stem 1–2 ft. long, with 2–3 sheath-leaves, simple, or with 2–4 short erect branches. Spathes cylindrical, 2– $2\frac{1}{2}$  in. long, scariose at the tip. Perianth

fugitive,  $\frac{3}{4}$ –1 in. long, whitish or lilac; falls with an obovate spreading blade, as long as the claw; standards with 3 filiform cusps. Capsule clavate,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western district to Natal.

50. *M. UNGUICULATA* Ker in Bot. Mag. t. 598. *Viesseuxia unguiculata* R. & S.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics coarsely cancellate. Produced leaves 1–2, long, linear-subulate, glabrous. Stem very slender, 1–1 $\frac{1}{2}$  ft. long, simple or with 1–4 short erect branches. Spathes cylindrical, 1–1 $\frac{1}{2}$  in. long. Perianth white, fugitive, 1–1 $\frac{1}{4}$  in. long; falls with an oblong blade spotted with purple as long as the claw; standards small, tricuspidate, with a subulate claw. Capsule small, clavate.

Hab. Cape Colony; Queenstown, South Central Karroo, Namaqualand, &c.

51. *M. CANDIDA* Baker. *Viesseuxia fugax* Delar. Diss. 33.—Produced leaf single, narrow linear, twice as long as the stem. Stem simple, 1 $\frac{1}{2}$ –2 ft. long, with several sheath-leaves. Flowers white, much larger than those of *M. pavonia*; falls with a densely bearded claw, crowned with a yellow spot with a purple border; standards bicuspidate.

Hab. Cape Colony. Known to me only from the description of Delaroché.

52. *M. PAVONIA* Ker in Bot. Mag. t. 1247. *Iris pavonia* Linn. fil.; Jacq. Hort. Schoen. i. 6, t. 10; Andr. Bot. Rep. t. 61. *Viesseuxia pavonia* DC. —Corm globose,  $\frac{1}{2}$ –1 in. diam.; tunics thick, cancellate. Produced leaf single, subbasal, long, narrow linear, usually pilose. Stem slender, 1–2 ft. long, simple, or with 1–3 short erect branches. Spathes cylindrical, 2–2 $\frac{1}{2}$  in. long; valves scarious at the tip; outer shorter than the next. Perianth fugitive, bright red, 1–1 $\frac{1}{4}$  in. long; falls with an obovate blade, with a blue-black or green-black spot at the base; standards tricuspidate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Capsule clavate,  $\frac{1}{2}$  in. long. Style-crests large, lanceolate.

Var. *M. VILLOSA* Ker. *Iris villosa* Ker in Bot. Mag. t. 571. *Viesseuxia villosa* Spreng. — Falls bright purple, with a blue-black spot and a hairy claw.

Var. *LUTEA* Baker. *M. tricuspis* var. *lutea* Ker. in Bot. Mag. t. 772. *Viesseuxia spiralis* Delar. Diss. 31, t. 5. *V. Bellendeni* Sweet.—Flowers yellow; falls not spotted on the v.

Hab. Cape Colony; south-western district and Namaqualand.

53. *M. GLAUCOPIS* Baker. *Viesseuxia glaucopis* DC.; Red. Lil. t. 42; Flore des Serres t. 423. *Iris pavonia* Curt. in Bot. Mag. t. 168. *I. tricuspis* Jacq. Collect. iv. t. 9, fig. 1.—Corm globose,  $\frac{1}{2}$  in. diam.; crests cancellate. Produced leaf single, long, firm, narrow linear, glabrous. Stem 1 $\frac{1}{2}$ –2 ft. long, with 2–3 sheath-leaves, simple or with 1–3 short erect branches. Spathes cylindrical, 2–2 $\frac{1}{2}$  in. long; valves scarious at the tip. Perianth white, fugitive, 1–1 $\frac{1}{4}$  in. long; falls with an obovate blade, with a blue-black spot at the base; standards tricuspidate, with a filiform claw. Style-crests large, lanceolate. Capsule clavate, an inch long.

Hab. Cape Colony; south-western district.

54. *M. TRIPETALA* Ker in Bot. Mag. t. 702. *Iris tripetala* Linn. fil.; Jacq. Ic. t. 221. *Vieusseuxia tripetaloides* DC.—Corm  $\frac{1}{2}$ –1 in. diam.; coats thick, cancellate upwards. Produced leaf single, sub-basal, narrow linear, firm, glabrous, as long as the stem. Stem very slender, usually simple, 1–2 ft. long. Spathe cylindrical, 2–2½ in. long; valves lanceolate, finely ribbed. Perianth 1–1¼ in. long, fugitive, lilac, rarely blue or reddish; falls with an obovate blade as long as the claw, with a yellow spot at the base; standards small, linear. Style-crests large, linear. Capsule clavate,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western district. *Vieusseuxia mutila* Klatt. is a variety with a pilose leaf.

#### Subgenus IV. DIETES (Salisb.).

55. *M. IRIDOIDES* Linn. Mant. 28; Jacq. Hort. Schoen. t. 196 (exl. syn.); Ker in Bot. Mag. t. 693. *M. vegeta* Miller (Ic. tab. 239, fig. 1). *Iris compressa* Linn. fil. *I. moræoides* Ker in Bot. Mag. t. 1407. *I. crassifolia* Lodd. Bot. Cab. t. 1861. *Dietes compressa* and *crassifolia* Klatt. *D. iridoides* Sweet.—Rhizome short-creeping. Leaves several in a fan-shaped basal tuft, ensiform, dark green, firm, 1–2 ft. long,  $\frac{1}{2}$ –¾ in. broad. Stem 1–2 ft. long, with many sheath-leaves, sometimes elongated and oviparous. Clusters few, laxly corymbose; spathes cylindrical, 1½–2 in. long; valves firm, not pointed; outer small. Perianth white, 1–2 in. long; all the segments spreading; outer obovate-cuneate, with a finely pilose claw and a yellow keel at the base; inner segments oblong-cuneate, concolorous. Style-crests lanceolate,  $\frac{1}{3}$ –½ in. long. Capsule ellipsoid, 1–1½ in. long.

VAR. *M. CATENULATA* Ker in Bot. Reg. t. 1074. *Dietes catenulata* Klatt.—Falls with a yellow spot in the centre, and a double row of yellow papillæ down the nearly glabrous claw. Styles and style-crests lilac.

Hab. Cape Colony, extending northward to Natal and the mountains of Zambesiland. *M. prolongata* and *Dietes Macleaii* are garden forms.

56. *M. BICOLOR* Spæe in Flore des Serres t. 744. *Iris bicolor* Lindl. in Bot. Reg. t. 1404; Paxt. Mag. ix. 29. *Dietes bicolor* Klatt.—Habit of *M. iridoides*. Leaves 1½–2 ft. long. Stems 1–2 ft. long; clusters few, laxly corymbose. Spathes cylindrical, 1½–2 in. long; outer valve short. Expanded flower 2 in. diam., lemon-yellow; outer segments obovate, with a black spot in the centre; inner segments oblong, concolorous,  $\frac{1}{3}$ –½ in. broad. Style-crests small.

Hab. Cape Colony; south-eastern district. It was originally described and figured from the garden of the Comte de Vandes, at Bayswater, in 1831.

57. *M. ROBINSONIANA* F. Mull. Fragm. vii. 153; Hook. fil. in Bot. Mag. t. 7212. *Iris Robinsoniana* F. M.; G. Benn in Gard. Chron. 1872, 393, with tab.—Rhizome short. Radical leaves firm, ensiform, 5–6 ft. long. Flowering stem 5–6 ft. long; clusters laxly corymbose; spathes 1½–2 in. long; valves rigid, obtuse; outer shorter than the next. Perianth pure white, fugacious, 3–4 in. diam.; segments of both rows spreading, obovate, the outer above

an inch broad, the inner narrower. Style-crests short and broad. Capsule-valves above an inch long,  $\frac{3}{4}$  in. broad.

Hab. Lord Howe's Island, Australia. Introduced into cultivation in 1877, and flowered in Scilly at the Tresco Abbey gardens in 1877, and at Kew, under cover, in 1891. A most distinct and handsome species, with the habit of *Phormium tenax*.

#### 4. MARIEA Ker.

*Perianth-tube* obsolete; segments of the two rows very dissimilar; outer obovate, spreading; inner much smaller, panduriform, convolute. *Stamens* short, erect; filaments distinct. *Ovary* clavate, 8-celled; ovules many, superposed; style subulate at the base, cyathiform with three angles in the upper half, to which the anthers loosely adhere; style-crests lanceolate, with the transverse stigmas at their base. *Capsule* oblong, loculicidally 3-valved. *Seeds* subglobose or angled by pressure, with a brown testa and horny albumen.—*Rootstock* a short rhizome. *Leaves* ensiform, distichous, flabellate. *Peduncle* flat and leaf-like, with 1 or few sessile or peduncled flower-clusters. *Flowers* very fugitive, blue, yellow or white.

1. *M. CÆRULEA* Ker in Bot. Reg. t. 713; Hook. Exot. Flora t. 222. *Cypella carulea* Seub.; Bot. Mag. t. 5612. *Galathea carulea* Liebm.—Leaves 6–8, ensiform, bright green, 2–3 ft. long, 1–1 $\frac{1}{2}$  in. broad. Peduncle elongated, ensiform, as broad as the leaves. Clusters 2–4, on very short or elongated peduncles; spathes 2–3 in. long; outer valves green, rigid, lanceolate. Expanded flower 3–4 in. diam., bright blue or lilac; outer segments 1–1 $\frac{1}{2}$  in. broad, variegated at the base with transverse bars of brown, yellow and white; inner with a recurved blue point and large transversely barred claw. Style-crests lanceolate, with the spreading deltoid stigmas at their base. Capsule clavate oblong, 1 $\frac{1}{2}$  in. long.

Hab. Tropical America, common in cultivation. *M. Sabini* Lindl. in Trans. Hort. Soc. vi. 75, t. 1, imported from Guinea, seems to me merely a form of this species. It has been gathered of late years both by Barter and Mann.

2. *M. GLAUCA* Baker in Journ. Linn. Soc. xvi. 149. *Cypella glauca* Klatt.—Leaves linear, 3 ft. long,  $\frac{1}{2}$  in. broad. Peduncle as long as the leaves,  $\frac{1}{2}$  in. broad at the base,  $\frac{1}{3}$  in. at the summit. Spathe-valves glaucous, navicular, lanceolate, 1 $\frac{1}{2}$  in. long. Expanded perianth 2 in. diam.; outer segments obovate, blue, with cross veins of brown on the claw; inner with a pilose claw and reflexed blue tip. Style-branches with three lanceolate crests.

Hab. South and Central Brazil. Gathered by Sello & Warming. We have a drawing in the Kew collection of an allied plant, flowered at Kew in July, 1843, with similar flowers, but with much shorter broader leaves, which is probably a distinct species.

3. *M. WARMINGII* Klatt Erganz. 41.—Basal leaves 2, linear,  $\frac{1}{2}$  in. broad, under  $\frac{1}{2}$  ft. long. Stem terete, 3 in. long. Spathe an inch long. Expanded perianth 2 in. diam.; outer segments ovate, acute, white at the base, blue at the apex; inner half as long, with a reflexed blue tip.

Hab. Central Brazil; Lagoa Santa, Warming.

4. *M. NORTHIANA* Ker in Bot. Mag. t. 654. *Moræa Northiana* Andr. Bot. Rep. t. 255. *Iris Northiana* Pers. *Moræa vaginata* Red. Lil. t. 56. *Ferraria elegans* Salisb.—Leaves about 8 in a tuft, ensiform, bright green, the outer a foot, the inner 2 ft. long,  $1\frac{1}{2}$ –2 in. broad. Peduncle as broad as the leaves, 3 ft. long, bearing about 2 shortly peduncled lateral clusters near its apex; spathes  $1-1\frac{1}{2}$  in. long; outer valves rigid, green, lanceolate. Expanded flower 3–4 in. diam.; outer segments obovate, pure white, an inch broad, the claw variegated with yellow and brown; inner with a convolute violet tip and similarly decorated claw. Style, including its lanceolate crests,  $\frac{3}{4}$  in. long.

Hab. Tropical America. Perhaps not more than a white-flowered variety of *M. carulea*. There is a specimen from Kew Gardens in Bishop Goodenough's herbarium, dried in 1784.

5. *M. GRACILIS* Herb. in Bot. Mag. t. 3713. *Cypella gracilis* Klatt.—Leaves 6–8 in a tuft, ensiform, bright green, not rigid,  $1-1\frac{1}{2}$  ft. long,  $\frac{1}{2}$ –1 in. broad. Peduncle elongated, flat, with the flowers some distance below its point, which is sometimes lengthened out and takes root. Clusters with short or elongated peduncles; spathes  $1\frac{1}{2}$  in. long; outer valves green, lanceolate-acuminate. Expanded flowers 2 in. diam.; outer segments obovate, white, veined with cross-bars of yellow and brown at the base; inner with a small reflexed blue. Style-crests 3, large, lanceolate, with 2 spreading orbicular stigmatic spurs at the base. Capsule oblong, obtusely angled, an inch long.

Hab. Tropical America, from Mexico to Brazil.

6. *M. BRACHYPUS* Baker in Bot. Mag. t. 6380. *Cypella brachypus* Baker.—Leaves 6–8, ensiform, bright green,  $1\frac{1}{2}$  ft. long,  $1-1\frac{1}{2}$  in. broad. Peduncle  $1\frac{1}{2}$  in. broad, producing a single sessile cluster of flowers 3–4 in. above its base; outer spathe-valves green, firm, lax, ovate, 3–4 in. long. Perianth bright yellow, the segments of both rows transversely banded with brown in the lower third; outer oblong,  $1\frac{1}{2}$  in. long; inner half as long. Style-crests pale yellow, lanceolate.

Hab. Trinidad. Described from a plant flowered in Kew Gardens in 1875, received from Mr. Wilson Saunders.

7. *M. LONGIFOLIA* Link, Klotsch & Otto Ic. Plant. Select. 123, t. 58. *Cypella longifolia* Klatt.—Leaves green, ensiform, an inch broad. Peduncle narrowly winged, 1–2 ft. long, bearing 3 long-peduncled clusters a short space below the tip. Spathes  $1-1\frac{1}{2}$  in. long; valves green, lanceolate, acute. Expanded flower 2 in. diam.; outer segments obovate, yellow, with transverse bars of brown on the claw; inner yellow, banded with brown up to the tip. Style, including its lanceolate crests,  $\frac{1}{2}$  in. long.

Hab. Rio Janeiro. Described originally from a plant flowered in the Berlin Botanic garden about 1828, sent by Mr. Harrison from Rio Janeiro.

8. *M. LUTEA* Herb. in Bot. Mag. t. 3809.—Leaves many, in a lax rosette,  $1\frac{1}{2}$  ft. long.  $\frac{1}{2}$ – $\frac{3}{4}$  in. broad. Scape narrowly winged,



bearing a few long-peduncled clusters some distance below the summit. Spathes narrowly cylindrical,  $1\frac{1}{2}$  in. long. Expanded flower 2 in. diam.; outer segments bright yellow, obovate, with about 5 transverse bars of red-brown on the claw; inner segments with a whitish barred tip. Style-crests 3, large, lanceolate.

Hab. South Brazil. Described by Dean Herbert from a plant that flowered at Spofforth about 1840.

9. *M. HUMILIS* Lodd. Bot. Cab. t. 1801. *Cypella humilis* Klatt. —Leaves ensiform,  $1-1\frac{1}{2}$  ft. long,  $1-1\frac{1}{2}$  in. broad. Peduncle flat, overtopping the leaves, with a short fork a short distance below its apex. Spathes  $1\frac{1}{2}$  in. long. Expanded flower 2 in. in diam.; outer segments obovate, yellowish white, with about 4 transverse bars of red-brown on the claw; inner with a reflexed blue tip. Style with 3 lanceolate crests.

Hab. South Brazil. Originally described from a plant flowered by Loddiges about 1825.

10. *M. BULBOSA* Klatt, Ergänz. 40.—Rootstock slightly tuberous, with brown tunics, breaking up into parallel fibres. Leaves linear, under a foot long. Stem 4–10 in. long, not winged below, ending in a linear leaf. Clusters of flowers 1–2; spathes under an inch long. Expanded flower above an inch in diam.; outer segments obovate, yellow, with pale red-brown bars on the claw,  $\frac{1}{4}$  in. broad; inner as long, but rather narrower. Style-crests 3, yellow.

Hab. Central Brazil; first gathered by Martius.

11. *M. MARTII* Baker. —Rootstock slightly tuberous; tunics brown, rigid, splitting into parallel fibres. Leaves thick, rigid, linear, 2 ft. long,  $\frac{1}{4}$  in. broad. Stem subterete towards the base, ending above the inflorescence in a long rigid linear point. Spathes long-peduncled, 2 in. long. Outer segments of the perianth obovate, yellow,  $1\frac{1}{2}$  in. long; inner half as long, with a small recurved apex.

Hab. South Brazil, *Sello!* Described from a specimen received from the Berlin herbarium, marked by Klotzsch, "*Cypella flava* Mart."

##### 5. CYPELLA Herb.

*Perianth-tube* obsolete; segments of the two rows very dissimilar; outer obovate, spreading from the base; inner much smaller, panduriform, convolute. *Stamens* short, erect; filaments distinct. *Ovary* clavate, 3-celled; ovules many, superposed; style subulate at the base, cyathiform upwards, the crests of its branches much overtopping the stigmas. *Capsule* oblong, loculicidally 3-valved. *Seeds* numerous, flattened by pressure, with a brown testa and horny albumen.—Differs from *Marica* by its terete stems, terminal single or corymbose flower-clusters, and plicate leaves.

Style-appendages spur-like . . . . . Sp. 1–5.

Style-appendages flat, petaloid (*Hesperoxiphion* Baker). Sp. 6–8.

1. *C. HERBERTI* Herb. in Bot. Mag. sub t. 2637; Sweet, Brit. Flow. Gard. ser. 2, t. 93. *Tigridia Herberti* Herb. in Bot. Mag. t. 2599. *Moræa Herberti* Lindl. in Bot. Reg. t. 949. *Marica*

*Herbertiana* Ker. *Polia bonariensis* Tenore. — Corm small; tunics brown, membranous. Stems slender terete, 1-2 ft. long, bearing few or several laxly corymbose terminal clusters. Leaves distantly superposed, linear, plicate, the lower  $\frac{1}{2}$ -1 ft. long. Spathes cylindrical,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long; outer valves much shorter than the next. Flowers fugitive, bright yellow or tinged lilac; outer segments obovate,  $1-1\frac{1}{2}$  in. long, with a brown keel and broad concave claw; inner less than half as long, narrow, very convolute. Filaments half as long as the anthers. Style-branches each with 4 unequal erect and 2 spreading cusps. Capsule clavate-oblong,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long.

Hab. South Brazil, Uruguay, Buenos Ayres, and Argentine Republic. *Polia ramosa* Klatt. is a many-headed variety with lilac flowers.

2. *C. GRACILIS* Baker in Journ. Linn. Soc. xvi. 129. *Polia gracilis* Klatt. — Corm small, ovoid; tunics brown, membranous. Produced leaves 2-3, very narrow, plicate, the lower  $\frac{1}{2}$  ft. long. Stem very slender,  $\frac{1}{2}$ -1 ft. long, usually 1-headed. Spathe cylindrical,  $1\frac{1}{4}$  in. long; valves green; outer short. Flowers very fugitive, bright yellow or tinged lilac,  $1\frac{1}{2}$ -2 in. diam.; outer segments obovate,  $\frac{1}{2}$  in. broad; inner narrow and very convolute. Style-branches bifid, each division with one erect and two spreading spurs.

Hab. Central Brazil, *Mosen*, 1048! Paraguay, *Balansa*, 536! Parana, *Tweedie*! Perhaps a mere variety of *C. Herberti*. See *Flore des Serres*, t. 1056.

3. *C. PLUMBEA* Lindl. in Bot. Reg. xxiv. Misc 71. *Phalocallis plumbea* Herb. in Bot. Mag. t. 3710; *Flore des Serres*, t. 395 & 1466; Klatt in Fl. Bras. iii. t. 66, fig. 1. — Corm large, globose; tunics brown, membranous. Produced leaves lanceolate, very plicate, 1-2 ft. long, with a long channelled petiole. Stem stout, terete, 2-4 ft. long, bearing one or few terminal heads. Spathes  $1\frac{1}{2}$ -2 in. long; outer valves green, subequal, ventricose. Flowers very fugitive, dull lilac; outer segments broad obovate-cuneate,  $1\frac{1}{2}$ -2 in. long; inner with a small obovate blade and long claw. Style-branches bifid, each fork with one erect and two spreading spurs. Capsule 2 in. long, narrowed at the base into a distinct neck.

Hab. South Brazil and Buenos Ayres.

4. *C. GIGANTEA* Klatt, *Erganz.* 30.—Corm ovoid; tunics brown. Leaves lanceolate, plicate, reaching a length of 3 ft. Stem 3 ft. long, terete, simple, leafy. Spathe-valves green, ventricose; outer valve  $1\frac{1}{4}$  in., inner  $1\frac{3}{4}$  in. long. Perianth blue, with a yellow base; outer segments obovate, 2 in. long, above an inch broad; inner  $1\frac{1}{2}$  in. long,  $\frac{1}{2}$  in. broad. Style crests tricuspidate.

Hab. Central Brazil; province of Minas Geraes, *Regnell*, 1215.

5. *C. PALUDOSA* Klatt, *Erganz.* 31.—Leaves lanceolate-ensiform, the lower under a foot long, the upper gradually shorter. Stems compressed, 2-3 ft. long. Spathe-valves ventricose, the outer an inch, the next nearly 2 in. long. Flowers yellow, spotted with purplish black; outer segments obovate-unguiculate,  $1\frac{1}{2}$  in. long, nearly an inch broad; inner nearly an inch long, reflexed at the tip. Style-crests tripartite.

Hab. Central Brazil; province of Minas Geraes, *Regnell*, 1216.

6. *C. PERUVIANA* Baker in Bot. Mag. t. 6213. *Hesperoxiphion peruvianum* Baker.—Corm ovoid, 1 in. diam.; tunics rigid, brown. Produced leaves 2-3, lanceolate, distantly superposed, very plicate. Stems terete, above a foot long, bearing 1-2 clusters. Spathes  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long; valves green, subequal, ventricose. Perianth fugitive, bright yellow; outer segments broad-obovate-cuneate,  $1\frac{1}{2}$  in. long, the claw much spotted with red-brown; inner with a broad deflexed yellow blade, pilose centre, and concave cuneate claw. Style-crests 2, flat, petaloid, with a small intermediate tooth. Ovary clavate.

Hab. Andes of Peru. Described from a plant flowered by Messrs. Veitch in July, 1874. The same or a near ally was gathered long ago by Pentland, and more lately by Mandon (1223) on the high Andes of Bolivia.

7. *C. LINEARIS* Baker. *Moræa linearis* H. B. K. *Iarentia* and *Alophia linearis* Klatt. — Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics membranous, dark brown. Produced basal leaves 1-3, linear-subulate, as long as the stem. Stem wiry, slender, terete,  $\frac{1}{2}$ -1 ft. long, 1-3-headed, with a short linear leaf from the base of each peduncle. Spathes cylindrical,  $\frac{3}{4}$ -1 in. long; outer valve shorter than the next. Perianth very fugitive, blue; outer segments obovate-unguiculate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, with a yellow spot in the centre; inner much shorter, with a narrow claw, and small reflexed limb. Style-crests 2, lanceolate, petaloid, with a tooth outside at the base.

Hab. Mountains of Venezuela, *Funcke!* *Otto*, 996! *Ernst!*

8. *C. PUSILLA* Benth. Gen. Plant. iii. 690. *Ferraria pusilla* Link. Klotzsch & Otto, Ic. t. 59. *Polia pusilla* Klatt. *Hesperoxiphion pusillum* Baker. — Whole plant 4-6 in. high. Corm ovoid,  $\frac{3}{4}$  in. diam.; tunics brown. Produced leaves linear, basal, plicate, 3-4 in. long. Stem slender, terete, 1-headed. Spathe cylindrical, under an inch long. Perianth fugitive, pale yellow; outer segments under an inch long, with an oblong blade exceeding the cuneate claw; inner much shorter, very convolute. Style-crests 3, linear, the central one minute.

Hab. Porto Alegre, South Brazil. Sent to the Berlin garden by Sello in 1826.

#### 6. TRIMEZIA (*Salisb.*) *Herb.* (*Lansbergia* De Vriese).

*Perianth*-tube none; segments of the two rows very dissimilar; outer obovate, with a broad concave claw; inner much smaller, convolute, with a small deflexed blade. *Stamens* short, erect; filaments free. *Ovary* clavate, 3-celled; ovules many, superposed; style subulate at the base, the three branches ending in small tubercles or cusps that overtop the small horizontal stigmas. *Capsule* oblong, loculicidally 3-valved. *Seeds* small, brown, angled by pressure. — Allied to *Cypella*, from which it differs by its non-plicate leaves and small style-crests.

Leaves flat, linear	.	.	.	Sp. 1-3.
Leaves terete	.	.	.	Sp. 4.

1. *T. MARTINICENSIS* Herb. in Bot. Reg. 1844, Misc. 88. *Iris martinicensis* Linn. Bot. Mag. t. 416; Red. Lil. t. 172. *Cipura martinicensis* H. B. K.; Baker in Ref. Bot. t. 310. *Marica martinicensis* Ker. *M. semiaperta* Lodd. in Bot. Cab. t. 685. *Pourchon fluminensis* Allem. *Sisyrinchium fluminense* Vell. Fl. Flum. ix. t. 68. —Corm small, ovoid; tunics brown, membranous, splitting into fibres. Root-leaves several, moderately firm, linear, above a foot long. Stem terete, 1-1½ ft. long, simple or forked, with a large linear leaf from the fork. Spathes long-peduncled, many-flowered, an inch long; outer valves firm, oblong. Perianth fugitive, bright yellow; outer segments obovate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, concolorous or minutely spotted with brown; inner much smaller, with a small deflexed limb. Style-branches each tipped with three small tubercles. Capsule oblong,  $\frac{1}{4}$ - $\frac{1}{3}$  in. long.

Hab. Tropical America, from Mexico and the West Indies to South Brazil. *Lansbergia caracasana* De Vriese, as figured by Klatt in Flora Brasiliensis, iii. tab. 67, fig. 2, has small cusps to the tubercles of the style-crests, but I do not think it is a different species.

2. *T. MERIDENSIS* Herb. in Bot. Reg. 1844, Misc. 88. —Habit of *T. martinicensis*, but the flower much larger, the outer segments furnished with a transverse brownish slightly pubescent band at the base of the blade, with 5 contiguous spots and on the claw a large spot with three small ones on each side and three at the base; inner segments slightly pubescent at the base and also spotted.

Hab. Venezuela; high mountains of the province of Merida. Imported by Mr. Harris in 1844. *Remadea funebris* Morren in Belg. Hort. iii. tab. 1; Klatt Fl. Bras. iii. 528, tab. 68, fig. 1, is the same or closely allied. Morren's plant came from Caracas and it is given by Klatt as Brazilian.

3. *T. SPATHATA* Baker. *Lansbergia spathata* Klatt Fl. Bras. iii. 538.—Basal leaves linear, rigid, above a foot long. Stem 6-8 in. long, 2-3-headed, its reduced leaves 2-3 in. long, sheathing, keeled, ending in a long cusp. Spathes long-peduncled, about 2 in. long. Perianth yellow; outer segments obovate, under an inch long,  $\frac{1}{3}$  in. broad; inner  $\frac{2}{3}$  in. long,  $\frac{1}{3}$  in. broad. Style-branches with 2 small crests. Capsule oblong,  $\frac{5}{8}$  in. long.

Hab. South Brazil; province of St. Paulo, Riedel 479.

4. *T. JUNCIFOLIA* Benth. Gen. Plant. iii. 690. *Lansbergia juncifolia* Klatt Fl. Bras. iii. 525.—Corm ovoid; sheaths many, brown, rigid. Produced leaves 1-3, rigid, terete, erect, 1-2 ft. long. Stem leafless, terete, shorter than the leaves, ending in a single cluster of flowers. Spathe 1-1½ in. long; valves rigid, oblong-lanceolate, strongly ribbed; 2 outer shorter than the inner. Perianth fugitive, bright yellow in the type; outer segments obovate, an inch long; inner half as long, with a short broad deflexed tip. Style-branches ending in two short linear crests. Capsule broad-oblong,  $\frac{1}{3}$  in. long.

Hab. Damp sandy campos of Central Brazil. Corm used as purgative and called "Ruibarbo do campo" and "Jonquillo do campo." *L. violacea*, *purgans*, *monticola* and *cathartica*, fully described by Klatt in Flora Brasiliensis iii. 527, must be either forms of the same species or very closely allied.

## 7. TIGRIDIA Juss.

*Perianth*-tube none ; segments of the two rows dissimilar, convergent in a cup at the base, then spreading. *Filaments* united to the top in a long cylindrical column ; anthers linear, erecto-patent. *Ovary* clavate, 3-celled ; ovules many, superposed ; style long, filiform, its branches divided into two slightly flattened falcate forks, sometimes furnished with a small tooth at the base. *Capsule* clavate-oblong, shortly 3-valved at the apex. *Seeds* angled by pressure.—*Rootstock* an ovoid corm with brown membranous tunics. *Leaves* very plicate, linear or lanceolate. *Stems* terete, simple or forked. *Flowers* fugitive.

Flowers large, with the segments of the two rows  
very dissimilar . . . . . Sp. 1-3.

Flowers smaller, with the segments of the two  
rows much less dissimilar . . . . . Sp. 4-8.

1. T. PAVONIA Ker in König & Sims Ann. i. 246. *Ferraria Pavonia* Linn, fl. ; Andr. Bot. Rep. t. 178 ; Red. Lil. t. 6 ; Lodd. Bot. Cab. t. 1424. *F. Tigridia* Ker in Bot. Mag. t. 532. *Moræa Tigridia* Thunb. *Tigridia grandiflora* Salisb.—Corm  $1\frac{1}{2}$  in. diam. Leaves several, superposed, the lower above a foot long, about an inch broad, Stem 1-headed, flexuose,  $1\frac{1}{2}$ -2 ft. long. Spathes 3-4 in. long ; outer valves green, membranous ; pedicels erect, not protruded ; outer segments obovate, obtuse, 3 in. long, bright red, the broad claw purple or bright yellow, copiously spotted with red ; inner segments panduriform,  $1\frac{1}{2}$  in. long, with an ovate acute blade, usually yellow spotted with red up to the tip. Staminal column as long as the inner segments ; anthers  $\frac{3}{4}$  in. long. Style-branches overtopping the anthers.

Hab. Mexico and Guatemala, ascending to 6000 ft. on the Sierra Madre. First noticed by Lobel in 1576. *T. conchiflora* Sweet Brit. Flow. Gard. t. 128, is a form with the flowers bright yellow. An intermediate form noticed Ann. Gand. iii. 190, is called var. *Watkinsoni* Paxt. or *T. pavonia-conchiflora* Morren. The wild forms have smaller and more acute segments. A white-flowered variety is figured in the Garden, Jan. 4, 1884.

2. T. PRINGLEI S. Wats. in Garden and Forest 1888, 389, fig. 61 ; Baker in Bot. Mag. t. 7089.—Corm smaller than in *T. Pavonia*. Stem slender, unbranched, 1-2 ft. long. Leaves 2-3, linear, plicate,  $\frac{1}{2}$  in. broad. Spathe cylindrical, 3 in. long. Expanded perianth 3 in. diam. ; outer segments with a large spreading ovate scarlet limb an inch broad, and a broad claw spotted all over ; inner segments with as large a claw and very small ovate acute limb. Staminal column  $1\frac{1}{2}$  in. long ; anthers  $\frac{1}{2}$  in.

Hab. Mexico ; province of Chihuahua. Discovered in 1887 by Mr. C. G. Pringle. First received at Kew in 1883 from Mr. A. Buchan Hepburn, from 6000 ft. on the Sierra Madre.

3. T. DUGESII S. Wats. Contr. xii. 375.—Bulb edible, reddish black. Leaves overtopping the 10 in. stem. Flowers golden yellow, dotted near the base with red-purple ; outer segments ovate-oblong, an inch long ; inner half as long, hastate-lanceolate.

Staminal column short. Filiform branches of the 2-cleft stigmas  $\frac{1}{2}$  in. long. Capsule oblong,  $\frac{3}{4}$  in. long.

Hab. Guanajuto, Mexico. Described from drawings and notes made by Prof. Dugès. It was afterwards, I think wrongly, removed by Dr. Watson to *Nemastylis*.

4. *T. LUTEA* Link, Klotzsch & Otto Ic. t. 35; Baker in Bot. Mag. t. 6295. *Beatonia grandiflora* and *lutea* Klatt. *Sisyrinchium grandiflorum* Cav. Ic. t. 192 (bad.).—Corm small, ovoid; tunics brown, membranous. Produced leaves 2-3, linear, plicate, distantly superposed, the largest 6-9 in. long. Stem terete, about a foot long, 1-headed. Spathe  $1\frac{1}{2}$ -2 in. long; outer valves green, lanceolate. Flower fugitive, pale yellow,  $1\frac{1}{2}$  in. diam. when expanded; outer segments with an orbicular plain spreading blade  $\frac{1}{2}$  in. broad, longer than the broad minutely dotted claw; inner similar in shape, but rather smaller, with a crystalline transverse band at the top of the claw. Column and anthers each  $\frac{1}{2}$  in. long. Style-arms bifid below the middle; forks falcate.

Hab. Peru and Chili. Described from a plant flowered in 1874 by Mr. H. J. Elwes.

5. *T. BUCCIFERA* S. Wats. in Garden and Forest 1889, 412, fig. 125.—Corm small. Radical leaves nearly as long as the stem, linear, plicate,  $\frac{1}{2}$  in. broad. Stem branched, a foot long. Spathe-valves unequal,  $1\frac{1}{2}$ -2 in. long. Perianth 2 in. diam. with a purple dotted greenish yellow base, the blade of the outer segments obovate, purple; inner segments tubular-folded in the centre, the dilated sides below the small concave rounded purple blade approximate in two cheek-like prominences. Anthers nearly sessile, with broad connectives. Styles as long, the conical branches widely divergent, extended between the anthers.

Hab. Mountains of Mexico. Discovered in 1888 by Mr. Pringle.

6. *T. VIOLACEA* Schiede; Link, Klotzsch & Otto Ic. t. 20; Flore des Serres t. 998. *Beatonia purpurea* Herb.—Corm ovoid, 1 in. diam; tunics membranous, brown. Basal leaves 2-3, linear, plicate, 6-9 in. long. Stem slender, terete, 1-2-headed, about a foot long. Spathe 2 in. long; valves equal, green, lanceolate. Flower lilac-purple, fugitive, above an inch in diameter when expanded; outer segments with a suborbicular blade  $\frac{1}{2}$  in. diam., longer than the broad spotted claw, which is spotted with lilac on a white ground; inner similar in shape, but smaller. Anthers and column each  $\frac{1}{4}$  in. long. Style-arms cleft nearly to the base into falcate subulate forks.

Hab. Mexico. Introduced into cultivation by Schiede to the Berlin garden about 1838.

7. *T. CURVATA* Baker in Journ. Linn. Soc. xvi. 136. *Beatonia curvata* Herb. in Bot. Reg. 1843, Misc. 74.—Corm ovoid, 1 in. diam. Leaves about 3, superposed, linear, plicate, the largest 6-9 in. long. Stem slender, a foot long. Spathe  $1\frac{1}{2}$  in. long. Perianth above an inch long; outer segments with a reddish purple suborbicular blade and a greenish yellow dotted claw; inner

with a red-brown blade  $\frac{1}{4}$  in. long and a more concave claw with dense purplish black dots. Staminal column as long as the claw of the perianth-segments. Style-arms red-purple, bifid upwards.

Hab. Central Mexico. Introduced into cultivation by Hartweg.

8. *T. ATRATA* Baker in Journ. Linn. Soc. xvi. 136. *Beatonia atrata* Herb. in Bot. Reg. 1843. Misc. 72.—Corm ovoid-oblong. Leaves plicate, lanceolate, the lower 12–15 in. long,  $1\frac{1}{2}$ –2 in. broad at the middle. Stem 2 ft. long, bearing 2–3 reduced leaves. Spathe  $2\frac{1}{2}$  in. long. Perianth  $1\frac{1}{2}$  in. long; outer segments with an orbicular purplish brown blade and a pale green claw, densely and minutely dotted with purplish brown; inner segments shorter, with a narrower claw, the blade pale, with a brown-purple tip. Anthers and column each  $\frac{1}{4}$  in. long. Style-arms bifid upwards.

Hab. Mexico; mines of Real del Monte. Introduced into cultivation in 1843.

### 8. HYDROTÆNIA Lindl.

*Perianth*-tube none; limb campanulate; segments not spreading at the tip, the inner quadrate and obscurely cordate at the base, with a short broad claw. *Filaments* united in a cylindrical column, as long as the ascending anthers. *Ovary* clavate, 3-celled; ovules many, superposed; style subulate, its three forks cut to the base into three flattened divisions, the central one small. *Capsule* oblong. Differs from *Tigridia* by the campanulate perianth.

1. *H. MELEAGRIS* Lindl. in Bot. Reg. xxviii. t. 39.—Stem slender, terete, 1-headed,  $1\frac{1}{2}$  ft. long, bearing at the middle a single linear plicate leaf. Spathe 2 in. long; outer valve green, lanceolate, large and clasping; pedicels cernuous. Perianth permanently campanulate, about an inch in diameter, the segments nearly equal in length, margined with yellow, the outer purple outside, all whitish inside, with small purple spots, the inner with a shining broad deltoid watery band above the base.

Hab. Mexico; mines of Real del Monte. Introduced by Mr. John Rogers of Sevenoaks, in 1838.

2. *H. LOBATA* Herb. in Bot. Reg. 1844, Misc. No. 63.—Leaves linear, green, plicate, a foot long. Stem a foot or more long. Spathes 2 in. long; pedicels erect. Perianth yellowish; outer segments oblong-cuneate, with a claw  $\frac{1}{2}$  in. broad and a blade  $\frac{3}{4}$  in. broad, closely spotted with brown at the base; inner segments narrower, dotted with brown at the base, furnished with a transverse band above it and above this pruinose with hyaline globules. Staminal column  $\frac{3}{8}$  in. long. Style-branches yellow, bifid upwards.

Hab. Peru; hills above Lima. Sent by Mr. J. Maclean to Herbert, who flowered it at Spofforth in 1844.

3. *H. VAN-HOUTTEI* Baker. *Tigridia*? *Van-Houttei* Roehl in Flore des Serres t. 2174. *Beatonia Van-Houttei* Klatt.—Stem 2–3 ft. long, bearing 2–3 heads. Leaves distantly superposed, lanceolate, very plicate, the lower a foot long, an inch broad at the

middle. Spathes green, ventricose, 2 in. long. Perianth campanulate; outer segments oblong, very obtuse, above an inch long, greenish outside, inside copiously veined with dark brown on a pale ground; inner suborbicular, half as long, less veined with brown on a pale lilac ground, not transversely banded. Anthers and column each  $\frac{1}{4}$  in. long. Genitalia as long as the inner segments.

Hab. Mexico. Introduced into cultivation by Roezl in 1874. Described from Van-Houtte's original specimens. According to Dr. S. Watson it has since been gathered by Gheisbreght & Dugès, and the bulb is called "Jahuique" and is eatable and tastes like chestnuts.

4. H. EHRHENBERGII Schlecht in Linn. xviii. 664.—Spathe diphyllous, 2 in. long. Perianth-segments unequal in length, the outer elliptic,  $1\frac{1}{4}$  in. long, slightly emarginate at the apex, dirty yellow, with purplish brown spots inside, the inner about half as long,  $\frac{1}{2}$  in. broad, with brown veins radiating from a basal blotch.

Hab. Mexico, *Ehrhenberg*. (Not seen).

#### 9. RIGIDELLA Lindl.

*Perianth*-tube none; segments very unequal; outer oblong, connivent in a cup in the lower third, then spreading or reflexed; inner very small, erect, ovate with a narrow claw. *Filaments* united to the top in a cylindrical column; anthers linear, ascending. *Ovary* clavate, 3-celled; ovules many, superposed; style slender, bifid above the middle, with two rather flattened forks, which do not overtop the anthers. *Capsule* oblong, 3-valved towards the top. *Seeds* subglobose, with a conspicuous raphe.—*Rootstock* a corm with membranous tunics. *Leaves* broad, plicate, with a channelled petiole. *Stem* slender, branched. *Pedicels* protruded from the spathes. *Flowers* fugitive, bright red.

1. R. FLAMMEA Lindl. in Bot. Reg. 1840, t. 16; Paxt. Mag. vii. 247.—Corm ovoid,  $1\frac{1}{2}$  in. diam.; tunics brown, membranous. Lower leaves, including the petiole,  $1\frac{1}{2}$ –2 ft. long, 1– $1\frac{1}{2}$  in. broad at the middle, narrowed to both ends. Stems forked, 2–3 ft. long. Spathes 2–3 in. long; outer valves green, membranous; pedicels cernuous. Perianth bright crimson, with a campanulate cup  $\frac{1}{4}$  in. deep, and reflexing oblong segments twice as long as the cup, minutely spotted with black at the base. Staminal column above an inch long; anthers  $\frac{1}{4}$ – $\frac{1}{3}$  in. Capsule clavate-oblong, above an inch long.

Hab. Mexico. Introduced into cultivation by Hartweg in 1839. *R. orthantha* Paxt. Mag. xiv. 121, Lemaire in Flore des Serres t. 46, is apparently a mere form, with shorter stouter erect pedicels. A very robust *Rigidella* gathered at San Felitre by Andrieux (78) is said to have yellow flowers.

2. R. IMMACULATA Herb. in Reg. 1841, t. 1; Flore des Serres t. 502, 2215.—Perhaps not distinct from *R. flammea*, from which it differs by its more slender habit, narrower leaves and smaller flowers, with the limb of the outer segments not spotted with black at the base.

Hab. Mountains of Guatemala. Introduced into cultivation by Hartweg.



## 10. HERBERTIA Sweet.

(*Alophia* and *Trifurcia* Herb.).

*Perianth*-tube none; segments of the two rows very dissimilar; outer obovate-cuneate, spreading; inner generally much smaller, unguiculate, not convolute. *Stamens* short, united in a tube; anthers linear, spirally twisted when the flower fades. *Ovary* clavate, 3-celled; ovules many, superposed; style filiform, its branches shortly forked. *Capsule* oblong, 3-valved. Seeds small, angled by pressure.—*Rootstock* a tunicated bulb. *Leaves* linear, plicate. *Flowers* fugitive, blue or lilac. Sweet's name, *Herbertia*, has priority over *Alophia*, which is adopted for the genus by Bentham.

1. H. PULCHELLA Sweet Brit. Flow. Gard. t. 222; Lodd. Bot. Cab. t. 1547; Herb. in Bot. Mag. t. 3862, figs. 1-2. *Roterbe bulbosa* Steud.—Bulb globose,  $\frac{1}{2}$ - $\frac{2}{3}$  in. diam.; tunics membranous, dark brown. Produced basal leaves about 4, linear, plicate, 3-6 in. long. Stem very short, simple, rarely forked. Spathes cylindrical,  $1\frac{1}{2}$  in. long; valves lanceolate, green, rather unequal. *Perianth* fugitive, lilac; outer segments obovate, an inch long, the claw white, spotted with lilac; inner oblanceolate-unguiculate, about as long as the stamens. Staminal column  $\frac{1}{2}$  in. long; anthers linear,  $\frac{1}{8}$  in. Style-branches shorter than the anthers, bifid at the tip. Capsule clavate,  $\frac{3}{4}$  in. long.

Hab. Chili, Argentine region and South Brazil. Described from a plant that flowered at Kew in May, 1875. Grisebach says the Argentine plant has outer segments yellow at the base of the limb and inner with 4 orange spots enclosing a blue blotch. Mr. Bentham thought the eastern and western plants might be distinct, and Klatt names the latter, Erganz. 34, *H. lineata*. *Roterbe* is an anagram of Bertero.

2. H. WATSONI Baker. *Gelasine texana* S. Wats. Cont. xii. 375, non Herb.—Stem 6-8 in. long, with 1-2 very narrow sheathing leaves. Spathe  $1\frac{1}{2}$  in. long. *Perianth* purple; outer segments oblanceolate, an inch long; inner obovate,  $\frac{1}{4}$  in. Filaments  $\frac{1}{4}$  in. long, united nearly to the top. Style  $\frac{1}{2}$  in. long.; branches linear, as long as the entire part.

Hab. Texas; damp prairies at San Antonio. Collected by Dr. Havard in April, 1884.

3. H. DRUMMONDIANA Herb. in Bot. Reg. xxviii. Misc. 65. *H. carulea* Herb. in Bot. Mag. t. 3862, fig. 3. *Alophia Drummondiana* Herb. *Cypella Drummondii* Graham. *Iris brachystigma* Schiede.—Bulb small, ovoid; tunics brown. Produced leaves about 4, narrow linear, erect,  $\frac{1}{2}$ -1 ft. long. Stem slender, simple or forked,  $\frac{1}{2}$ -1 ft. long. Spathe cylindrical,  $1\frac{1}{2}$ -2 in. long. *Perianth* fugitive, blue, 2 in. diam.; outer segments obovate, with a white claw spotted with violet; inner oblanceolate, acute, shorter than the stamens. Staminal column blue,  $\frac{1}{8}$  in. long; anthers  $\frac{1}{4}$  in. long, curling up after flowering. Style-branches shorter than the anthers, bifid at the tip. Capsule clavate-oblong, an inch long.

Hab. Texas, Drummond 68! 414!

4. *H. ARGËNA* Griseb. Symb. Argent. 325.—Bulb subglobose; tunics shining, blackish. Leaves narrow linear, 9–10 in. long. Stem slender,  $\frac{1}{2}$ –1 ft. long. Spathe of two unequal valves. Perianth violet; outer segments obovate, 8 lines long; inner narrower, half as long. Staminal column  $\frac{1}{4}$  in. long; anthers  $\frac{1}{4}$  in. long. Style-branches emarginate at the apex.

Hab. Entrerios, near Concepcion del Uruguay, Lorentz. Seems very near *H. pulchella*.

5. *H. BRASILIENSIS* Baker in Journ. Linn. Soc. xvi. 134. *H. Drummondiana* Klatt Fl. Bras. iii. 531, non Herb.—Habit of *H. pulchella*. Outer segments blue, obovate,  $1\frac{1}{4}$  in. long, an inch broad, inner oblanceolate, 8 lines long,  $\frac{1}{2}$  in. broad, both yellow at the base of the blade and claws spotted with violet.

Hab. South Brazil, Sello 1370, 3863.

6. *H. UNGUICULATA* Baker in Journ. Linn. Soc. xvi. 134.—Bulb ovoid,  $\frac{1}{2}$  in. diam.; tunics brown-black. Leaves as in *H. pulchella*. Stem very short, simple. Spathe-valves green,  $1-1\frac{1}{4}$  in. long. Perianth lilac; outer segments  $\frac{3}{4}$  in. long, with an obovate-cuneate blade and distinct slender claw  $\frac{1}{4}$  in. long; inner with a similar claw and very small broad blade.

Hab. South Brazil, Sello! (Herb. Kew).

7. *H. ? STRICTA* Griseb. Argent. 324.—Bulb deeply immersed. Produced basal leaves 1–2, linear, 6–8 in. long. Stem  $1-1\frac{1}{2}$  ft. long, with 3–4 internodes. Perianth violet, 6–8 lines long; segment equal in length, outer oblong-spathulate, inner oblanceolate. Staminal column  $\frac{1}{6}$  in. long; anthers  $\frac{1}{4}-\frac{1}{2}$  in. Style-branches entire.

Hab. Entrerios, near Concepcion del Uruguay, Lorentz.

## 11. FERRARIA Linn.

*Perianth*-segments united at the very base, connivent in a cup above it, the limbs subequal, spreading, acute, more or less crisped. *Filaments* united or connivent in a cylindrical tube; anthers small, ovate or oblong, spreading. *Ovary* cylindrical-trigonus, rostrate, 3-celled; ovules many, superposed; style filiform, its forks bifid and flattened at the densely penicellate or lacerated stigmatose tip. *Capsule* oblong-trigonus, 3-valved. *Seeds* subglobose.—*Rootstock* a large irregularly-shaped corm. *Proper leaves* long, linear, not plicate. *Stems* often branched, furnished with many ovate-amplexicaul reduced leaves. *Flowers* fugitive, generally dull-coloured, visited by carrion-flies.

Flowers greenish or dull purple.

Anthers ovate, with cells divaricated at the base.

Sp. 1–2.

Anthers oblong, with parallel cells . . . Sp. 3–6.

Flowers bright yellow, dotted with brown . . . Sp. 7.

1. *F. ANTHEROSA* Ker in Bot. Mag. t. 751. *F. virridiflora* Andr.

Bot. Rep. t. 285. *F. Ferrariola* Willd. *Moræa Ferrariola* Jacq. Hort. Schoen. t. 450.—Corm depresso-globose. Stem short, erect, simple or branched, with 2-3 linear produced strongly ribbed leaves from its base and many ovate-amplexicaul acute firm reduced leaves. Spathes inflated, 2-2½ in. long. Flowers dull greenish purple, the expanded limb 1-1¼ in. diam.; claw nearly as long as the blade. Anthers ovate, with cells divaricated at the base.

Hab. Cape Colony; southern provinces. *F. angustifolia* Sweet is said to have a similar flower and linear-subulate leaves.

2. *F. DIVARICATA* Sweet Brit. Flow. Gard. t. 192.—Stem flexuose, 1½ ft. long. Leaves ensiform, glaucous, strongly ribbed; upper ovate reduced leaves 2 in. long. Spathes 2 in. long, 3-4-flowered. Perianth dull brownish purple, the expanded limb 2 in. diam.; claw of the segments nearly as long as the blade. Ovary rostrate. Anthers ovate, with cells divaricated at the base.

Hab. Cape Colony. Drawn from a plant that flowered in Mr. Colvill's nursery at Chelsea in 1838, sent home by Mr. Synnot.

3. *F. UNDULATA* Linn. Sp. Plant. 1353; Curt. Bot. Mag. t. 144; Jacq. Hort. Vind. t. 63; Red. Lil. t. 28; Jacq. Ic. t. 190, fig. 1. *F. punctata* Pers. *Moræa undulata* Thunb.—Stem stout, erect, sometimes above a foot long. Produced leaves linear, elongated, glaucous; upper stem leaves ovate-amplexicaul, 1½-2 in. long. Spathes very ventricose, 1½-2 in. long. Perianth dull purple; expanded limb 2 in. diam.; claw of the segments half as long as the ovate acute limb. Stamens and styles ½ in. long; anthers oblong, with parallel cells.

Hab. Cape Colony; southern provinces. Is the oldest-known species of the genus, known to the pre-Linnean authors as *Flos indicus* and *Gladiolus indicus*. It is figured by Ferrari, Rudbeck, Morison, Barrelier and Miller.

4. *F. OBTUSIFOLIA* Sweet Brit. Flow. Gard. t. 148.—Stem stout, erect, densely branched, attaining a height of 1½ ft. Produced leaves short, ensiform, obtuse. Spathes ventricose. Perianth brownish purple; expanded limb 1½ in. diam.; claw of the segments half as long as the deltoid limb. Ovary cylindrical, not rostrate. Anthers oblong, with parallel cells.

Hab. Cape Colony. Drawn also from a plant flowered by Mr. Colvill in 1838.

5. *F. UNCINATA* Sweet Brit. Flow. Gard. t. 161.—Stem short, little branched. Produced leaves 2-3, linear, glaucous, overtopping the flowers; upper reduced ovate clasping stem-leaves 1½ in. long. Spathes ventricose, 1½ in. long. Perianth greenish; segments an inch long, the claw not more than half as long as the very acuminate blade. Ovary cylindrical, rostrate. Anthers oblong, with cells nearly parallel.

Hab. Cape Colony. Drawn from a plant flowered by Mr. Colvill in 1838.

6. *F. ATRATA* Lodd. Bot. Cab. t. 1356.—Stem ½ ft. long, much branched. Produced leaves 3-4, firm, ensiform, overtopping the stem. Spathes ventricose, 1½-2 in. long. Perianth dark purple, the expanded limb 1½-2 in. diam.; blade of outer segments

deltoid-acuminate. Stamens  $\frac{1}{4}$  in. long; filaments free upwards; anthers oblong, with parallel cells.

Hab. Cape Colony; central karoo region, *Burchell* 1599!

7. *F. WELWITSCHII* Baker. — Stem slender, under a foot long, branched below the middle, bearing 4 clusters of flowers on long erect peduncles. Stem-leaves linear, distantly superposed, the longest 3-4 in. long. Spathes cylindrical,  $1\frac{1}{2}$  in. long; outer valve shorter than the next. Flower bright yellow; segments subequal, an inch long, with a spreading panduriform acute blade copiously dotted with brown up to the tip, longer than the broad claw. Staminal column shorter than the claw; anthers oblong, just overtopped by the lacinated bifid tips of the style-arms.

Hab. Angola, *Welwitsch.* Described from a plant flowered by Mr. Wilson Saunders in July, 1871, which was drawn for the Refugium, but never published. The drawing is now in the Kew collection.

## 12. HOMERIA Vent.

*Perianth*-segments free to the base, subequal, obovate-cuneate, connivent in a cup, then spreading. *Filaments* united in a cylindrical tube; anthers linear. *Ovary* cylindrical, 3-celled; ovules crowded, superposed; style subulate, with three small flattened emarginate branches, papillose round their edges. *Capsule* clavate. 3-valved at the tip. *Seeds* small, globose or angled by pressure. — *Rootstock* a tunicated corm. Produced *leaf* usually single, overtopping the flowers. *Clusters* one or few, the side ones shortly peduncled. *Spathes* cylindrical, with few successive fugitive yellow or fulvous flowers.

*Perianth*-segments with a large blotch in the middle Sp. 1-2.

*Perianth*-segments not blotched in the middle . Sp. 3-6.

1. *H. ELEGANS* Sweet Hort. Brit. 498. *Moræa elegans* Jacq. Hort. Schoen. t. 12. *M. spicata* Ker in Bot. Mag. t. 1983. *Sisyrinchium elegans* Willd. *Homeria spicata* Klatt, ex parte. — Corm globose,  $\frac{1}{2}$  in. diam.; tunics brown, rigid. Produced leaf single, linear, rigid, a foot or more long. Stem a foot or more long; clusters 1-4; spathes cylindrical, 2 in. long; outer valve acute, much shorter than the next. *Perianth*-segments an inch long, bright yellow, the outer with an orange-brown or greenish blotch in the centre. Column as long as the anthers. Capsule clavate,  $\frac{3}{4}$  in. long.

Hab. Cape Colony; south-western provinces. First gathered by Thunberg.

2. *H. MACULATA* Klatt in Linn. xxxiv. 627. — Corm globose; tunics thick, cancellate. Produced leaf single, narrow linear, overtopping the stem. Stem  $\frac{1}{2}$ -1 ft. long; spathes cylindrical, 2-2 $\frac{1}{2}$  in. long. *Perianth*-segments an inch long, yellow with a greenish claw and a semilunar greenish blotch above the base, the outer  $\frac{1}{2}$  in. broad, obtuse, the inner narrower and acute. Capsule cylindrical,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western district, *Eckton & Zeyher* 38, 259.

3. *H. COLLINA* Vent. Decad. 5. *Moræa collina* Thunb.; Jacq.

lc. t. 226; Ker in Bot. Mag. t. 1033. *Sisyrinchium collinum* Red. Lil. t. 250. *S. elegans* Red. Lil. t. 171.—Corm globose,  $\frac{3}{4}$ –1 in. diam., with thick dark brown cancellate tunics. Produced leaf single, linear, rigid,  $1\frac{1}{2}$ –2 ft. long. Stem  $1$ – $1\frac{1}{2}$  ft. long, bearing 1–4 clusters of flowers; spathes cylindrical,  $2\frac{1}{2}$ –3 in. long. Perianth-segments bright red, unspotted at the base,  $1\frac{1}{4}$ – $1\frac{1}{2}$  in. long. Anthers and column each  $\frac{1}{4}$  in. long. Capsule clavate, an inch long.

Var. *H. AURANTIACA* Sweet (Bot. Mag. t. 1612).—Habit more slender. Leaf narrower. Perianth-segments light red with a yellow claw, narrower and more acute than in the type.

Var. *H. OCHROLEUCA* Salisb. (Bot. Mag. t. 1103).—Habit of the type, but flower pale yellow.

Var. *BICOLOR* Baker.—Habit of the type. Perianth-segments pale yellow, flushed with lavender in the centre.

Hab. Cape Colony; south-western provinces.

4. *H. LINEATA* Sweet Brit. Flow. Gard. t. 178.—Corm bristly round the neck. Produced linear, rigid, furnished with a distinct white band down the face. Stem  $1\frac{1}{2}$ –2 ft. long, bearing 4–5 clusters. Spathes cylindrical,  $2\frac{1}{2}$  in. long. Perianth-segments copper-red, oblong, acute, an inch long, with a small yellow blotch on the claw. Stamens  $\frac{1}{2}$  in. long; anthers shorter than the column.

Hab. Cape Colony. Figured from a plant flowered by Colvill in 1837, sent home by Synnot. *H. porrifolia* Sweet, is said to be like *lineata* in habit and leaf, with flowers bright scarlet.

5. *H. PALLIDA* Baker.—Corm  $\frac{1}{2}$  in. diam.; tunics hard, black, cancellate. Leaf narrow linear, twice as long as the stem. Stem a foot long, bearing 2–3 clusters. Spathes cylindrical,  $1\frac{1}{2}$ –2 in. long. Perianth-segments pale yellow, unspotted, oblanceolate-oblong, obtuse,  $\frac{3}{4}$ –1 in. long. Capsule much smaller than in *H. collina*.

Hab. Bechuanaland, Burchell 2252—1! Transvaal, Dr. Holub!

6. *H. MINIATA* Sweet Brit. Flow. Gard. t. 152. *Moræa miniata* Andr. Bot. Rep. t. 404.—Corm small, globose; tunics black, cancellate. Produced leaves 1–2, linear, rigid, without a white central band. Stems  $1$ – $1\frac{1}{2}$  ft. long, bearing several clusters. Spathes  $1\frac{1}{2}$ –2 in. long. Perianth-segments fulvous with a yellow claw.  $\frac{3}{4}$ –1 in. long,  $\frac{1}{2}$  in. broad. Anthers shorter than the column.

Hab. Cape Colony; south-western provinces.

### 13. HEXAGLOTTIS Vent.

*Perianth* cut down to the ovary into six subequal obtuse spreading segments, twisting up spirally as it fades. *Filaments* very short, flattened, connivent; anthers linear. *Ovary* cylindrical, rostrate, 3-celled; ovules many, superposed; style very short, its branches cleft into two subulate forks. Capsule firm, cylindrical, 3-valved. Seeds minute, oblong.—*Rootstock* a tunicated corm. *Leaves* 1–2, linear or subterete. *Inflorescence* a panicle with few spicate branches; flowers yellow, 3–4 in a cluster.

1. *H. LONGIFOLIA* Vent. Decad. 6. *Moræa flexuosa* Linn. fl.; Ker in Bot. Mag. t. 695. *M. longifolia* Pers. *Ixia longifolia* Jacq. Hort. Vind. iii. 47, t. 90. *Plantia flava* Herb. — Corm  $\frac{1}{2}$ –1 in. diam.; tunics with hard black parallel ribs. Produced leaves 1–2, narrow linear, overtopping the flowers. Stem slender, erect, 1–1 $\frac{1}{2}$  ft. long including the paniced inflorescence; spathes cylindrical, 1–1 $\frac{1}{2}$  in. long. Expanded perianth 1 in. diam. Style-branches  $\frac{1}{2}$  in. long. Capsule clavate,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long.

Hab. Cape Colony; south-western provinces; first gathered by Thunberg.

2. *H. VIRGATA* Sweet, Hort. Brit. edit. 2, 498. *Moræa virgata* Jacq. Ic. t. 228. *Ixia virgata* Willd.—Very near *H. longifolia*, from which it differs by its slender subterete leaves.

Hab. Cape Colony; south-western provinces.

#### 14. *CROCUS* Linn.\*

*Perianth* funnel-shaped, erect, with a long tube and 6 subequal imbricated segments. *Stamens* inserted at the throat of the tube, shorter than the segments; filaments filiform; anthers linear, basifixed. *Ovary* 3-celled; ovules many, superposed; style long, filiform; stigmas entire or little or much divided. *Capsule* oblong, membranous, loculicidally 3-valved. *Seeds* subglobose.—*Rootstock* an annular corm, with membranous, fibrous or honeycombed tunics. *Leaves* multifarious, narrow linear. *Basal spathe* arising direct from the corm inside the leaves present or absent. *Proper spathe* 1-flowered, membranous. *Flowers* vernal or autumnal, very various in colour.

Section *HOLOSTIGMA*.—Style-branches entire.

Vernal, with yellow flowers	. . . . .	Sp. 1–9.
Vernal, with lilac or white flowers	. . . . .	Sp. 10–33.
Autumnal . . . . .	. . . . .	Sp. 34–39.

Section *ODONTOSTIGMA*.—Style-branches fimbriated at the top, or once forked.

Vernal . . . . .	. . . . .	Sp. 40–42.
Autumnal . . . . .	. . . . .	Sp. 43–47.

Section *SCHIZOSTIGMA*.—Style-branches cut into several capillary divisions.

Vernal . . . . .	. . . . .	Sp. 48–53.
Autumnal . . . . .	. . . . .	Sp. 54–65.
Imperfectly known . . . . .	. . . . .	Sp. 66.

\* Condensed, with many alterations and additions, from my Synopsis in the 'Gardeners' Chronicle' for 1873. Since that date a large number of additional and lost forms have been brought into cultivation, and all the species have been carefully described and figured, with full dissections and on a uniform scale, by Mr. George Maw, F.R.S., whose model monograph should be studied by all who are interested in the genus who can possibly get access to it.

Section I. HOLOSTIGMA.—*Vernal*.

1. *C. SUSIANUS* Ker in Bot. Mag. t. 652; Red. Lil. t. 293; Reich. Ic. Germ. tab. 358, fig. 794; Maw, Monogr. t. 36. *C. revolutus* Haw. *C. reticulatus* M. B. ex parte. *C. Roegnerianus* K. Koch. — Corm  $\frac{3}{4}$  in. diam.; tunics of very strong reticulated fibres. Basal spathe none. Leaves 6–8 to a tuft, reaching up to the flower, narrow linear, with revolute edges and a distinct white central band. Proper spathe diphyllous. Perianth-tube exerted, brownish; segments 1–1 $\frac{1}{2}$  in. long, bright orange-yellow, soon reflexing, the outer usually flushed or distinctly striped with brown on the outside. Anthers orange, longer than the glabrous filaments. Style-branches long, spreading, orange-red, faintly odorous, overtopping the anthers. Seeds red, turning to brown.

Hab. Hills of the Crimea. Flowers in February, earlier than *mæsiacus*. Has long been known in gardens as the "Cloth of Gold Crocus." Parkinson in 1629 distinguishes three varieties.

2. *C. MÆSIACUS* Ker in Bot. Mag. sub t. 652. *C. luteus* Lam.; Red. Lil. t. 196; Reich. Ic. Crit. tab. 926, fig. 1247. *C. vernus* Curt. Bot. Mag. t. 45, non All. *C. lagenastiflorus* Salisb. Parad. t. 106. *C. floribandus* Haw. — Corm depresso-globose, 1 in. diam.; tunics pale brown, composed of matted parallel fibres. Basal spathe absent. Leaves 6–8 to a tuft, overtopping the flower, narrow linear, with reflexed edges and a distinct white central band. Proper spathe diphyllous, the inner valve very narrow, sometimes obsolete. Perianth-tube 2–3 times the length of the limb; segments bright yellow, very obtuse, 1 $\frac{1}{4}$ –1 $\frac{1}{2}$  in. long, not striped in the type. Anthers pale yellow, more hastate at the base than in any other species, rather longer than the yellow papillose filament. Style-branches pale yellow, entire, overtopped by the anthers. Seeds crimson, hairy.

Hab. The type is the well-known Dutch Crocus of cultivation, which flowers late in February or early in March. *C. aureus* Sibth. & Sm. Fl. Græca, t. 35; Bot. Mag. t. 2986, less robust, with flowers smaller and bright yellow, is no doubt the wild type. It extends from Transylvania through Turkey and Greece to Asia Minor. *C. sulphureus* Ker in Bot. Mag. t. 1384, has flowers of a plain sulphur yellow; *C. sulphureus striatus* (Bot. Mag. t. 938) sulphur-yellow flowers, with the outer segments distinctly striped down the back; and *C. lacteus* Sabine (t. 1111) cream-white flowers and a monophyllous spathe. All the forms are figured in Maw's Monograph, t. 55.

3. *C. STELLARIS* Haw. in Trans. Hort. Soc. i. 136; Maw, Monogr. t. 37. — Corm globose,  $\frac{3}{4}$ –1 in. diam.; tunics of strong parallel reticulated fibres, anastomosing in the upper half. Basal spathe absent. Leaves 4–6 to a tuft, narrow linear, with reflexed edges and a distinct white central band. Proper spathe diphyllous. Perianth-tube little exerted; limb 1–1 $\frac{1}{2}$  in. long, bright orange; outer segments distinctly striped and feathered on the back with brown; throat glabrous. Anthers pale orange, a little longer than the orange filament. Style-branches pale orange, entire, a little overtopping the anthers.

Hab. Known only in cultivation. Probably a garden hybrid between *mæsiacus* and *susianus*. Flowers with us early in March.

4. *C. ANCYRENSIS* Maw, Monogr. t. 38. *C. reticulatus* var. *ancyrensis* Herb. — Corm  $\frac{3}{4}$  in. diam.; tunics of strong reticulated fibres, ending in wiry points. Basal spathe none. Leaves 3-4 to a corm, as high as the flower, very narrow, with reflexed edges and a distinct white central band. Proper spathe diphyllous. Perianth-tube exerted; segments bright orange-yellow,  $\frac{3}{4}$ -1 in. long, unstriped, not flushed with brown outside; throat glabrous, generally purplish outside. Anthers orange-yellow, much longer than the colorless filaments. Style-branches entire, red-orange.

Hab. Mountains of Asia Minor; first sent to Herbert from Angora. Flowers in cultivation in February.

5. *C. GARGARICUS* Herb. in Journ. Hort. Soc. ii. 281; Bot. Reg. 1847, tab. 16, fig. 1; Maw, Monogr. t. 39. *C. Thirkcanus* K. Koch. — Corm very small; tunics of fine close matted fibres. Basal spathe none. Leaves about 3, reaching up to the flower, with reflexed edges and a distinct white central band. Proper spathe monophyllous. Perianth-tube not exerted from the spathe; segments 1-1 $\frac{1}{2}$  in. long, bright orange-yellow, unstriped, not flushed with brown outside; throat glabrous. Anthers bright lemon-yellow, slightly exceeding the orange-yellow filament. Style-branches entire, orange-yellow. Seeds orange-yellow.

Hab. Western Bithynia and the Troad, alt. 3000-4000 ft.; flowering in April.

6. *C. KOROLKOWI* Maw & Regel, Descr. vii. 213; Maw, Monogr. t. 56; Baker in Bot. Mag, t. 6852A. — Corm globose, 1 in. diam.; tunics of fine matted parallel fibres. Basal spathe none. Leaves 8-12 to a tuft, reaching up to the flower, very narrow, with reflexed edges and a distinct white central band. Proper spathe of 1-2 membranous valves. Perianth-tube shortly exerted; segments about an inch long, bright orange-yellow, unstriped, the outer flushed with grey-brown on the outside; throat glabrous. Anthers orange-yellow. Style-branches orange-yellow, entire.

Hab. Mountains of Turkestan, alt. 5000-7000 ft.; and found abundantly in 1885 by Dr. Aitchison on the Afghan-Russian frontier. A near ally of the Dutch Crocus. This species and *C. alatavicus*, both recent discoveries, greatly extend the known range of the genus in an eastern direction.

7. *C. CHRYSANTHUS* Herb. in Journ. Hort. Soc. ii. 285; Maw, Monogr. t. 62. *C. croceus* K. Koch. *C. sulphureus* Griseb., non Ker. — Corm smaller than in the Dutch Crocus; tunics rigid, ending in short fibres, cut round at the base. Basal spathe none. Leaves very narrow, reaching up to the flower, with reflexed edges and a distinct white central band. Proper spathe diphyllous, nearly as long as the tube. Perianth-tube 2-3 times the length of the limb; segments 1-1 $\frac{1}{4}$  in. long, plain orange-yellow in the type, sometimes tinted or striped with brown outside, rarely pale yellow, rarely white with a yellow base or white, feathered outside with lilac; throat glabrous. Anthers orange, twice as long as the papillose filaments. Style-branches entire, bright red-orange. Seeds bright red, turning brown, or cream-coloured, turning buff.



Hab. Macedonia, Thrace, Roumelia and Asia Minor, from sea-level to 3000—4000 ft.; flowering from January to March. The Servian *C. hybridus* Petr. differs by having the flowers conspicuously striped with black outside.

8. *C. DANFORDIÆ* Maw, Monogr. t. 63. — Corm like that of *C. chrysanthus*; tunics rigid, cut round at the base. Basal spathe none. Leaves very narrow, with reflexed edges and a distinct white central band, 2–3 in. long at the flowering time. Proper spathe diphyllous, shorter than the tube. Limb  $\frac{3}{4}$  in. long, pale sulphur-yellow, unstriped, faintly tinged with grey outside; throat glabrous. Anthers yellow,  $\frac{1}{2}$  in. long. Style-branches short, entire, orange-yellow, much shorter than the anthers.

Hab. Cilician Taurus and Anti-Taurus, alt. 4000—6000 ft.; discovered by Mrs. Danford in 1879. Flowers in February and March.

9. *C. LAZICUS* Boiss. in Balans. Pl. Orient. 1866, No. 1533; Maw, Monogr. t. 12.—Corm very small; tunics brown, membranous. Basal spathe elongated. Leaves 3 to a tuft, as high as the flower, very narrow, with reflexed edges and a white band. Proper spathe monophyllous. Perianth-tube much exserted; segments oblong, orange-yellow, unstriped,  $1\frac{1}{4}$ – $1\frac{1}{2}$  in. long; throat concolorous, glabrous. Anthers orange, half as long as the yellow filaments. Style-branches short, orange-yellow, usually entire.

Hab. Asia Minor; mountains of Lazistan, alt. 8000—8500 ft.; flowering in August.

10. *C. BIFLORUS* Miller in Gard. Dict. edit. 7, No. 4; Bot. Mag. t. 845; Andr. Bot. Rep. t. 362; Red. Lil. t. 294; Reich. Exot. t. 34; Ic. Crit. t. 935–936; Maw, Monogr. t. 59. *C. circumscissus* Haw. *C. annulatus* Herb. — Corm globose,  $1\frac{1}{4}$  in. diam., the coriaceous tunics cut round at the base and breaking into small pieces. Basal spathe absent. Leaves 4–6 to a tuft, overtopping the flowers, very narrow, with reflexed edges and a distinct white central band. Proper spathe diphyllous. Perianth-tube exserted; segments  $1\frac{1}{4}$ – $1\frac{1}{2}$  in. long, more or less tinged with purple, the outer with three distinct stripes of purple down the back; throat faintly bearded, tinged with yellow. Anthers orange, exceeding the papillose orange filaments. Style-branches entire, orange-red. Never produces seed. Very variable, the following being the principal wild types.

Var. *C. ARGENTEUS* Sabine in Trans. Hort. Soc. vii. t. 11, fig. 5. *C. minimus* Bot. Mag. t. 2991, non DC. *C. præcox* Haw.; E. B. S. t. 2645. *C. lineatus* Jan.; Reich. Ic. Crit. fig. 1259; Ic. Germ. figs. 788–789. — Less robust, with only 3–4 leaves to a tuft and smaller flowers, more tinged with purple, the outer segments striped with dark purple outside. Seeds bright buff.—Italy.

Var. *C. PUSILLUS* Tenore, Mem. 8, t. 2; Sweet, Flow. Gard. t. 106; Lodd. Bot. Cab. t. 1454.—Flower still smaller than in the last, paler, the three outer segments either striped with dark purple down the back or in var. *estriatus* Herb. Bot. Reg. t. 1987, concolorous pale purple.—Italy.

Var. *C. WELDNI* Hoppe in Bot. Zeit. 1840, 208; Bot. Mag. t. 6211.—Limb a concolorous slaty purple.—Dalmatia and Trieste.

Var. *C. ADAMI* Gay in Bull. Feruss. xv. 219. *C. annulatus* var. *adamicus* Herb. in Bot. Mag. t. 3868.—Limb pale purple, the outer segments concolorous or with three faint stripes of purple down the back.—Caucasus, Georgia and the Crimea.

Var. *NUBIGENUS* Herb. in Bot. Reg. 1843, Misc. 81.—Segments very small, nearly white, the outer with a broad band of purple down the back.—Asia Minor. *C. Pestalozzæ* Boiss. is another small-flowered form from the same country, with concolorous whitish segments.

Hab. The original plant, described by Miller, is the well-known Scotch Crocus of the Gardens. Flowers in February and March.

11. *C. CREWEI* Hook. fil. in Bot. Mag. t. 6168; Maw, Monogr. t. 60. *C. melantherus* Boiss. et Oph.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics rigid, cut round at the base and breaking into many deltoid pieces. Basal spathe none. Leaves 3-4 to a tuft, as high as the flower, narrow linear, with reflexed edges and a distinct white central band. Proper spathe diphyllous. Perianth-tube much exerted; segments under an inch long, whitish, the inner plain white, the outer tinged with buff and with 3-5 lines of purple-brown outside; throat yellow, glabrous. Anthers dark brown, twice as long as the orange filaments. Style-branches entire, orange-scarlet.

Hab. Island of Sogra; discovered by Mr. Elwes in 1874; also on Mount Taygetus, in the Pelopponesus, and Mount Elmalu, in Lycia. Flowers in England in February. Probably a variety of *C. biflorus*.

12. *C. TAURI* Maw, Monogr. t. 61.—Corm  $\frac{3}{4}$ -1 in. diam.; tunics rigid, cut round at the base. Basal spathe none. Leaves 5-6 to a tuft, as high as the flowers, narrow linear, with reflexed edges and a distinct white central band. Proper spathe diphyllous. Perianth-tube scarcely exerted; segments pale unstriped purple, 1-1 $\frac{1}{4}$  in. long; throat glabrous, yellow. Anthers yellow, twice as long as the filaments. Style-branches short, entire, yellow, much overtopped by the anthers.

Hab. Mountains of Cilicia and Lycia; gathered by Aucher Eloy, Elwes, and Mr. and Mrs. Danford. Allied to *C. biflorus*. Introduced into cultivation by Whittall in 1892.

13. *C. ÆRIUS* Herb. in Journ. Hort. Soc. ii. 288; Baker in Bot. Mag. t. 6852B; Maw, Monogr. t. 58. *C. Sibthorpianus* var. *stauricus* Herb.—Corm globose,  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics rigid, cut away round the base and produced into a ring of bristles at the tip. Basal spathe absent. Leaves 3-6 to a tuft, as high as the flower, very narrow, with reflexed edges and a white band. Proper spathe diphyllous. Perianth tube little exerted; segments  $\frac{3}{4}$ -1 in. long, pale or dark lilac, unstriped; throat yellow, glabrous. Anthers orange, twice the length of the yellow slightly papillose filaments. Style-branches orange-scarlet, dilated and crenate at the tip. Seeds dark red.

Hab. Mountains of Armenia, Bithynia, Lazistan, and probably also Kurdistan, ascending to 6000-7000 ft.; flowering about May, with us in February and March.

14. *C. cyprius* Boiss. et Kotschy in Unger & Kots. Cyprus, 203; Maw, Monogr. t. 57. — Corm  $\frac{1}{2}$  in. diam.; tunics of matted parallel fibres, cut round at the base. Basal spathe absent. Leaves 3-4 to a tuft, as high as the flower, very narrow, with reflexed edges and a narrow white band. Proper spathe monophyllous. Perianth-tube little exerted; segments under an inch long, bright lilac with a rich purple blotch at the base; throat concolorous, glabrous. Anthers orange, twice the length of the bright red filaments. Style-branches entire, slender, orange-red.

Hab. Cyprian Olympus, alt. 5000 ft.; flowering early in April.

15. *C. minimus* DC. Fl. Franc. iii. 243; Red. Lil. t. 81; Reich. Ic. Crit. t. 491, fig. 1267; Ic. Germ. tab. 359, fig. 795; Maw, Monogr. t. 19. *C. nanus* DC. *C. insularis* Gay, ex parte. — Corm globose,  $\frac{1}{2}$  in. diam.; tunics of matted parallel fibres. Basal spathe present. Leaves 3-5 to a tuft, overtopping the flowers, very narrow, with reflexed edges and a white central band. Proper spathe diphyllous. Perianth-tube shortly exerted; segments obtuse,  $\frac{3}{4}$ -1 in. long, violet, the outer buff on the outside, with three usually very distinct feathered dark purple stripes; throat concolorous, glabrous. Anthers pale yellow, about equalling the white filaments. Style-branches yellow, entire, usually overtopping the anthers. Seeds scarlet.

Hab. Lowlands of Corsica and Sardinia, where it begins to flower in January. In English gardens it flowers in March.

16. *C. corsicus* (Vanucci) Maw, Monogr. t. 21. *C. insularis* Gay, ex parte. — Corm  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics of matted parallel fibres. Basal spathe present. Leaves 4-6 to a tuft, as high as the flower, very narrow, with revolute edges and a distinct white central band. Proper spathe monophyllous. Perianth-tube little exerted; segments 1-1 $\frac{1}{4}$  in. long, lilac, the outer buff outside, usually marked with three dark purple feathered stripes; throat glabrous, concolorous. Anthers orange, much longer than the white filaments. Style-branches red, fimbriate at the tip. Seeds pale buff.

Hab. Mountains of Corsica, from 2000 to 6000 ft., where it flowers from February to May.

17. *C. versicolor* Ker in Bot. Mag. t. 1110; Maw, Monogr. t. 16. *C. fragrans* Haw. *C. Reinwardtii* Reich. Ic. Crit. t. 938, fig. 1261. *C. cretensis* Eugene. — Corm  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics of fine matted parallel fibres. Basal spathe present. Leaves 4-5 to a tuft, as high as the flowers, very narrow, with revolute edges and a distinct white central band. Proper spathe monophyllous or diphyllous. Perianth-tube exerted; segments 1 $\frac{1}{2}$ -1 $\frac{1}{2}$  in. long, pale or darker purple, the outer purple outside, usually distinctly striped and feathered with darker purple; throat glabrous, whitish or pale yellow. Anthers yellow, twice as long as the white filament. Style-branches bright orange-yellow, entire, equalling or overtopping the anthers. Seeds orange-red.

Hab. Nice, Mentone and the South of France northward to Grenoble, ascending to 4000 ft. Flowers at end of February and early in March. Long known in cultivation. Sabine, in Trans. Hort. Soc. vii. 457, tab. xi. figs. 6-9,

describes eighteen and figures four garden forms, differing mainly in the colouring of the flower.

18. *C. SUAVEOLENS* Bertol. Fl. Ital. i. 208; Bot. Mag. t. 3864; Sweet, Brit. Flaw. Gard. ser. 2, t. 252; Maw, Monogr. t. 15.—Corm depresso-globose,  $\frac{1}{4}$ – $\frac{1}{2}$  in. diam.; tunics of fine matted parallel fibres. Basal spathe present. Leaves 4–5, very narrow, overtopping the flower, with revolute edges and a white central band. Proper spathe monophyllous, nearly or quite as long as the perianth-tube. Flower fragrant; segments subacute,  $1\frac{1}{4}$ – $1\frac{1}{2}$  in. long, more or less deeply tinged with purple, the outer buff on the outside, with three dark purple stripes; throat yellow, glabrous. Anthers yellow,  $\frac{1}{2}$  in. long; filaments yellow, pubescent. Style-branches bright orange-yellow,  $\frac{1}{4}$  in. long, toothed at the tip. Seeds buff.

Hab. Rome, Tuscany and Naples. Flowers in February. Differs from *C. Imperati* by its monophyllous spathe, and style-branches only toothed a little at the tip.

19. *C. BANATICUS* Heuffel in Flora, 1850, 255; Reich. Ic. Germ. t. 361, figs. 800–801; Maw, Monogr. t. 24, non Gay. *C. veluchensis* Baker in Bot. Mag. t. 6197. *C. Heuffelii* Kornicke. *C. Heuffelianus* Herb. *C. vittatus* Schlosser. *C. exiguus* Schur.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of fine matted parallel fibres. Basal spathe present. Leaves usually 2 to a tuft, thin, flattish, finally  $\frac{1}{4}$  in. broad, green above, glaucous beneath, the narrow midrib showing a distinct white line. Proper spathe monophyllous. Perianth-tube scarcely exerted; segments 1– $1\frac{1}{2}$  in. long, bright purple, never striped, often furnished with a darker blotch towards the tip; throat concolorous, glabrous. Anthers orange, a little longer than the white filaments. Style-branches short, orange-yellow, fringed at the tip. Seeds dull fawn-brown.

Hab. Mountains of the Banat, Hungary and Transylvania; flowering in February and March. Schur names four varieties, *versicolor*, *concolor*, *niveus*, and *pictus*. Has been much confounded with *C. veluchensis*, which has no basal spathe, and a diphyllous proper spathe.

20. *C. VERNUS* All. Ped. i. 84; Eng. Bot. t. 344; Jacq. Austr. v. t. 36; Red. Lil. t. 266; Reich. Exot. t. 22; Ic. Crit. t. 929–934; Ic. Germ. t. 355; Fl. Dan. t. 2042; Maw, Monogr. t. 26.—Corm globose,  $\frac{1}{2}$ –1 in. diam.; tunics of copious matted fibres, reticulated upwards. Basal spathe present. Leaves 2–4 to a tuft, reaching up to the flower,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad, glaucous beneath, green above, with reflexed edges and a distinct white central band. Proper spathe monophyllous, about as long as the tube. Perianth-segments 1– $1\frac{1}{2}$  in. long in the cultivated plant, lilac or white, often striped with purple on a white ground; throat pubescent, never yellow. Anthers lemon-yellow, exceeding the white filaments. Style-branches orange-yellow,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, entire or fringed at the tip. Seeds reddish fawn coloured.

Hab. Through Southern and Central Europe from the Pyrenees to Sicily and the Carpathians, ascending to 5000–6000 ft. Here belong most of the commonly cultivated lilac and white spring Crocuses. *C. siculus* Tineo, *C. montanus* Hoppe, and *C. albiflorus* Kit. are small-flowered montane varieties, and

*C. obovatus* Haw., the Neapolitan Crocus (Bot. Mag. t. 860 and 2240), the origin of several of the handsomest large-flowered garden forms. *C. nivigenus* Herb. said to inhabit the steppes of Odessa, also belongs here.

21. *C. TOMMASINIANUS* Herb. in. Journ. Hort. Soc. ii. 278; Maw, Monogr. t. 25. *C. serbicus* Kerner.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of fine reticulated fibres. Basal spathe present. Leaves just appearing with the flowers,  $\frac{3}{8}$  in. broad, with a distinct white central band. Proper spathe monophyllous. Perianth-tube little exerted; segments 1– $1\frac{1}{2}$  in. long, pale sapphire-lavender, sometimes with a darker blotch at the tip; throat concolorous, glabrous. Anthers pale orange, a little longer than the slightly glandular white filaments. Style-branches short, entire, orange-yellow. Seeds bright red, ripening to brown.

Hab. Dalmatia and Servia, flowering in March. Very near *C. vernus*, but not pubescent at the throat.

22. *C. BOISSIERI* Maw, Monogr. t. 20.—Corm unknown. Basal spathe present. Leaves 4 to a tuft, as high as the flower,  $\frac{1}{2}$  in. broad, with revolute edges and a distinct white central band. Proper spathe monophyllous. Perianth-tube shortly exerted; segments pure white, ovate-lanceolate,  $1\frac{1}{2}$  in. long,  $\frac{1}{4}$  in. broad; throat concolorous, apparently glabrous. Anthers pale orange, half as long as the filaments. Style-branches entire, fringed at the tip.

Hab. Mountains of Cilicia, near the Cape of Corcyrus. Gathered by M. Tehihatcheff on June 30, 1853 (Herb. Boissier).

23. *C. MONTENEGRINUS* Kerner; Maw, Monogr. t. 23. *C. appendiculatus* Kerner.—Corm  $\frac{1}{2}$  in. diam.; tunics of closely reticulated fibres. Basal spathe present. Leaves 3–4 to a tuft, as high as the flower,  $\frac{1}{10}$  in. broad, with reflexed edges and a distinct white central band. Proper spathe monophyllous. Perianth-tube little exerted; segments creamy white, scarcely an inch long, not striped; throat orange, apparently glabrous. Anthers orange, half as long as the orange filaments, with a stigma-like appendage at the tip. Style-branches entire, widely expanded, reaching a little above the base of the anthers.

Hab. Montenegro, flowering in spring. The form of the anther is probably a monstrosity.

24. *C. MALYI* Visiani Fl. Dalm. Suppl. 181; Maw, Monogr. t. 18.—Corm depresso-globose,  $\frac{3}{4}$ –1 in. diam.; tunics of fine parallel fibres, slightly reticulated upwards. Basal spathe present. Leaves not as high as the flower, narrow linear, with reflexed edges and a white central band. Proper spathe diphyllous, foliaceous. Perianth-tube yellow, scarcely exerted; segments white,  $1\frac{3}{4}$  in. long; throat orange-yellow, bearded. Anthers orange, twice as long as the concolorous filaments. Style-branches orange, slightly divided at the tip.

Hab. Dalmatia; mountains over Cattaro, alt. 7000 ft. Flowers with us in March.

25. *C. SIEBERI* Gay in Bull. Ferus. 1831, 220; Bot. Mag. t. 6036; Maw, Monogr. t. 33. *C. Sieberianus*, *sublimis* and *Sibthorpianus*

Herb. *C. nivalis* Bory et Chaub. *C. thessalus* Boiss. et Sprun.—Corm globose,  $\frac{3}{4}$ -in. diam.; tunics a dense mass of rather strong matted fibres. Basal spathe present. Leaves 4-6 to a tuft, as high as the flower,  $\frac{1}{2}$  in. broad at the flowering time, glaucous beneath, bright green above, with a broad white central band. Proper spathe diphyllous. Perianth-tube shortly exerted; segments 1-1 $\frac{1}{2}$  in. long, as variable in colour as in *C. vernus*, purple or white; concolorous or the three striped and feathered outside; throat glabrous, yellow. Anthers orange, twice as long as the concolorous filaments. Style-branches sub-entire, orange-red. Seeds red.

Hab. Mountains of Greece, Crete and the Cyclades, ascending to 7000 ft. Flowering from January to May, according to altitude.

26. *C. VELUCHENSIS* Herb. in Bot. Reg. 1847, tab. 4, fig. 3; Maw, Monogr. t. 32. *C. balkanensis* Janka.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of fine fibres, bristly at the top. Basal spathe present. Leaves about 3 to a tuft, narrow linear, with reflexed edges and a distinct white central band. Proper spathe diphyllous. Perianth-tube scarcely exerted; segments oblong, 1 $\frac{1}{2}$  in. long, concolorous dark purple; throat bearded, white inside. Anthers bright orange, longer than the white filaments. Style-branches entire, orange-yellow, overtopping the anthers.

Hab. Balkans and mountains of Northern Greece, where it flowers in May. Very like *C. banaticus* in the corm and flower; differs by its narrow leaves and diphyllous spathe.

27. *C. BILIOTTII* Maw, Monogr. t. 566.—Corm  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics membranous, fibrous at the base. Basal spathe reaching above the ovary. Leaves 3 to a tuft, as high as the flower,  $\frac{1}{2}$  in. broad, with reflexed edges and a white central band. Proper spathe monophyllous. Perianth-tube little exerted; segments oblong, an inch long, bright purple with a darker blotch near the throat. Anthers yellow, twice as long as the filaments. Style-branches subentire, orange, a little overtopping the anthers.

Hab. Mountains of Armenia, flowering late in May. Sent to Mr. G. Maw in 1880 by Consul Bilotti. Flowers and leaves of *C. aerius*, from which it differs by its fibro-membranous corm-tunics and the presence of a long basal spathe.

28. *C. PARVIFLORUS* Baker in Journ. Bot. 1876, 266; Maw, Monogr. t. 67.—Corm  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics of fine stranded interlacing fibres. Basal spathe absent. Leaves 3 to a tuft, as high as the flower, very narrow, with much reflexed edges and a distinct white central band. Proper spathe diphyllous. Perianth-tube little exerted; segments oblong,  $\frac{1}{3}$  in. long, pale, unstriped; throat concolorous, glabrous. Anthers pale orange-yellow, twice as long as the glabrous filaments. Style-branches entire, subulate.

Hab. Cilician Taurus over Anascha, alt. 4000 ft. Discovered by Mr. and Mrs. Danford in the spring of 1877.

29. *C. ALATAVICUS* Regel et Semen. Enum. iii.; Gartenfl. t. 906, fig. 1; Maw, Monogr. t. 45.—Corm  $\frac{3}{4}$ -1 in. diam.; tunics of fine matted parallel fibres. Basal spathe absent. Leaves 6-10 to

a tuft, as high as the flower, very narrow, with reflexed edges and a white central band. Proper spathe diphyllous. Perianth-tube much exserted; segments 1-1½ in. long, white, the other usually more or less tinged with purple on the outside, rarely with pale yellow; throat glabrous, yellow. Anthers orange, longer than the concolorous filaments. Style-branches entire, orange yellow. Seeds bright buff, ripening to dark green.

Hab. Central Asia, on the Alatau mountains and in Turkestan, ascending to 7000 ft. Flowers with us late in February.

30. *C. CARPETANUS* Boiss. et Reut. Diag. 24; Graells Ramill. t. 4; Maw. Monogr. t. 41. — Corm ½-1 in. diam; tunics formed of a dense mass of fine fibres, reticulated upwards. Basal spathe absent. Leaves 3-4 to a tuft, reaching up to the flower, quite different from those of any other species, ½-¾ in. broad, equally concave on the back, with 12-16 uniform ribs, no central white band and a conspicuously ciliated margin. Proper spathe diphyllous. Perianth-tube little exserted; segments 1-1½ in. long, pale lilac or white, veined with blue on the outside towards the base; throat concolorous, glabrous. Anthers orange-yellow, twice as long as the white filaments. Style-branches entire, pale lilac, falling short of the anthers. Seeds pale reddish brown.

Hab. Mountains of Central Spain and Portugal, alt. 4000-5000 ft. Flowering from March to June. Very distinct in leaf-structure from all the other species.

31. *C. RETICULATUS* M. B. Fl. Taur. Cauc. i. 28 and Cent. Pl. Ross, t. 1, ex parte; Reich. Ic. Crit. t. 939-940; Ic. Germ. t. 356; Maw. Monogr. t. 35. *C. variegatus* Hoppe & Hernsch. — Corm ¼-½ in. diam.; tunics of stout honeycombed fibres. Basal spathe present. Leaves 3-5 to a tuft, as high as the flower, very narrow, with reflexed edges and a white central band. Proper spathe diphyllous. Perianth-tube much exserted; segments 1-1½ in. long, varying from white to deep lilac, the three outer with three very distinct feathered stripes of dark lilac on the outside; throat concolorous, glabrous. Anthers orange, twice the length of the concolorous filaments. Style-branches subentire, scarlet, overtopping the anthers. Seeds pale buff.

Hab. Trieste to the Caucasus, flowering from February to April. *C. micranthus* Boiss. Maw, t. 35b, collected by Aucher Eloy in Cilicia, is a variety with small flowers. Var. *albicans* Herb. is a form with white unstriped flowers.

32. *C. DALMATICUS* Visiani Fl. Dalm. Suppl. t. 2; Maw. Monogr. t. 34. — Corm ½ in. diam.; tunics of reticulated fibres, much finer than in *C. reticulatus*. Basal spathe present. Leaves 3-4 to a tuft, as high as the flower, very narrow, with reflexed edges and a white band. Proper spathe diphyllous. Perianth-tube shortly exserted; segments 1-1½ in long, plain lilac or the outer striped outside with dark lilac; throat yellow, glabrous. Anthers yellow, twice the length of their filaments. Style-branches short, entire, orange-yellow. Seeds buff.

Hab. Mountains of Dalmatia and Herzegovina. Flowers in February and March. Very near *C. reticulatus*.

33. *C. ETRUSCUS* Parl. Fl. Ital. iii. 228; Baker in Bot. Mag. t. 6862; Maw, Monogr. t. 22.—Corm  $\frac{3}{4}$ –1 in. diam.; tunics of strong reticulated fibres. Basal spathe present. Leaves about three to a tuft, as high as the flowers,  $\frac{1}{2}$  in. broad, with reflexed edges and a white band. Proper spathe monophyllous. Perianth-tube shortly exerted; segments lilac, 1–1 $\frac{1}{2}$  in. long, the outer cream-coloured and sometimes with purple feathered lines outside; throat yellow, slightly pubescent. Anthers orange, twice as long as the colorous glabrous filaments. Style-branches orange, subentire, overtopping the anthers. Seeds dull, fawn-coloured.

Hab. Tuscan Maremma, flowering in March. Like *C. suaveolens* in flower and *C. reticulatus* in its corm-tunics. We have a form from Sir E. G. Loder with pure white flowers.

*Autumnal.*

34. *C. SATIVUS* Linn. Sp. Plant. 36; Red. Lil. t. 173; Reich. Ic. Germ. t. 860; Engl. Bot. t. 343; Maw, Monogr. t. 29. *C. autumnalis* Lam. *C. officinalis sativus* Huds.—Corm above 1 in. diam., very proliferous; tunics of fine matted parallel fibres, produced an inch above its neck. Basal spathe present. Leaves 6–10 to a tuft, as high as the flower, very narrow, with reflexed ciliated edges and a white band, finally 1 $\frac{1}{2}$ –2 ft. long. Proper spathe diphyllous. Perianth-tube little exerted; segments oblong, obtuse, bright lilac, rarely white, 1 $\frac{1}{2}$ –2 in. long; throat concolorous, pubescent. Anthers yellow, longer than the glabrous filaments. Style branches an inch or more long, reaching to the tip of the segments, entire, spreading, fragrant, bright red. Seeds never produced in the cultivated plant. The following are the principal allied wild types:—

1. *C. ORSINI* Parl. Fl. Ital. iii. 238.—Stigmas rather shorter than in the type. Italy, near Ascoli.

2. *C. ELWESII* Maw.—Flower as large as in the type, but stigma shorter. Hills near Smyrna.

3. *C. HAUSSKNECHTII* Boiss.—Leaves not developed till after the flowers. Fibres produced 3 in. above the neck of the corm. Perianth-segments narrower. Style-branches half as long as the perianth-segments. Persia.

4. *C. PALLASII* M. B. Fl. Taur. Cauc. iii. 35. *C. Pallasianus* Herb.—Corm and flower smaller than in the type. Style-branches about half as long as the segments. Crimea. From this the Calabrian *C. Thomasii* Tenore (*C. Thomasianus* Herb.), the Roumelian *C. hybernus* Friv., and the Dalmatian *C. visianicus* Herb., scarcely differ.

5. *C. CARTWRIGHTIANUS* Herb. in Bot. Reg. xxx. t. 3, fig. 6. *C. graecus* Chapel.—Perianth-segments about an inch long, narrower and more distinctly striped than in the type. Style-branches about as long as the perianth-segments. Low hills round Athens.

Hab. The type is the true Saffron. Cultivated from England to the Western Himalayas; flowering in October.

35. *C. HADRIATICUS* Herb. in Bot. Reg. 1845, Misc. 82; Bot. Reg. 1847, t. 16, fig. 7–9; Maw, Monogr. t. 30.—Corm 1 in. diam.;



tunics of fine reticulated fibres, produced about an inch above its neck. Basal spathe overtopping the ovary. Leaves like those of *C. sativus*. Proper spathe diphyllous. Perianth-tube little exerted; segments pure white,  $1\frac{1}{2}$  in. long, with a pubescent base. Anthers bright orange, more than twice the length of the white or purple filaments. Style-branches entire, bright red, overtopping the anthers.

Var. SAUNDERSIANUS Herb.—Throat of the perianth bright purple.—Albania.

Var. CHRYSOBELENICUS Herb.—Segments with reddish lines towards the base and a yellow throat.

Var. C. PELOPONNESIACUS Orph.—Leaves not produced till after the flowers.—Morea.

Hab. Ionian islands, Greece and Albania, flowering from the end of September through October, a little earlier than *C. sativus*, to which it is closely allied.

36. *C. CAMBESSEDESII* Gay in Bull. Ferus. xv. 220; Maw, Monogr. t. 13. *C. Cambessedesianus* Herb. in Bot. Reg. xxxi. t. 37, fig. 4. *C. magyptanus* Rodr.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics brown, membranous. Basal spathe present. Leaves 3-4 to a tuft, as high as the flower, very narrow, with reflexed edges and a white band. Proper spathe diphyllous. Perianth-tube much exerted; segments oblong, under an inch long, varying from lilac to white, the outer buff outside, with three feathered dark purple lines; throat glabrous, concolorous. Anthers yellow, shorter than the white filaments. Style-branches subentire, orange-scarlet. Seeds buff.

Hab. Majorca and Minorca, flowering in October and November. Flower like that of *C. minimus*.

37. *C. ZONATUS* Gay in Bal. Pl. Orient. 1855, No. 823; Maw, Monogr. t. 4.—Corm depresso-globose,  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics brown, very thin, membranous. Basal spathe present. Leaves not developed till after the flowers, narrow linear. Proper spathe diphyllous. Perianth-tube exerted 2-3 in.; segments 1-2 in. long, rosy lilac, concolorous, veined internally with 5-7 purple lines and bearing at the base two semicircular orange spots; throat yellow, pubescent. Anthers white, 2-3-times the length of the yellow filaments, toothed at the tip. Style-branches short, yellow, subentire, overtopping the anthers. Seeds whitish.

Hab. High mountains of Cilicia, flowering in September and October.

38. *C. SCHAROJANI* Ruprecht in Regel Gartenfl. t. 578; Maw, Monogr. t. 3.—Corm very small, globose; tunics membranous. Basal spathe present. Leaves developed in spring, remaining till the flower appears. Proper spathe monophyllous. Perianth-tube much exerted; segments bright yellow, concolorous,  $1\frac{1}{2}$ -1 $\frac{3}{4}$  in. long; throat concolorous. Anthers pale yellow. Style-branches subentire, orange-red, shorter than the stamens. Seeds dull buff.

Hab. North-west Caucasus and Armenia, alt. 7000 ft. Flowering at the end of July and in August. The only yellow-flowered species of the group.

39. *C. CASPIUS* Fisch. et Meyer in Hohen. Enum. Talusch 22 ; Maw, Monogr. t. 46.—Corm ovoid,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam. ; tunics rigid, showing matted parallel fibres towards the base. Basal spathe absent. Leaves 4–5 to a tuft, not as high as the flower, very narrow, with reflexed edges and a white band. Proper spathe diphyllous. Perianth-tube much exserted ; segments white, unstriped, 1– $1\frac{1}{4}$  in. long ; throat yellow, glabrous or slightly pubescent. Anthers pale yellow or cream-coloured, twice the length of the filament. Style-branches much overtopping the anthers, slender, yellow, subentire.

Hab. Hills west of the Caspian Sea ; flowering in October.

## Section II. ODONTOSTIGMA.

### Vernal.

40. *C. OLIVIERI* Gay in Bull. Ferns. xv. 219 ; Maw, Monogr. t. 53.—Corm subglobose,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam. ; tunics membranous, splitting into fibres towards the base. Basal spathe absent. Leaves 4–5 to a tuft, as high as the flower, linear, finally  $\frac{1}{2}$  in. broad, with enrolled edges and a very distinct white central band. Proper spathe diphyllous. Perianth-tube little exserted ; segments bright orange-yellow, 1– $1\frac{1}{2}$  in. long, never striped ; throat concolorous, glabrous. Anthers orange, twice the length of the papillose concolorous filaments. Style-branches orange, each usually divided into two slender forks. Seeds bright red, ripening to brown.

Var. *C. SUTERIANUS* Herb. in Bot. Reg. 1845, Misc. 5 ; Maw, Monogr. t. 52. *C. Aucheri* Boiss. *C. chrysanthus* Herb. in Bot. Reg. 1847, t. 7, fig. 1.—Leaves narrower, with more enrolled edges.

Hab. Mountains of Greece, Dalmatia and Asia Minor ; flowering in March and April.

41. *C. IMPERATI* Ten. Fl. Neap. iii. 411 ; Mem. t. 3 ; Reich. Ic. Crit. fig. 1260 ; Bot. Reg. t. 1993 ; Maw, Monogr. t. 14. *C. Imperatorius* Herb.—Corm  $\frac{3}{4}$ –1 in. diam. ; tunics of fine matted parallel fibres. Basal spathe present. Leaves 4–6 to a tuft, overtopping the flowers, very narrow, with reflexed edges and a white band. Proper spathe 1–2-valved. Perianth-tube little exserted ; segments 1– $1\frac{1}{2}$  in. long, bright lilac, rarely white, the outer buff on the outside, with three dark lilac feathered stripes. Anthers yellow, exceeding the glabrous filaments. Style-branches three, orange-yellow, distinctly fimbriated at the tip. Seeds buff.

Hab. Italy ; abundant in the neighbourhood of Naples ; flowering in January and February.

42. *C. NEVADENSIS* Amo & Campo, Rev. Ciene. Madrid, 1855, 55 ; Maw, Monogr. t. 42. *C. atlanticus* Pomel. *C. algeriensis* Baker.—Corm ovoid,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam. ; tunics a dense mass of fine parallel fibres. Basal spathe absent. Leaves 3–4 to a tuft, as high as the flowers, thicker and more rigid than usual, the margin not reflexed. Proper spathe diphyllous. Perianth-tube little exserted ; segments about an inch long, white tinged with lilac ; throat white, pubes-

cent. Anthers orange, twice as long as the white filaments. Style-branches whitish, slightly compound. Seeds dark buff.

Hab. Mountains of South Spain (Sierra Nevada, &c.), alt. 6000 ft. and pine forests of the province of Oran, Algeria, flowering from December to February.

*Autumnal.*

43. *C. LONGIFLORUS* Rafin. Caratt. 84, t. 19, fig. 2; Bot. Reg, xxx. t. 3, fig. 4; Reich. Ic. Crit. figs. 1272-3; Maw, Monogr. t. 28. *C. odoratus* Biv.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics a dense mass of fine fibres reticulated in the upper half. Basal spathe present. Leaves 3-4 to a tuft, very short at the flowering time, very narrow, with reflexed edges and a white band. Proper spathe broad, monophyllous. Perianth-tube much exerted; segments oblong, bright lilac,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long, never striped; throat yellow, slightly pubescent. Anthers orange, more than twice as long as the yellow filaments. Style-branches scarlet, slightly compound. Seeds scarlet.

Var. *MELITENSIS* Herb. in Bot. Reg. 1844, tab. 3, fig. 5.—Flower smaller, not so deep a yellow at the throat, the segments striped towards the base. Malta.

Hab. South Italy, Dalmatia and Sicily; flowering in October.

44. *C. SEROTINUS* Salisb. Parad. Lond. t. 30; Bot. Mag. t. 1267; Reich. Ic. Crit. fig. 1271; Maw, Monogr. t. 1.—Corm depressoglobose,  $\frac{3}{4}$ -1 in. diam.; tunics of fine matted parallel fibres. Basal spathe present. Leaves 4-6 to a tuft, as high as the flower, very narrow, with reflexed edges and a white band. Proper spathe monophyllous. Perianth-tube little exerted; segments oblong,  $1\frac{1}{2}$  in. long, bright lilac, not distinctly striped; throat concolorous, glabrous. Anthers yellow, much exceeding the white filaments. Style-branches orange-yellow, fimbriated at the tip.

Hab. South of Spain; flowering in November.

45. *C. SALZMANNI* Gay in Bull. Ferus. xv. 220; Hook. fil. in Bot. Mag. t. 6000; Maw, Monogr. t. 9. *C. Salzmannianus* Herb. in Bot. Reg. 1847, t. 4, fig. 4. *C. tingitanus* Herb.—Corm depressoglobose, 1 in. diam.; tunics of matted parallel fibres. Basal spathe present. Leaves about 6 to a tuft, shortly protruded at the flowering time, very narrow, with reflexed edges and a white band. Proper spathe broad, monophyllous. Perianth-tube much exerted; segments  $1\frac{1}{2}$  in. long, plain unstriped lilac; throat yellowish, pubescent. Anthers orange, exceeding the concolorous filaments. Style-branches orange, slender, overtopping the anthers, slightly divided.

Hab. Marocco, near Tangiers, and on the flank of the Lesser Atlas over Tetuan; flowering in October.

46. *C. OCHROLEUCUS* Boiss. et Gaill. in Boiss. Diag. ser. 2, iv. 93; Hook. fil. in Bot. Mag. t. 5297; Maw, Monogr. t. 11.—Corm globose,  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics membranous. Basal spathe present. Leaves 4-5 to a tuft, as high as the flower, narrow linear, with reflexed edges and a broad white band. Proper spathe 1-2 valved.

Perianth-tube much exserted; segments 1-1½ in. long, unstriped, creamy white; throat bright yellow, slightly pubescent. Anthers cream-coloured, about as long as the yellow filaments. Style-branches slender, orange-yellow, little divided.

Hab. Lebanon, Carmel, and other mountains of Syria and Palestine; flowering from the end of October to December.

47. *C. VALLICOLA* Herb. in Bot. Reg. xxxiii. t. 16, fig. 8; Maw, Monogr. t. 2. — Corn globose, ½ in. diam.; tunics membranous. Basal spathe present. Leaves about 5 to a tuft, not produced till after the flowers, very narrow, with reflexed edges and a white band. Proper spathe monophyllous. Perianth tube much exserted; segments cream-coloured, unstriped, suffused with feathered purple veins, distinctly cuspidate, marked with two small orange spots at the bearded throat. Anthers white, much exceeding the filaments. Style-branches short, cream-white, little divided. Seeds dull buff.

Var. *C. SUWARROVIANUS* K. Koch in Linnæa, xxi. 683. *C. Zohrabi* Maw. — Proper spathe very short, diphyllous. Perianth-segments longer than in the type, less acute; throat glabrous.

Hab. Caucasus and mountains of Armenia, alt. 6000-7000 ft.; flowering in August and September.

### Section III. SCHIZOSTIGMA. *Vernal.*

48. *C. VITELLINUS* Wahl. in Isis, xvi. 106; Baker in Bot. Mag. t. 6416; Maw, Monogr. t. 50. *C. syriacus* Boiss. et Gaill. — Corn ovoid, 1-¾ in. diam.; tunics membranous, showing matted fibres towards the base. Basal spathe absent. Leaves 4-6 to a tuft, as high as the flowers, narrow linear, with recurved edges and a white band. Proper spathe diphyllous. Perianth-tube shortly exserted; segments ¾-1 in. long, orange-yellow, the outer tinged with brown on the outside. Anthers yellow, a little shorter than the yellow papillose filaments. Style-branches orange or orange-red, divided into many capillary branches.

Var. *C. GRAVEOLENS* Boiss. & Reut. Fl. Orient. v. 107. *C. syriacus* Baker. *C. lageniflorus* var. ? *syriacus* Herb. — Leaves narrower. Outer segments of the perianth flushed with black or furnished with three distinct stripes of black down the back.—Aleppo.

Hab. Sicilian Taurus, Syria and Northern Palestine; flowering from the end of November into February.

49. *C. BALANSÆ* Gay in Balans. Exsic. 1854, No. 34; Maw, Monogr. t. 51. — Bulb ovoid, ¾ in. diam.; tunics of matted parallel fibres. Basal spathe absent. Leaves 2-4 to a tuft, as high as the flowers, 1½ in. broad at the flowering time, with reflexed edges and a white band. Proper spathe diphyllous. Perianth-tube little exserted; segments ¾-1¼ in. long, orange-yellow, the outer more or less flushed with brown on the back; throat concolorous, glabrous. Anthers orange, a little longer than the papillose yellow filaments. Style-branches orange, cut into many capillary segments. Seeds bright red.

Hab. Hills near Smyrna; flowering in March.

50. *C. FLEISCHERI* Gay in Bull. Ferus. xv. 219; Maw, Monogr. t. 66. *C. Fleischerianus* Herb. *C. smyrnenensis* Poech.—Corm  $\frac{1}{2}$ – $\frac{1}{4}$  in. diam.; tunics a dense mass of regularly-interlacing fine fibres. Basal spathe absent. Leaves about 6 to a tuft, as high as the flowers, very narrow, with reflexed edges and a white band. Proper spathe diphyllous. Perianth-tube not exerted; segments 1– $1\frac{1}{4}$  in. long, acute, white, the three outer with three slender lilac lines on the back; throat yellow, glabrous. Anthers small, orange, about as long as the filaments. Style-branches brick-red, dividing into many capillary segments. Seeds rose-red, ripening to brown.

Hab. Limestone hills of Asia Minor; flowering in January and February.

51. *C. CANDIDUS* Clarke, Travels, iii. 185; Maw, Monogr. t. 54. *C. Kirkii* Maw.—Corm globose,  $\frac{3}{4}$  in. diam.; tunics of matted parallel fibres. Basal spathe absent. Leaves as high as the flowers, finally  $\frac{1}{2}$  in. broad, with a very narrow keel and ciliated margin. Proper spathe diphyllous. Perianth-tube little exerted; segments 1– $1\frac{1}{2}$  in. long, white, tinged with yellow towards the glabrous throat, the outer sometimes tinged or feathered with purple on the back. Anthers orange, about as long as the yellow filaments. Style-branches cream-white, slit into many capillary segments.

Hab. The Troad; flowering in March. First gathered by Dr. Clarke in 1800, and re-discovered by Sir John Kirk in 1856.

52. *C. HYEMALIS* Boiss. et Blanche, Diag. 2, iv. 93; Maw, Monogr. t. 43.—Corm globose,  $\frac{1}{2}$ – $\frac{1}{4}$  in. diam.; tunics membranous. Basal spathe absent. Leaves about 4 to a tuft, as high as the flowers, with reflexed edges and a white band. Proper spathe diphyllous. Perianth-tube little exerted; segments 1– $1\frac{1}{2}$  in. long, white, with a central long purple line and 3–5 shorter ones; throat yellow, glabrous. Anthers orange, twice as long as the concolorous filaments. Style-branches red, divided into many long slender segments.

Hab. Palestine; common about Jerusalem, and extending northward to the Lebanon range and Damascus. Var. *Foxii* Maw is a form with nearly black anthers.

53. *C. GAILLARDOTII* Maw, Monogr. t. 40. *C. hyemalis* var. *Gaillardotii* Boiss. et Blanche. *C. aleppicus* Baker. — Corm ovoid,  $\frac{1}{2}$ – $\frac{1}{4}$  in. diam.; tunics formed from the very summit of fine matted parallel fibres. Basal spathe absent. Leaves many to a corm, very narrow, recurved, present with the flowers, with reflexed edges and a white band. Proper spathe diphyllous. Perianth-tube not exerted; segments  $\frac{3}{4}$ –1 in. long, white, unstriped, flushed outside with slaty lilac; throat lilac. Anthers white, rather longer than the yellow filaments. Style-branches orange-red, divided into many capillary branches.

Hab. Damascus, through Northern Palestine to Aleppo; flowering in December and January.

*Autumnal.*

54. *C. KARDUCHORUM* Kotschy, Pl. Cilic.-Kurd. 1859, No. 469; Maw, Monogr. t. 5. — Corm globose,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam.; tunics pale

brown, membranous. Basal spathe present. Leaves not developed till after the flowers. Proper spathe monophyllous. Perianth-tube much exerted; segments 1-1 $\frac{1}{4}$  in. long, lilac, not striped; throat concolorous, glabrous. Anthers cream-coloured, twice as long as the filaments. Style-branches many, capillary, cream-coloured.

Hab. Mountains of Kurdistan, alt. 6000 ft.; flowering in September.

55. *C. CLUSII* Gay in Bull. Ferus. xv. 220; Maw, Monogr. t. 10. *C. Clusianus* Herb. *C. autumnalis* Brotero.—Corm globose, 1-1 in. diam.; tunic of matted parallel fibres. Basal spathe present. Leaves 3-5 to a tuft, as high as the flowers, very narrow, with reflexed edges and a white band. Proper spathe monophyllous. Perianth-tube more or less exerted; segments 1-1 $\frac{1}{2}$  in. long, lilac, unstriped; throat concolorous, pubescent. Anthers yellow, longer than the concolorous filaments. Style-branches dark orange, divided into many capillary segments, overtopping the anthers. Seeds scarlet.

Hab. Portugal; abundant about Lisbon, Oporto, &c.; flowering in October and November.

56. *C. BORYI* Gay in Bull. Ferus. xv. 220; Maw, Monogr. t. 47 v. *C. Boryanus* Herb. in Bot. Reg. 1847, t. 16, fig. 10. *C. ionicus* Herb.—Corm globose, 1-1 in. diam.; tunics of matted parallel fibres. Basal spathe absent. Leaves 3-6 to a tuft, as high as the flowers, narrow linear, with reflexed edges and a white band. Proper spathe diphyllous. Perianth-tube shortly exerted; segments 1-1 $\frac{1}{2}$  in. long, white, with sometimes a few lilac lines towards the base outside; throat bright yellow, glabrous. Anthers white, a little longer than the orange filaments. Style-branches scarlet, overtopping the anthers, divided into many capillary segments. Seeds dark red.

Var. *C. MARATHONISEUS* Held.—Style-branches less divided, shorter, not overtopping the anthers.

Var. *C. TOURNEFORTII* Gay; Maw, Monogr. t. 47. *C. Tournefortianus* Herb. *C. Orphanidis* Hook. fil. in Bot. Mag. t. 5776. *C. pholegandrus* Orphan.—Flowers bright lilac.

Hab. Greece, the Cyclades and Ionian Islands; flowering in November and December.

57. *C. VENERIS* Tapp. in Poech. Fl. Cyprus, 10; Maw, Monogr. t. 8. *C. cretensis* Kornicke.—Corm 1-1 in. diam.; tunics of matted parallel fibres. Basal spathe not present. Leaves 5-7 to a tuft, as high as the flowers, narrow linear, with reflexed edges and a white band. Proper spathe diphyllous; perianth-tube little exerted; segments under an inch long, white, concolorous or the outer feathered with purple outside; throat yellow, glabrous. Anthers white, twice as long as the pale yellow filaments. Style-branches orange-yellow, overtopping the anthers, divided into many capillary segments.

Hab. Mountains of Cyprus and Crete; flowering in November. Very near *C. Boryi*.

58. *C. LÆVIGATUS* Bory et Chaub. Expl. Morée, 21, t. 2, fig. 1; Maw, Monogr. t. 49.—Corm ovoid, 1-1 in. diam.; tunics rigid,

broken up into many small imbricated segments. Basal spathe absent. Leaves 3-4 to a tuft, as high as the flowers, very narrow, with reflexed edges and a white band. Proper spathe very short, diphyllous. Perianth-tube much exserted; segments about an inch long, white, concolorous or the outer with 3-5 distinct stripes of lilac down the back; throat yellow, glabrous. Anthers white, about as long as the yellow papillose filaments. Style-branches bright yellow, overtopping the anthers, cut into capillary segments.

Hab. Greek mountains and the Cyclades, from sea-level up to 2500 ft.; flowering from October to December.

59. *C. CANCELLATUS* Herb. in Bot. Mag. sub t. 3864; Maw, Monogr. t. 31. *C. Schimperii* Gay. *C. nudiflorus* Sibth. & Sm., excl. syn. *C. Spruneri* Boiss. et Held. *C. mazziaricus*, *damascus* and *Kotschyanus* Herb. *C. pylarum* Gay. *C. cilicinus* Kotschy. *C. edulis* Boiss. et Blanche. — Corm globose, 1 in. diam.; tunics of coarsely-honeycombed fibres, produced at the top in a ring of bristles. Basal spathe absent. Leaves not usually developed till after the flowering time, finally a foot long, narrow linear, with reflexed edges and a white band. Proper spathe diphyllous. Perianth-tube much exserted; segments 1-1½ in. long, varying from white to pale lilac and dark lilac, not distinctly striped; throat usually yellow, glabrous. Anthers yellow, twice the length of the white filaments. Style-branches orange, much overtopping the anthers; divided into many capillary segments. Seeds large, red.

Hab. Greece and the Ionian Islands, through Asia Minor and Syria to Armenia and the North-west of Persia; flowering to October and December. Very variable, the European plant being usually white, and the Asiatic forms pale or deep lilac. Gay's name, *Schimperi*, given in 1835, is six years older than Herbert's *cancellatus*, but was not accompanied with a diagnosis.

60. *C. MEDIUS* Balbis, Add. Pedem. 83; Bot. Reg. xxi. t. 37, fig. 5; Moggr. Curt. Mentone, t. 20; Maw, Monogr. t. 27. — Corm globose, ¾-1 in. diam.; tunics of moderately stout unmatted fibres, produced into short bristles at the top. Basal spathe present. Leaves not produced till spring, 2-3 to a tuft, finally a foot or more long, ¼-½ in. broad. Proper spathe very long, monophyllous. Perianth-tube much exserted; segments 1½-2 in. long, bright lilac, paler towards the base; throat whitish, glabrous. Anthers pale orange, twice the length of the yellow filaments. Style-branches scarlet, divided into many capillary branches. Seeds ovoid, orange.

Hab. Mountains of the Riviera, from Mentone to Genoa, ascending to 4000 ft. Flowers in October.

61. *C. NUDIFLORUS* Smith in Eng. Bot. t. 491; edit. 3, t. 1500; Maw, Monogr. t. 6. *C. multifidus* Ramond. *C. speciosus* Wils. in Eng. Bot. Suppl. t. 2752, non M. B. *C. pyrenaicus* (Parkins.) Herb. — Corm very small, globose, copiously stoloniferous; tunics membranous. Basal spathe present. Leaves 3-4 to a tuft, not developed till after the flowers, mature in spring, very narrow, with reflexed edges and a white band. Proper spathe 4-6 in. long, monophyllous. Perianth-tube much exserted; segments plain lilac, 1½-2 in. long; throat concolorous, glabrous. Anthers yellow, large, more than

twice as long as the white filaments. Style-branches orange, overtopping the anthers, cut into many slender segments. Seeds pale buff.

Hab. Pyrenees and other mountains of the South of France and North of Spain, ascending to 6000 ft.; flowering in September and October. *C. granatensis* Maw, from the mountains of New Granada, alt. 4000—6500 ft., differs by its larger corm, with more fibrous tunics, and without stolons.

62. *C. ASTURICUS* Herb. in Bot. Mag. sub t. 3998; Maw, Monogr. t. 7.—Corm globose,  $\frac{1}{2}$ –1 in. diam., not stoloniferous; tunics of fine matted parallel fibres. Basal spathe present. Leaves about 3, rudimentary at the flowering time, mature in spring. Proper spathe monophyllous. Perianth-tube shortly protruded; segments lilac,  $1\frac{1}{2}$  in. long; throat concolorous, pubescent. Anthers bright yellow, exceeding the white filaments. Style-branches orange, overtopping the anthers, divided into many capillary segments. Seeds dull buff-coloured.

Hab. Asturias and other mountains of Spain, ascending to 4000 ft.; flowering in October and November. Intermediate between *nudiflorus* and *serotinus*.

63. *C. SPECIOSUS* M. Bieb. Fl. Taur. Cauc. i. 27; Cent. Ross. t. 71; Bot. Mag. t. 3861; Bot. Reg. xxv. t. 40; Maw, Monogr. t. 64. *C. multifidus* Reich. Ic. Crit. fig. 1275, non Ramond.—Corm globose,  $\frac{3}{4}$ –1 in. diam., not stoloniferous; tunics membranous, cut round at the base. Basal spathe absent. Leaves about 3 to a tuft, not developed with the flowers, mature with the fruit in spring, thin, above a foot long,  $\frac{1}{8}$  in. broad, with revolute edges and a broad white band. Proper spathe long, diphyllous. Perianth-tube much exserted; segments  $1\frac{1}{2}$ –2 in. long, bright lilac, conspicuously feathered with three darker vertical veins. Anthers very large, bright orange, much exceeding the white filaments. Style-branches bright orange, overtopping the anthers, divided into many slender segments. Seeds large, dark red.

Hab. Austria to the Caucasus, Persia and Afghanistan; flowering from September to November.

64. *C. PULCHELLUS* Herb. in Bot. Reg. xxx. t. 3; Maw, Monogr. t. 65.—Corm depresso-globose,  $\frac{1}{2}$  in. diam.; tunics rigid, cut round at the base. Basal spathe absent. Leaves not produced till after the flowers, mature in spring with the fruit. Proper spathe short, diphyllous. Perianth-tube much exserted; segments bright lilac,  $1$ – $1\frac{1}{2}$  in. long, not distinctly striped; throat bright yellow, glabrous. Anthers white, longer than the yellow pubescent filaments. Style-branches orange, cut into many capillary branches. Seeds red.

Hab. Turkey, Greece and Asia Minor, ascending to 4000 ft.; flowering from September to December. Called *C. constantinopolis* by Hertodt, of Jena, in 1670.

65. *C. BYZANTINUS* (Parkins.) Ker in Bot. Mag. sub t. 1111; Herb. in Bot. Reg. 1847, t. 4, fig. 5; Hook. fil. in Bot. Mag. t. 6141. *C. banaticus* Gay, non Heuff. *C. speciosus* Reich. Pl. Crit. figs. 1267–8, non M. B. *C. iridiflorus* Heuff.; Reich. Fl. Germ. figs. 802–3; Maw, Monogr. t. 1. *C. Herbertianus* Kornicke. *Cro-*



*ciris iridiflora* Schur. — Corm depresso-globose,  $\frac{1}{2}$  in. diam.; tunics of fine parallel unmatted fibres. Basal spathe present. Leaves 2-4 to a tuft, developed with the fruit in spring,  $\frac{1}{8}$ - $\frac{1}{4}$  in. broad. Proper spathe long, monophyllous. Perianth-tube much exerted; limb  $1\frac{1}{2}$ -2 in. long; outer segments dark lilac, acute, much longer than the inner, which are pale lilac or white. Anthers orange, longer than the glabrous lilac filaments. Style-branches lilac, divided into many capillary segments. Seeds dull red.

Hab. Banat and Transylvania; flowering in September and October. Very distinct in its unequal perianth-segments.

66. *C. HERMONEUS* Kotschy; Maw, Monog. t. 44.—Corm ovoid,  $\frac{1}{4}$  in. diam., longer than broad; tunics membranous, and composed of fine matted parallel fibres. Basal spathe absent. Leaves 3-4 in a tuft, 7-9 in. long at the fruiting time,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, with a narrow keel and reflexed edges. Proper spathe diphyllous, 2-2 $\frac{1}{2}$  in. long; flowers unknown. Capsule nearly an inch long.

Hab. Palestine; near the summit of Mount Hermon, alt. 9000 ft. Gathered by Kotschy in 1855. Known only from fruiting specimens in the Vienna herbarium. "May be allied to *C. hyemalis*" Maw. Probably vernal.

#### 15. SYRINGODEA Hook. fil.

*Perianth* with a long slender tube and short spreading emarginate or entire ascending oblong subequal segments. *Stamens* inserted at the throat of the perianth-tube; filaments short, free; anthers linear, sagittate at the base. *Ovary* oblong-cylindrical, 3-celled; ovules many in a cell; style long, filiform; style-arms entire, falcate, slender. *Capsule* oblong-cylindrical, membranous, *Seeds* minute, turgid. — *Rootstock* a corm with a membranous tunic. *Leaves* usually several, slender, multifarious. *Peduncle* short and hidden, as in *Crocus*. *Spathes* cylindrical, membranous, 1-flowered. Intermediate between *Crocus* and *Romulea*.

*Perianth* with spreading emarginate segments. Sp. 1.

*Perianth* with ascending entire segments . Sp. 2-7.

1. *S. PULCHELLA* Hook. fil. in Bot. Mag. t. 6072.—Corm globose,  $\frac{1}{2}$  in. diam., 1-2-flowered; tunics brown. Leaves 4-6, setaceous, glabrous, firm, 3-4 in. long at the flowering time. Spathe an inch long. *Perianth* with a much exerted cylindrical tube  $1\frac{1}{2}$ -2 in. long, and spreading cuneate-emarginate purple segments  $\frac{1}{8}$ - $\frac{1}{2}$  in. long. Anthers  $\frac{1}{8}$  in. long, exceeding their filaments. Style-branches slightly overtopping the anthers.

Hab. Cape Colony; Sneewberg mountains, alt. 4500 ft., *Bolus* 1852! Flowered at Kew in the autumn of 1873.

2. *S. MONTANA* Klatt Erganz. 69.—Corm oblong  $\frac{1}{2}$  in. diam., 1-3-flowered; outer tunics bright brown. Leaves setaceous, curved or spiral, hairy, short. Valves of spathe equal, white, ovate,  $\frac{1}{4}$  in. long. *Perianth* with a cylindrical tube under an inch long, a yellow throat and obovate violet segments  $\frac{1}{2}$  in. long.

Hab. Cape Colony; province of Clanwilliam, on the Hantam mountains. *Dr. Meyer*.

3. *S. FILIFOLIA* Baker in Journ. Bot. 1876, 67.—Corm oblong,  $\frac{1}{4}$  in. diam., with shining brown tunics and a neck an inch long. Leaves 6–8, very slender, setaceous, 1–1 $\frac{1}{2}$  in. long. Spathe  $\frac{1}{2}$  in. long. Perianth with a filiform tube  $\frac{1}{2}$  in. long, a yellow throat and obovate entire segments  $\frac{1}{2}$  in. long. Stamens half as long as the segments.

Hab. Cape Colony. Described from a specimen at the British Museum gathered by Bowie.

4. *S. BICOLOR* Baker in Journ. Bot. 1876, 67. *Trichonema longitubum* Klatt.—Corm globose, with a long neck  $\frac{3}{4}$  in. diam.; tunics brown, membranous. Leaves 6–8, setaceous, glabrous, much overtopping the flowers. Spathe cylindrical, 1–1 $\frac{1}{2}$  in. long. Perianth with a cylindrical tube 1 $\frac{1}{2}$ –2 in. long, a yellow throat and obovate-oblong entire purple segments  $\frac{3}{4}$  in. long. Stamens half as long as the segments. Style-arms overtopping the anthers.

Hab. Central and Eastern districts of Cape Colony. Var. *concolor* Baker, from Kaffraria, has a lilac perianth, not a yellow throat. *Drège* 3498, from 7000–8000 ft. on the Wittbergen, with more slender leaves and smaller flowers, may be a mountain form.

5. *S. ROSEA* Klatt *Erganz.* 69, excl. syn.—Corm 1–3-flowered. Leaves single, terete, channelled down the face, 2–3 in. long,  $\frac{1}{2}$  lin. diam. Spathe with subequal membranous valves  $\frac{1}{2}$ –1 in. long, with a herbaceous midrib. Perianth with a cylindrical tube  $\frac{3}{4}$  in. long; segments rose-red, oblanceolate,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; province of Clanwilliam, on the Hantam mountains. *Dr. Meyer.*

6. *S. MINUTA* Klatt *Erganz.* 69, excl. syn.—Corm globose, 1–4-flowered. Leaves linear, flat, glabrous, erect. Spathe with two small linear-filiform valves. Perianth with a white tube with purple streaks and concave white segments with two purple streaks.

Hab. Cape Colony, in inundated sandy places. Known to me only from *Dr. Klatt's* description. *Ixia minuta* Linn. fil., which he cites as a synonym, is *Puuridia* in Hypoxidacæ.

7. *S. LATIFOLIA* Klatt *Erganz.* 69.—Corm ovoid,  $\frac{1}{8}$  in. diam., 1-flowered; tunics brown. Leaves 4, lanceolate, flat, patent, prominently 1-nerved,  $\frac{1}{2}$ –1 in. long. Spathe of two equal valves  $\frac{1}{2}$  in. long, hairy on the keel. Perianth with a cylindrical tube nearly an inch long, purple and hairy at the throat and oblanceolate segments  $\frac{1}{2}$  in. long,  $\frac{1}{8}$  in. broad.

Hab. Cape Colony; hills north of the Olifants river, alt. 3000–4000 ft., *Drège* 2633.

## 16. GALAXIA Thunb.

*Perianth* with a cylindrical tube and campanulate limb with subequal obtuse segments. *Stamens* inserted at the throat of the perianth-tube; filaments connate in a cylindrical column; anthers lanceolate, sagittate at the base. *Ovary* cylindrical, 3-celled; ovules crowded, superposed; style filiform, with a peltate petaloid 3-lobed stigma. *Capsule* cylindrical, membranous. *Seeds* subglobose,

minute.—*Rootstock* a tunicated corm. *Leaves* several, basal, multifarious. *Spathes* 1-flowered, sessile in the centre of the rosette of leaves. *Flowers* small, fugacious, lilac or yellow.

1. *G. OVATA* Thunb. Diss. Nov. Gen. ii. 51, with figure; Cav. Diss. tab. 189, fig. 2; Jacq. Ic. tab. 291, upper figure; Andr. Bot. Rep. t. 94. *G. obtusa* Salisb. *Ixia Galaxia* Linn. fil.—Corm globose,  $\frac{1}{2}$  in. diam., thickly tunicated. Leaves firm, with several distinct ribs and a thickened pale cartilaginous border, outer ovate or oblong-lanceolate,  $\frac{1}{2}$ – $1\frac{1}{2}$  in. long, inner narrower. Spathe cylindrical,  $\frac{1}{2}$ –1 in. long. Perianth-tube exerted from the spathe; limb bright yellow, about 1 in. diam.; segments obovate. Stigma overtopping the anthers.

Var. *G. GRANDIFLORA* Salisb. (Andr. Bot. Rep. t. 164; Bot. Mag. t. 1208).—Flower yellow,  $1\frac{1}{2}$  in. diam. when expanded.

Var. *G. MUCRONULATA* Salisb. (Jacq. Ic. t. 291, lower left hand figure).—Flower lilac, with a yellow throat; segments narrower than in the type, obtuse, with a minute cusp.

Var. *G. VERSICOLOR* Salisb. (Jacq. Ic. t. 291, lower right hand figure). Flower smaller than in the type, dark lilac, with a yellow throat; segments obtuse, without a cusp.

Var. *ECKLONI* Baker. *G. versicolor* Ecklon.—Flowers lilac, 1 in. diam. Leaves more numerous than in the type, the inner linear.

Hab. Cape Colony; south-western provinces.

2. *G. GRAMINEA* Thunb. Diss. Nov. Gen. ii. 51, with figure; Cav. Diss. tab. 189, fig. 3; Ker. in Bot. Mag. t. 1292. *Ixia fugacissima* Linn. fil.—Corm ovoid,  $\frac{1}{4}$ – $\frac{1}{2}$  in. diam., thickly tunicated. Leaves many, linear-convolute, 1–2 in. long, often furnished with bulbillæ in their axils. Spathe  $\frac{1}{2}$  in. long. Perianth-tube 1–2 in. long; limb lilac or yellow, 1– $1\frac{1}{2}$  in. diam. when expanded.

Hab. Cape Colony; south-western provinces.

## 17. ROMULEA Maratt.

*Perianth* with a short tube and a regular limb with six subequal obovate imbricated segments. *Stamens* inserted at the throat of the perianth-tube; filaments short, filiform, except in a single species; anthers lanceolate, sagittate at the base. *Ovary* oblong, 3-celled; ovules many, superposed; style filiform, with bifid clavate branches. *Capsule* ellipsoid, loculicidally 3-valved. *Seeds* small, globose or angled by pressure.—*Rootstock* a corm with membranous tunics. Leaves setaceous, multifarious. *Peduncle* produced, simple or branched. *Spathe* of two lanceolate valves, both green and firm or the inner membranous. *Flowers* solitary in the spathe, purple, yellow or whitish. All the species are nearly allied to one another.

Species of the Mediterranean region.

Flowers large . . . . .	Sp. 1–5.
Flowers middle-sized . . . . .	Sp. 6–10.
Flowers small . . . . .	Sp. 11–12.

## Species of the Cape and Tropical Africa.

Filaments free.

Flowers yellow . . . . .	Sp. 13-18.
Flowers whitish, tinged outside with green	Sp. 19-24.
Flowers lilac . . . . .	Sp. 25-32.
Filaments monadelphous . . . . .	Sp. 33.

1. *R. BULBOCODIUM* Seb. et Maur. Fl. Rom. 17; Reich. Ic. Fl. Germ. tab. 356; Moggr. Mentone, t. 93A. *Ixia Bulbocodium* Linn. ex parte; Jacq. Ic. t. 271; Bot. Mag. t. 265. *Trichonema Bulbocodium* Ker. *T. collinum* Salisb. *Romulea uliginosa* Kunze.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics brown. Peduncle simple or divided at the surface of the soil into 2-4 forks 1-3 in. long, much overtopping the flowers. Outer spathe firm, green,  $\frac{3}{4}$  in. long; inner much shorter, green or scarious. Perianth lilac, with a yellow throat an inch long. Stamens half as long as the perianth; filaments as long as the yellow anthers. Style much overtopping the anthers; forks bifid below the middle.

Hab. Throughout the Mediterranean region. *R. pulchella* Jord. et Four. Ic. t. 107, fig. 163, *R. syrtica* Jord. & Four. Ic. t. 108, fig. 165, and *R. grandiflora* Todaro, Jord. & Four. Ic. t. 108, fig. 164, are forms nearly allied to the type; *R. flaveola* Jord. et Four. Brev. ii. 106, has yellowish white flowers; *Trichonema subpalustre* Herb. in Bot. Reg. xxx. t. 40, fig. 1, has segments white towards the base, lilac upwards; *T. pylium* Herb. in Bot. Reg. xxx. t. 40, fig. 2, large white flowers with a yellow throat; *T. umbellatum* Klatt, 5-6 deep lilac flowers on short pedicels and *R. crocea* Boiss. et Held. and *T. nivale* Boiss. & Kotschy are alpine forms from Asia Minor with bright yellow flowers tinged with lilac.

2. *R. CLUSIANA* Baker in Journ. Linn. Soc. xvi. 87. *Trichonema Clusiana* Lange Ic. Plant. Nov. Hisp. t. 34.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics hard, brown. Peduncle simple or forked at the base. Leaves about 4, setaceous, curved,  $\frac{1}{2}$ -1 ft. long. Outer spathe-valve green,  $\frac{3}{4}$ -1 in. long. Perianth 1-1 $\frac{1}{4}$  in. long, bright yellow tipped with lilac. Filaments yellow, shorter than the anthers. Style overtopping the anthers; branches  $\frac{1}{2}$  in. long.

Hab. Cadiz, Gibraltar, and other places in Spain. The type and a white variety have been brought lately into cultivation by Mr. Barr.

3. *R. CROCIFOLIA* Visiani Fl. Dalm. Suppl. 30, t. 2.—Differs from *R. Bulbocodium* by its flatter leaves, furnished with a white central band as in *Crocus*, and large bright orange-yellow flowers.

Hab. Dalmatia.

4. *R. ELONGATA* Baker in Journ. Linn. Soc. xvi. 87. *Ixia elongata* Vahl. *Trichonema elongata* Ker.—Differs from *R. Bulbocodium* by its spathe-valves an inch or more long, and perianth-tube half an inch long.

Hab. Sardinia, in sands of the seashore. Known to me only from Vahl's description.

5. *R. GRANDISCAPA* J. Gay in Bourg. Pl. Can. No. 1073. *Trichonema grandiscapum* Webb et Berth. Phyt. Can. t. 222.—Corm  $\frac{1}{2}$  in. diam.; tunics hard, brown. Peduncle sometimes short and simple, sometimes elongated before it forks, with 2-4 short branches.

Leaves sometimes a foot or more long. Outer spathe-valve lanceolate,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth an inch long, with a short tube, lilac or whitish, with a yellow throat. Style overtopping the anthers; branches  $\frac{1}{2}$  in. long, bifid to the middle.

Hab. Canaries and Madeira. *R. Hartungii* Parl., from Lancerotta, is probably the same species.

6. *R. LIGUSTICA* Parl. Fl. Ital. iii. 249; Moggr. Cont. Mentone, t. 93, B. C.—Corm  $\frac{1}{2}$  in. diam. Peduncle branched at the surface of the soil, bearing 2-6 forks 2-3 in. long. Leaves filiform, much overtopping the flowers. Outer spathe-valve  $\frac{1}{2}$  in. long. Perianth an inch long, bright lilac, with a short tube and a white pubescent throat. Stamens less than half as long as the perianth. Entire portion of style as long as the stamens; branches falcate,  $\frac{1}{2}$  in. long, bifid halfway down.

Hab. Northern Italy. Described from specimens gathered near Mentone by Messrs. Moggridge. The Roman *R. Rollii* Parl. does not seem from the description to differ materially.

7. *R. RAMIFLORA* Ten. Mem. 113; Moggr. Ment. t. 92. *Ixia ramiflora* Ten. Fl. Neap. t. 203, fig. 3. *Trichonema ramiflora* Sweet.—Corm  $\frac{1}{2}$  in. diam.; outer tunics hard brown. Peduncle branched at the surface of the ground into 2-4 curved branches or produced into an above-ground stem. Leaves sometimes a foot long. Outer spathe-valve  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth  $\frac{3}{4}$  in. long, with a short tube, narrow acute bright lilac segments and a yellow throat. Stamens less than half as long as the perianth. Style-branches short, not overtopping the anthers.

Hab. Spread through the Mediterranean region. I cannot distinguish *R. purpurascens* Tenore, Jord. et Four. Ic. tab. 106, fig. 161, nor the Socotran *Trichonema edule* Herb. *R. neglecta* Jord. et Four. Brev. ii. 107, has a whitish flower with the outer segments pale green outside with faint lilac stripes. Schimper's No. 550, from the mountains of Abyssinia, is not distinguishable by dried specimens.

8. *R. NUMIDICA* Jord. et Four. Brev. i. 49.—Peduncle short. Flowers middle-sized, half as long again as the spathe, lilac with a pubescent yellow throat, the acute segments with violet stripes produced to the apex, the outer tinged green on the back. Style with its branches a little overtopping the anthers.

Hab. Algeria. Nearly allied to *R. ramiflora*.

9. *R. LINARESII* Parl. Fl. Panorm. i. 38; Jord. et Four. Ic. t. 107, fig. 162. *Ixia Bulbocodium* Sibth. et Smith Fl. Græc. i. 26, t. 36.—Corm  $\frac{1}{2}$ - $\frac{1}{3}$  in. diam. Peduncle not produced above the soil, 1-3-flowered. Leaves much overtopping the flowers. Outer spathe-valve  $\frac{1}{2}$  in. long. Perianth  $\frac{1}{2}$  in. long, with a short tube and acute segments, bright lilac down to its very base. Stamens half as long as the perianth. Style with its short branches not overtopping the anthers.

Hab. Italy, Greece, and Asia Minor. There is an original specimen from Sibthorpe, at the British Museum, labelled by him "*Ixia maritima*." *R. corsica* Jord. et Four. Brev. ii. 107, from Corsica, has a perianth with a paler throat.

10. *R. REQUIENII* Parl. Fl. Ital. iii. 248; Jord. et Four. Ic.

t. 109, fig. 166. *Trichonema Linaresii* Gren. et Godr.—Corm globose,  $\frac{1}{4}$  in. diam. Peduncle not produced above the surface, simple or forked. Leaves 3-4, spreading. Outer spathe-valve  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, deep violet down to the base; segments broad, obtuse. Stamens half as long as the segments. Style much overtopping the anthers; branches short, spreading.

Hab. Corsica. Gathered by Requier, Kralik and Reverchon.

11. R. COLUMNÆ Seb. et Maur. Fl. Rom. 18; Reich. Ic. Germ. t. 356, fig. 784-5; Moggr. Cent. Mentone, t. 91. *Trichonema Columnæ* Reich. *T. minima* Ten. *T. Bulbocodium* Smith Engl. Bot. t. 2549. *Ixia parviflora* Salisb.—Corm  $\frac{1}{2}$ - $\frac{1}{2}$  in. diam. Peduncle not produced above the soil, usually simple. Leaves finally 6-8 in. long. Outer spathe-valve  $\frac{1}{2}$  in. long. Perianth  $\frac{1}{2}$  in. long, with a short tube and a yellow throat; segments lanceolate, acute, pale lilac, veined with deep lilac, the outer tinged green outside, Stamens half as long as the segments. Style with its short-spreading branches not overtopping the anthers.

Hab. Azores, and from England and Portugal eastward to Greece. *R. modesta* and *subalbida* Jord. & Four. Ic. t. 110 are nearly allied.

12. R. REVELIERI Jord. et Four. Ic. t. 109, fig. 167.—Corm  $\frac{1}{4}$  in. diam. Peduncle short, 1-flowered. Leaves 3-4, overtopping the flower. Outer spathe-valve  $\frac{1}{2}$  in. long. Perianth  $\frac{1}{2}$ - $\frac{1}{2}$  in. long, with a distinct funnel-shaped tube, a pale throat and dark violet oblong acute segments. Stamens more than half as long as the segments. Style shorter than the stamens, its branches short, falcate.

Hab. Corsica, *Mabile* 393!

13. R. CITRINA Baker. — Corm small, globose, Stem short, bearing 2-3 flowers on erect or spreading peduncles 1-2 in. long. Leaves terete, much overtopping the flowers. Outer spathe-valve  $\frac{1}{2}$  in. long. Perianth unstriped yellow, with a narrowly funnel-shaped tube  $\frac{1}{2}$  in. long and oblong segments  $\frac{1}{2}$  in. long. Stamens less than half as long as the segments. Style-branches just overtopping the anthers.

Hab. Lesser Namaqualand, near Moddenfontein, alt. 3000 ft., *Bolus* 6619!

14. R. TORTUOSA Baker in Journ. Linn. Soc. xvi. 88. *Ixia tortuosa* Lichten. *Trichonema tortuosum* Ker.—Corm small, ovoid. Flowers 2-3, subsessile in the centre of the rosette of leaves. Leaves 3-4, setaceous,  $1\frac{1}{2}$ -2 in. long, spreading, spirally twisted. Spathe-valves  $\frac{1}{2}$  in. long. Perianth bright yellow, unstriped,  $\frac{1}{2}$  in. long; segments oblong. Stamens more than half as long as the segments. Style shorter than the stamens.

Hab. Cape Colony; central karoo region, *Lichtenstein*, *Burchell* 1343!

15. R. SUBLUTEA Baker in Journ. Linn. Soc. xvi. 88. *Ixia sublutea* Lam. *Geissorhiza sublutea* Ker. *Ixia crocea* Thunb. *I. filifolia* Red. Lil. tab. 251, fig. 2. *Trichonema filifolia* Poir. *R. aurea* Klatt. — Corm globose,  $\frac{1}{4}$ - $\frac{1}{2}$  in. diam. Stem short, 1-3-flowered. Leaves very slender, 3-6 in. long at the flowering time. Spathe-

valves green,  $\frac{1}{2}$  in. long. Perianth bright yellow, unstriped,  $\frac{3}{4}$ -1 in. long; segments oblong. Stamens half as long as the segments. Style-branches equalling or slightly overtopping the anthers.

Hab. Cape Colony; southern provinces. First gathered by Thunberg.

16. *R. FILIFOLIA* Eckl. Topog. Verz. 20, excl. syn. *Trichonema filifolium* Klatt. — May be a mere form of *R. bulbocodioides*, from which it differs by its erect subterete leaves a foot long, and long peduncle with 4 short curved branches, with 2 reduced leaves from the base of the umbel.

Hab. Cape Colony; Uitenhage, Zeyher!

17. *R. BULBODIODES* Baker in Journ. Linn. Soc. xvi. 88. *Ixia bulbocodioides* Delar. *I. reflexa* Thunb. *I. recurva* Red. Lil. t. 251, fig. 1. *Trichonema caulescens* Ker in Bot. Mag. t. 1392. *T. hypoxiliflorum* Salisb. *Ixia flava* Lam. *R. caulescens* Klatt. — Corm globose,  $\frac{1}{3}$ - $\frac{1}{2}$  in. diam; outer tunics rigid. Peduncle short, 1-6-flowered. Leaves much stouter than in *R. sublutea*, finally  $\frac{1}{2}$ -1 ft. long. Outer spathe-valve  $\frac{3}{4}$ -1 in. long. Perianth bright yellow, an inch long; segments oblong, not striped, tinged with green outside. Anthers  $\frac{1}{2}$  in. long, equalling the filaments. Style-branches equalling or just overtopping the anthers.

Hab. Cape Colony; southern provinces. The commonest of the yellow-flowered species. There are fine specimens in the Linnean herbarium, under *Ixia Bulbocodium*. A plant in Thunberg's herbarium has a peduncle a foot long.

18. *R. MACOWANI* Baker in Journ. Bot. 1876, 236. — Corm globose,  $\frac{1}{2}$  in. diam.; outer tunics brown, rigid. Stems short, 1-4-flowered. Leaves 6, long, spreading, subterete. Outer spathe-valve 1-1 $\frac{1}{2}$  in. long. Perianth with a funnel-shaped tube  $\frac{1}{2}$ - $\frac{3}{4}$  in. long and a limb above an inch long with oblong segments, bright yellow at the base, paler upwards, unstriped, the outer tinged with green on the back. Stamens half as long as the segments. Style-branches much overtopping the anthers.

Hab. Cape Colony; on the Boschberg, alt. 4500 ft., Macowan, 1547! Gathered also by Mrs. Barber and Mr. Bowker. One of the finest species of the genus.

19. *R. LATIFOLIA* Baker in Journ. Bot. 1876, 237. *Trichonema latifolium* Herb. — Corm  $\frac{1}{2}$  in. diam.; outer tunics rigid. Stem not produced above the soil, bearing 2-3 flowers. Leaves rather flattened,  $\frac{1}{2}$ -1 ft. long. Outer spathe-valve  $\frac{3}{4}$  in. long. Perianth whitish, with a yellow throat, with a short tube and oblong segments an inch long, the outer tinged with green and not striped down the back. Stamens less than half as long as the perianth. Style-branches just overtopping the anthers.

Hab. Cape Colony; south-west provinces. Is in Herb. Thunberg as a variety of *Ixia reflexa*. It may be a mere colour-variety of *R. bulbocodioides*.

20. *R. TRIDENTIFERA* Klatt, Ergänz. 61. — Corm conic. Peduncle very short, 1-flowered. Leaves subsetaceous, flexuose. Outer spathe-valve  $\frac{3}{4}$  in. long. Perianth with a short tube and dull yellow semilurid limb an inch long, the outer segments with a 3-toothed violet blotch.

Hab. Cape Colony; Hantam hills, Dr. Meyer.

21. *R. CHLOROLEUCA* Baker in Journ. Linn. Soc. xvi. 89. *Ixia chloroleuca* Jacq. Ic. t. 272. *I. ochroleuca* Vahl. *Trichonema chloroleuca* and *ochroleuca* Ker.—Corm  $\frac{1}{2}$  in. diam. Peduncle short, 1-2-flowered. Leaves setaceous, much overtopping the flowers. Outer spathe-valve  $\frac{3}{4}$  in. long. Perianth whitish, with a yellow throat, with a short tube and oblong segments  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Stamens half as long as the segments. Style-branches overtopping the anthers.

Hab. Cape Colony; south-western provinces.

22. *R. SPIRALIS* Baker in Journ. Linn. Soc. xvi. 90. *Trichonema spiralis* Burch.—Corm globose,  $\frac{1}{4}$  in. diam.; outer coats crustaceous, shining. Peduncle very short, 1-flowered. Leaves 4-5, linear convolute, 1-1 $\frac{1}{2}$  in. long, much twisted spirally. Spathe-valves under  $\frac{1}{2}$  in. long. Perianth whitish, tinged with lilac, with a short tube and obovate obtuse segments under  $\frac{1}{2}$  in. long. Stamens half as long as the segments. Style-branches reaching to the top of the anthers.

Hab. Cape Colony; karoo of the Middle Roggerld, *Burchell*, 1356!

23. *R. SIMILIS* Eckl. Topog. Verz. 19. *R. obscura* Klatt.—Corm globose,  $\frac{1}{4}$  in. diam.; outer tunics crustaceous. Stem short, 1-4-flowered; peduncles about an inch long. Elongated leaf 1, sub-setaceous, half a foot long. Outer spathe-valve green,  $\frac{1}{2}$  in. long. Perianth  $\frac{1}{2}$ - $\frac{1}{2}$  in. long, with a short tube and narrow segments, the inner whitish, the outer green outside. Stamens half as long as the perianth. Style-branches not overtopping the anthers.

Hab. Cape Colony; south-western provinces. First gathered by Thunberg. Is in herb. Banks, named *Ixia pumila* by Solander.

24. *R. MINUTIFLORA* Klatt, Ergänz. 65.—Corm  $\frac{1}{4}$  in. diam. Stem very short, 2-4-flowered; peduncles under an inch long. Leaves subsetaceous, spreading, 3-nerved. Spathe-valves  $\frac{1}{4}$  in. long. Perianth pale lilac,  $\frac{1}{4}$  in. long, with a short tube and oblong-lanceolate segments. Stamens more than half as long as the segments.

Hab. Cape Colony; south-western district, *Dreye*, 538. Gathered also at Mossel Bay by Rev. W. M. Rogers.

25. *R. CAMEROONIANA* Baker in Journ. Bot. 1876, 236. — Corm globose,  $\frac{1}{2}$ - $\frac{1}{2}$  in. diam. Peduncle simple, elongated or bearing 2-3 flowers on long erect pedicels. Leaves 4, erect, reaching a foot in length. Spathe-valves lanceolate,  $\frac{1}{2}$ - $\frac{1}{2}$  in. long, both firm and green. Perianth  $\frac{3}{4}$  in. long, lilac, with a pale throat, the subobtus segments veined with violet. Stamens more than half as long as the segments. Style not overtopping the anthers.

Hab. Cameroons, alt. 7000-9000 ft. Gathered by Mann in 1862, and H. H. Johnston in 1886. Mount Kilimanjaro, 9000-10,000 ft.; gathered by Joseph Thomson in 1884.

26. *R. HIRSUTA* Eckl. Topog. Verz. 19. *R. uncinata* Klatt. *Trichonema hirsutum* Klatt. — Corm globose,  $\frac{1}{2}$  in. diam. Stems short, simple or forked; peduncles 1-2 in. long. Leaves setaceous, very slender, 2-4 in. long. Spathe-valves  $\frac{1}{2}$ - $\frac{1}{2}$  in. long. Perianth



about an inch long, bright yellow in the lower half, bright red-purple in the upper half; segments oblong. Stamens less than half as long as the segments. Style-branches not overtopping the anthers.

Hab. Cape Colony; south-western provinces.

27. *R. LONGIFOLIA* Baker in Journ. Linn. Soc. xvi. 89. *Trichonema longifolium* Salisb. *T. cruciatum* Ker in Bot. Mag. t. 575, excl. syn. Jacq.—Corm small, globose. Peduncle short, 1-flowered. Leaves setaceous, 3-nerved, suberect, 6–10 in. long. Spathe-valves  $\frac{1}{2}$  in. long. Perianth with a short tube, pale yellow inside, and a lilac limb  $\frac{1}{2}$  in. long, the outer segments with 3 purple stripes down the back. Stamens half as long as the segments. Style not overtopping the anthers.

Hab. Cape Colony. Described partly from an unpublished drawing of Herbert's, now in the Lindley library.

28. *R. GRACILLIMA* Baker.—Corm globose,  $\frac{1}{8}$  in. diam. Peduncle short, slender, 1-flowered. Leaves 3–4, setaceous, very slender, 3–6 in. long. Spathe-valves  $\frac{1}{4}$ – $\frac{1}{3}$  in. long. Perianth infundibuliform,  $\frac{1}{2}$  in. long, pale red-lilac, with a tube as long as the segments. Anthers just exserted from the perianth-tube.

Hab. Mountains of Namaqua-land, *Drège!* (*Trichonema cruciatum*, a).

29. *R. ELEGANS* Klatt, *Erganz.* 66.—Corm globose,  $\frac{1}{2}$  in. diam.; outer tunics crustaceous. Stems short, simple or forked; peduncles 1–3 in. long. Leaves setaceous, erect, 3-nerved,  $\frac{1}{2}$ –1 ft. long. Spathe-valves  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth with a funnel-shaped tube  $\frac{1}{4}$  in. long, bright yellow inside and a limb an inch long, with oblong acute segments, the inner whitish, the outer red-lilac, with a yellow blotch in the centre. Stamens  $\frac{1}{3}$  as long as the segments. Style-branches not overtopping the anthers.

Hab. Cape Colony; south-western provinces, *Zeyher*, 1602! 4043! *Pappe!*

30. *R. ROSEA* Eckl. *Topog. Verz.* 19. *R. vulgaris* Eckl. *R. Celsii* Klatt (*Flora des Serres*, t. 799). *Leia rosea* Murr. *Trichonema rosea* Ker in Bot. Mag. t. 1225.—Corm globose,  $\frac{1}{3}$ – $\frac{1}{2}$  in. diam.; outer tunics crustaceous. Stem short, 1–3-flowered; peduncles 1–6 in. long. Outer spathe-valve  $\frac{3}{4}$  in. long. Perianth with a short funnel-shaped tube with a yellow throat, and a red-lilac limb about an inch long, the outer segments with three faint purple stripes outside. Stamens less than half as long as the segments. Style-branches overtopping the anthers.

Var. *R. ZEYHERI* Baker.—Perianth bright orange-yellow in the lower half.

Var. *R. PUBICA* Baker in Journ. Linn. Soc. xvi. 89. *Trichonema pubica* Ker in Bot. Mag. t. 1244. — Perianth with a red-lilac limb an inch long and a white throat; segments with a dark purple keel inside, near the base.

Var. *R. SPECIOSA* Baker in Journ. Linn. Soc. xvi. 89. *R. barbata* Baker. *Trichonema speciosum* Ker in Bot. Mag. t. 1476. *Leia Bulbocodium* var. *speciosa* Andr. Bot. Rep. t. 170.—Perianth larger;

outer segments with 3-5 distinct dark purple stripes down the back, the outer beautifully feathered on the outside.

Var. *PARVIFLORA* Baker. — Flowers much smaller than in the type; perianth-segments about  $\frac{1}{2}$  in. long.

Var. *R. DICHOTOMA* Baker in Journ. Linn. Soc. xvi. 89. *R. flexuosa* and *tubata* Klatt. *Trichonema dichotomum* Klatt. — Peduncle elongated, bearing 3-4 flowers, with a large leaf from the fork.

Hab. Cape Colony; southern provinces. The commonest species of the genus. Drège's 2637 a, from hills north of Olifants River, alt. 2000-3000 ft., is not clearly distinguishable. *Ixia cruciata* Jacq. Ic. t. 290, is not separable by the flower, but the stout leaf is drawn as cruciate in horizontal section.

31. *R. CUPREA* Baker in Journ. Bot. 1876, 236. — Corm globose,  $\frac{1}{2}$  in. diam. Stem forked at the base; peduncles 2-3 in. long. Leaves setaceous, suberect, 3-4 in. long, with a thick square midrib. Outer spathe-valve  $\frac{1}{2}$  in. long. Perianth an inch long, with a very short tube, the outer segments yellow on the back, with plumose purple stripes, inside fulvous in the upper half, yellow in the lower half. Stamens half as long as the segments. Style-branches not overtopping the anthers.

Hab. Cape Colony; south-western provinces. Described from an unpublished drawing of Dean Herbert's, now at the Lindley library.

32. *R. ARENARIA* Eckl. Topog. Verz. 18. *R. ramosa* Eckl.? *Trichonema arenarium* Klatt. — Corm globose,  $\frac{1}{2}$  in. diam. Stem long, sometimes reaching a foot, with a single long leaf below the summit, bearing 2-4 flowers on short ascending pedicels. Outer spathe-valve  $\frac{3}{4}$  in. long. Perianth  $\frac{3}{4}$ -1 in. long, with a tube half as long as the oblong segments, the three outer distinctly striped with dark purple outside. Styles falling short of the anthers.

Hab. Cape Colony; southern provinces and Namaqua-land. Gathered by Drège, Ecklon, and Zeyher.

33. *R. MONADELPHA* Baker. *Trichonema monadelphum* Sweet. *Spatulanthus speciosus* Sweet, Brit. Flow. Gard. t. 300. — Corm ovoid, with crustaceous brown tunics. Stem short, 2-3 flowers on peduncles  $1\frac{1}{2}$ -2 in. long. Leaves about 6, subterete, 4-6 in. long. Outer spathe-valve an inch long. Perianth 1-1 $\frac{1}{4}$  in. long, with a yellow throat and oblong coppery-segments, the outer with 3-5 purple stripes on a yellowish ground, the outer beautifully feathered. Filaments short, black, united to the tip; anthers yellow,  $\frac{1}{2}$  in. long. Style not overtopping the anthers.

Hab. Cape Colony. Known to me only from the figure cited, which was drawn from a plant flowered by Mr. Colville, sent home by Mr. Syanot.

## 18. *CIPURA* Aubl.

*Perianth* with any distinct tube above the ovary; outer segments obovate-cuneate, reflexing; inner shorter, permanently connivent. *Stamens* inserted at the base of the inner segments; anthers as long as the free filaments. *Ovary* clavate, 3-celled; ovules many, superposed; style filiform; branches oblong, petaloid. *Capsule* oblong-turbinate, membranous, loculicidally 3-valved. *Seeds* many, small, angled by pressure.

1. *C. PALUDOSA* Aubl. Guian. 38, t. 13; Klatt, Fl. Bras. iii. 514, t. 64, fig. 1. *C. graminea* and *humilis* H. B. K. *Marica paludosa* Willd.; Ker in Bot. Mag. t. 646. *M. Cipura* Gmel.—Rootstock a small globose corin with brown membranous tunics. Root-leaves 2-3, linear, plicate, 1-1½ ft. long, ¼-½ in. broad. Stem terete, bearing a few clusters in a fascicle, bracteated by a large reduced plicate leaf. Spathes cylindrical, 1-2 in. long; valves green, outer short. Pedicels about as long as the spathe. Perianth very fugitive; outer segments ¼-¾ in. long, tinged with lilac; inner much shorter, with 1-2 yellow blotches near the base, inside. Capsule ¼-¾ in. long.

Var. *C. CUBENSIS* Sauvalle. — Leaves very narrow. Clusters of flowers single.

Hab. Throughout Tropical America from Cuba and Mexico to South Brazil, ascending to 6000 ft. in the Andes. I cannot separate specifically *C. pallens* Griseb.

### 19. SPHENOSTIGMA Baker.

*Perianth* without any distinct tube above the ovary; segments spreading, obovate-cuneate, the inner often shorter than the outer, and sometimes a different shape. *Stamens* inserted at the base of the segments; filaments free, shorter than the linear anthers. *Ovary* clavate, 3-celled; ovules many, superposed; style filiform. *Style-branches* flattened, petaloid, usually cuneate like those of a *Gladiolus*. *Capsule* clavate, membranous, loculicidally 3-valved. *Seeds* many, small, angled by pressure.—*Rootstock* a tunicated bulb. *Leaves* plicate. *Heads* not fascicled. *Flowers* very fugitive, usually blue.

Subgenus *EUSPHENOSTIGMA*. Inner perianth-segments different from the outer. Filaments free . . . . . Sp. 1-8.

Subgenus *GOMPHOSTIGMA*. Filaments monadelphous. Sp. 9-10.

Subgenus *CARDIOSTIGMA*. Perianth-segments all alike. Filaments free . . . . . Sp. 11.

1. *S. ANGUSTIFOLIA* Klatt, Erganz. 29. — Bulb ovoid, brown. Root-leaves subterete, ½ lin. diam. Stem simple, geniculate, leaty, under a foot long. Spathe 1¾ in. long; valves unequal. Perianth white; outer segments obovate, an inch long; inner shorter, ovate-lanceolate. Filaments short. *Style-branches* dilated, ⅓ in. long.

Hab. Central Brazil, *Reynell*.

2. *S. SELLOWIANA* Baker in Journ. Linn. Soc. xvi. 124. *Alophia Sellowiana* Klatt in Fl. Bras. iii. 516, tab. 65, fig. 2. — Bulb ovoid, Root-leaves linear, plicate, 1-1½ ft. long, ¼-½ in. broad at the middle. Stem 1 ft. or more long, with 2-3 reduced leaves and a single terminal cluster. Spathe cylindrical, 2½-3 in. long; outer valves firm, green, subequal. Perianth fugitive, bright blue; outer segments obovate-cuneate, an inch or more long; inner shorter. Anthers ¼ in. long; filaments very short. Style much overtopping

the anthers; branches large, cuneate. Capsule clavate, 1-1½ in. long.

Hab. Central and Southern Brazil, *Sello*, *Riedel*, *Glaziou*, 6731! 8013!

3. *S. CÆRULEA* Klatt, *Erganz.* 29.—Bulb ovoid, brown. Leaves linear,  $\frac{1}{4}$  in. broad, the upper gradually shorter. Stem simple, terete, leaty, geniculate, 1½-3 ft. long. Spathe 2½ in. long; valves unequal. Perianth with obovate outer segments 1¼ in. long; inner much smaller, lanceolate. Filaments short. Style-branches dilated,  $\frac{1}{2}$  in. broad. Capsule clavate, an inch long.

Hab. Central Brazil; *Caldas*, *Reynell*, 1217! *Glaziou*'s 17278 is probably an allied species, but the flower is not known. The spathe is *only* an inch long.

4. *S. EURYANDRA* Baker. *Herbertia euryandra* Griseb. Pl. Lorentz. 222.—Bulb ovoid,  $\frac{1}{2}$  in. diam. Root-leaves linear, 6-8 in. long, 4-4 in. broad. Stem simple or forked, 3-6 in. long. Spathe-valves unequal,  $\frac{1}{2}$ - $\frac{1}{2}$  in. long; pedicels twice as long as the spathe. Perianth blue; outer segments obovate, twice as long as the stamens; inner shorter, suborbicular. Style-branches obovate-cuneate.

Hab. Tucuman, *Lorentz*.

5. *S. GENICULATA* Klatt, *Erganz.* 29. *Alophia geniculata* Klatt.—Bulb ovoid-oblong. Radical leaves subterete, 1½-2 ft. long, 1 in. diam. Stem naked, geniculate at the apex, a foot or more long, the inflorescence subtended by three reduced leaves. Spathes peduncled, 3-flowered; pedicels 1½ in. long. Perianth violet; outer segments obtuse, 1¼ in. long; inner shorter. Anthers longer than the filaments. Style-arms bifid.

Hab. Central Brazil; province of Matto Grosso, *Riedel*.

6. *S. UMBELLATA* Klatt, *Erganz.* 29. *Herbertia umbellata* Klatt in Fl. Bras. iii. 530, tab. 69, fig. 1.—Bulb oblong,  $\frac{1}{2}$  in. diam., with brown membranous tunics. Root-leaves linear, plicate, a foot or more long. Stem under a foot long below the inflorescence, which is elongated, twice forked and consists of several clusters, and is subtended at the base by a small linear leaf. Spathes  $\frac{1}{2}$  in. long; valves green, outer shorter. Perianth blue,  $\frac{1}{4}$  in. long. Anthers linear, much exceeding the free filaments. Style much overtopping the anthers, with three small ovate cusps.

Hab. South Brazil, *Sello*! The filaments are wrongly figured as monadelphous in 'Flora Brasiliensis.'

7. *S. GRACILIS* Benth. Gen. Plant. iii. 695, excl. syn. — Bulb small, globose; tunics brown. Root-leaves linear, plicate, subpetiolate, a foot or more long,  $\frac{1}{2}$  in. broad. Stem naked below the inflorescence, which consists of 2-4 clusters on long peduncles, and is subtended by 1-2 large linear leaves. Second inner spathe-valve lanceolate-acuminate, 1½-2 in. long; outer shorter; both firm, green. Flower "large, blue." Anthers  $\frac{1}{6}$  in. long; filaments very short. Style-branches short, cuneate. Capsule oblong-cylindrical,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long.

Hab. Bahia, *Martius*! (labelled *Cypella Seubertiana*), *Blanchet*, 2741! *Pianhy*, *Gardner*, 2721! British Guiana, *Appun*, 1590!

8. *S. POLYCEPHALA* Baker. — Bulb and root-leaves not seen. Stem naked below the inflorescence, which consists of 6-12 or more laxly panicle clusters, and is subtended at the base by a thin plicate ensiform leaf  $1\frac{1}{2}$  ft. long,  $1\frac{1}{2}$  in. broad at the middle. Second inner spathe-valve oblong-navicular, acute,  $\frac{3}{4}$  in. long; outer much shorter; both firm, green. Flower yellow; outer segments obovate-cuneate,  $\frac{1}{2}$  in. long. Filaments very short. Style-branches ovate.

Hab. Central Brazil; Goyaz, Gardner, 3469!

9. *S. BOLIVIENSIS* Baker. — Bulb small, globose. Root-leaves 1-2, linear, plicate, a foot or more long. Stem slender, 1-headed,  $\frac{1}{2}$ -1 ft. long, with a large linear plicate leaf from the middle. Spathe ventricose, under an inch long; outer valve the longest, green, oblong-navicular. Perianth fugitive, bright blue,  $\frac{1}{2}$  in. long; segments subequal, obovate-cuneate. Column of filaments  $\frac{1}{4}$  in. long. Style-branches short, dilated. Capsule clavate-oblong,  $\frac{1}{4}$  in. long.

Hab. Andes of Bolivia; Sorata, alt. 8000-9000 ft., Mandon, 1225!

10. *S. SPRUCEANA* Baker. — Bulb ovoid, 1 in. diam.; outer tunics hard, brown. Root-leaf linear, plicate, subpetiolate, 2-3 ft. long. Stem forked, 3 ft. long, with a large plicate leaf from the middle, and a small leaf from the fork. Spathe an inch long, 5-6-flowered. Perianth fugitive, bright blue,  $1\frac{1}{2}$  in. diam.; inner segments small. Staminal column  $\frac{1}{2}$  in. long. Style-branches small, cuneate.

Hab. Andes of Ecuador, at Banos, Spruce, 5063!

11. *S. LONGISPATHA* Benth. Gen. Plant. iii. 695. *Cardiostigma longispatha* Baker. *Roterbe longispatha* Klatt. *Gelasine longispatha* Herb. — Bulb globose,  $\frac{3}{4}$  in. diam, with brown membranous tunics. Produced basal leaf single, linear, a foot long. Stem terete, above a foot long, bearing a single terminal cluster. Spathe cylindrical, with the outer valve produced into a long cusp. Expanded perianth bright blue, 2 in. diam.; segments oblong, subequal. Anthers  $\frac{1}{2}$  in. long; filaments very short. Style much overtopping the anthers; branches large, cuneate.

Hab. Mexico, in mountain pastures near Anganguio, Hartweg, 403! *Cardiostigma* differs from *Sphenostigma* by its regular *Sisyrinchium*-like perianth, and should, I still think, be regarded as a distinct genus, although Mr. Benthani has reduced it.

## 20. ELEUTHERINE Herb.

*Perianth* without any tube above the ovary; segments obovate-cuneate, spreading, subequal. *Stamens* attached to the base of the segments; filaments short, free; anthers linear. *Ovary* oblong, 3-celled; ovules many, superposed; style very short, with 3 subulate branches stigmatose at the tip. *Capsule* oblong, loculicidally 3-valved. *Seeds* small, angled by pressure.

1. *E. PPLICATA* Herb. in Bot. Reg. xxix. sub t. 57. *Moraea plicata* Sw. *Mareca plicata* Ker in Bot. Mag. t. 655. *Galatea plicata* Salisb. *Cipura plicata* Griseb. *Sisyrinchium palmifolium* Red. Lil. t. 352. *Iria americana* Aublet. *Moraea palmifolia* Jacq. Ic. t. 227.

*Sisyrinchium bulbosum* Miller. — Bulb large, ovoid, with hard red-brown tunics. Root-leaves 1-2, linear, plicate, 1-1½ ft. long. Peduncle slender, naked, ½-1 ft. long. Inflorescence of several peduncled clusters, subtended at the base by a reduced plicate linear leaf. Spathes oblong, 6-12-flowered, about ½ in. long. Perianth white, fugitive, ¾-1 in. diam. Style-branches as long as the anthers.

Hab. Tropical America, from the West Indies to South Brazil and Tucuman. Figured by Plumier, and widely spread in cultivation. *Keitia natalensis* Regel appears to be this plant, sent to Messrs. Haage and Schmidt from Natal. *Eleutherine anomala* Herb. in Bot. Reg. 1845, t. 57, is not distinguishable, except by having six stamens. According to Dr. Regel, the style-branches in *Keitia* are sometimes bifid.

## 21. CALYDOREA Herb.

*Perianth* with any tube above the ovary; segments subequal, spreading, obovate-cuneate. *Stamens* inserted at the base of the segments; filaments short, free; anthers linear, basifixed, rolling up spirally at the tip. *Ovary* clavate, 3-celled; ovules many, superposed; style short, subulate; branches filiform, capitate or emarginate at the stigmatose tip. *Capsule* turbinate, loculicidally 3-valved. *Seeds* small, globose or angled by pressure. — *Rootstock* a corm with membranous tunics. *Root-leaves* terete or narrow linear. *Clusters* one or more, peduncled. *Flowers* very fugitive, blue or yellow. Differs from *Gelasine* by its free filaments.

Flowers blue. Style-branches long	. . .	Sp. 1-7.
Flowers yellow. Style-branches long	. . .	Sp. 8-9.
Style-branches very short	. . .	Sp. 10.

1. *C. SPECIOSA* Herb. in Bot. Reg. 1843, Misc. 65. *Sisyrinchium speciosum* Hook. in Bot. Mag. t. 9. *S. xiphioides* Popp. *Roterbe bulbosa* Klatt. — Bulb globose, ½-¾ in. diam., with brown membranous tunics produced above its neck. Root-leaves narrow linear, plicate, 3-9 in. long. Stems 1-headed, 3-9 in. long, with 2-3 reduced leaves. Spathe 1-2 in. long; outer valve small. Perianth-segments blue, obovate-cuneate, ¾-1 in. long, yellow at the base. Anthers as long as the filaments. Style-arms subulate, ¼ in. long, obscurely emarginate. Capsule clavate, ½ in. long, dehiscing at the tip.

Hab. Chili, about Valparaiso and Concepcion, *Cuming*, 498! *Mathews*, 308! Native name, "Tahay." Bulbs edible.

2. *C. PALLENS* Griseb. Symb. Argent. 324.—Bulb brown, ovoid, ½-¾ in. long. Root-leaves 1-3, narrow linear, 6-8 in. long. Stem bifid, a span long. Spathe 2-flowered; outer valve short. Perianth white or pale blue; segments oblong-lanceolate, subequal, 6-8 lines long, sometimes dotted with red at the base. Style as long as the anthers; branches linear, emarginate. Capsule clavate, ½ in. long.

Hab. Argentaria; province of Salta, *Lorentz*.

3. *C. CAMPESTRIS* Baker in Journ. Bot. 1876, 187. *Sisyrinchium campestre* Seub. *Roterbe campestris* Klatt. — Bulb globose, ½ in.

diam.; tunics dark brown. Root-leaves 1-4, narrow linear, as long as the stem. Stem very slender, 6-9 in. long, 1-3-headed, with a reduced leaf with a dilated base above the middle. Spathe cylindrical,  $\frac{3}{4}$ -1 in. long; outer valve shorter. Perianth-segments oblong, blue,  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{3}$  in. long, rather exceeding the filaments. Style very short; branches erecto-patent, subulate,  $\frac{1}{4}$  in. long. Capsule turbinate,  $\frac{1}{4}$  in. long.

Hab. Paraguay, South Brazil and Uruguay.

4. *C. AZUREA* Klatt, *Erganz.* 53. — Bulb small, globose; tunics membranous, dark brown. Root-leaves 2, filiform,  $\frac{1}{2}$  ft. long. Stem very slender, 6-9 in. long, simple or forked. Spathe cylindrical, an inch long; outer valve shorter. Perianth-segments oblanceolate, blue,  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{3}$  in. long, exceeding the filaments. Style-branches subulate, as long as the anthers.

Hab. Entre Rios, *Lorentz*!

5. *C. GARDNERI* Baker in *Journ. Bot.* 1876, 188. — Bulb ovoid,  $\frac{1}{4}$ - $\frac{3}{4}$  in. diam., with dark brown tunics produced above its neck. Root-leaves 1-3, narrow linear, 6-9 in. long. Stem slender, 1-3-headed, a foot long, with a reduced leaf from the fork and sometimes one below it. Spathe cylindrical, 1-1 $\frac{1}{4}$  in. long; valves very acute; outer shorter. Perianth-segments blue, obovate-cuneate,  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{3}$  in. long, exceeding the filaments. Style-branches subulate,  $\frac{1}{3}$  in. long.

Hab. Brazil; province of Pianhy, *Gardner*, 2322!

6. *C. CIPUIROIDES* Klatt, *Erganz.* 53. — Bulb subglobose; tunics brown. Root-leaves narrow linear, 5-10 in. long,  $\frac{1}{12}$  in. broad. Stem 1-3-headed,  $\frac{1}{2}$ -1 ft. long, bearing a single reduced leaf. Spathe an inch long; outer valve shorter. Perianth-segments blue, obovate-cuneate. Filaments dilated at the base. Style-branches emarginate. Capsule  $\frac{1}{3}$  in. long.

Hab. Columbia, *Otto*, 996. Venezuela, *Moritz*.

7. *C. TEXANA* Baker in *Journ. Bot.* 1876, 188. — Bulb not seen. Root-leaves 3-4, narrow linear, graminoid, 1 $\frac{1}{2}$  ft. long. Stem 1-4-headed,  $\frac{1}{2}$ -1 ft. long, bearing reduced leaves from the forks, and sometimes one also from the middle. Spathe cylindrical, 1 $\frac{1}{2}$ -2 in. long; outer valve shorter. Perianth-segments bright blue, obovate-cuneate, subequal, an inch long. Anthers  $\frac{1}{4}$  in. long, much exceeding the free filaments. Style-branches subulate, shorter than the anthers.

Hab. Texas; Galveston Bay, *Drummond*, iii. 415! in *Herb. Kew.* This is the plant from which Herbert's description of *Gelasine? texana* was made.

8. *C. LUTEOLA* Baker in *Journ. Bot.* 1879, 188. *Roterbe luteola* Klatt in *Fl. Bras.* iii. 544, tab. 71, fig. 4. — Bulb globose,  $\frac{1}{2}$  in. diam., with firm brown-black coats produced above its neck. Root-leaves narrow linear, not overtopping the stem. Stem very slender, forked, a foot long, with a reduced leaf at the fork and one below it. Spathe cylindrical, an inch long; outer valve shorter. Perianth-segments equal, oblanceolate, yellow,  $\frac{1}{2}$  in. long. Anthers as long as the filaments. Style-branches subulate, emarginate at the tip.

Hab. Southern Brazil, *Sello*! Habit of *C. campestris*.

9. *C. FURCATA* Baker in Journ. Bot. 1876, 188. *Nemastylis furcata* Klatt in Fl. Bras. iii. 515, t. 65. — Bulb brown, ovoid. Radical leaves linear, plicate, a foot or more long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem a foot long, 2–4-headed. Spathe cylindrical,  $1\frac{1}{2}$  in. long; outer valve much shorter. Perianth yellow, an inch long; segments ovate, acute. Style-branches bifid at the tip. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Monte Video, *Sello*, 1108, 1129.

10. *C. NUDA* Baker in Journ. Bot. 1876, 188. *Gelasine nuda* Herb. *Roterbe gracilis* Klatt. — Bulb small, globose. Root-leaves 1–2, filiform,  $\frac{1}{2}$  ft. long. Stem very slender,  $\frac{1}{2}$ –1 ft. long, bearing 1, few or several clusters, sometimes naked, sometimes furnished with a leaf below the forks. Spathe cylindrical,  $\frac{3}{4}$ –1 in. long; valves acute, outer shorter. Perianth-segments oblong, blue,  $\frac{1}{2}$  in. long. Filaments  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, as long as the anthers. Style long, subulate, tricuspidate only at the tip.

Hab. Uruguay, *Tweedie*, 704! *Fox*, 442! *Gibert*, 564! Recedes from *Calydorea* by its very short style-arms.

## 22. GELASINE Herb.

*Perianth*-tube very short; segments equal, obovate. *Stamens* inserted at the base of the segments; filaments united to the top in a cylindrical column; anthers basifixed, erecto-patent. *Ovary* clavate; ovules many, superposed; style short, subulate; stigmas linear, simple. *Capsule* turbinate, loculicidally 3-valved. *Seeds* minute.—*Rootstock* a tunicated corm. *Leaves* plicate in the typical species. *Flowers* several in a spathe, fugitive, blue.

1. *G. AZUREA* Herb. in Bot. Mag. t. 3877.—Corm oblong. Root-leaves plicate, subpetiolate,  $1\frac{1}{2}$ –2 ft. long, an inch broad at the middle. Stem 1-headed, 2 ft. long, with 3–4 reduced sheathing leaves. Spathe cylindrical, 2–3-flowered,  $1\frac{1}{2}$ –2 in. long; outer valve the largest, green. Perianth bright blue, under an inch long; segments obovate-cuspidate. Staminal column shorter than the anthers. Style-branches linear, short, ascending.

Hab. Uruguay and province of Rio Grande, South Brazil, *Tweedie*, 703!

2. *G. TRICHANTHA* Baker in Engl. Jahrb. viii. 315. — Corm globose,  $\frac{1}{2}$  in. diam. Stem 1-headed,  $1\frac{1}{2}$ –2 in. long, with one linear leaf from the base, and another halfway up. Spathe cylindrical,  $\frac{1}{2}$  in. long. Perianth bright blue,  $\frac{1}{2}$  in. long; segments oblanceolate, subequal, very hairy on the outside. Tube of filaments short; anthers  $\frac{1}{2}$  in. long. Style-branches spreading between the base of the anthers.

Hab. Mountains of Guatemala, alt. 5000 ft., *Lehmann*, 1541!

## 23. NEMASTYLIS Nutt. (including CHLAMYDOSTYLIS Baker).

*Perianth* without any tube above the ovary; segments spreading, obovate-cuneate, subequal. *Stamens* free at the throat of the seg-



ments; filaments free in the typical species, united in a cylindrical column in § *Chlamydstylis*; anthers linear; connective narrow or broad. Ovary clavate, 3-celled; ovules many, superposed; style-arms cleft down to the base into two subulate forks. Capsule clavate-oblong, loculicidally 3-valved. Seeds minute. — Rootstock a bulb with brown membranous tunics. Root-leaves narrow linear or subterete. Spathes one or more, peduncled. Flowers fugitive, usually blue, and more than one to a spathe.

Subgenus NEMATOSTYLIS PROPER.—Filaments nearly free.

Connective slender, and anthers curling up . . . Sp. 1-2.  
Connective broad, and anthers not curling up . . . Sp. 3.

Subgenus CHLAMYDOSTYLIS.—Filaments united in a cylindrical column to the summit . . . . . Sp. 4-17.

1. *N. CELESTINA* Nutt. in Amer. Phil. Trans. n. s. v. 157. *Ixia celestina* Bartram, Travels, 153, t. 3. *Marica celestina* Klatt. *Beatonia celestina* Klatt. — Bulb small, globose. Root-leaves 1-2, narrow linear, 4 foot or more long. Stem slender, 1½-2 ft. long, bearing a single terminal clusters and 3-4 reduced leaves. Spathe cylindrical, 1½ in. long, usually 1-flowered; outer valve shorter. Perianth sky-blue, an inch long; segments obovate-cuneate, subequal. Filaments free, half as long as the linear anthers. Style-branches shorter than the anthers. Capsule clavate, ¼-½ in. long.

Hab. Southern United States; first gathered by Bartram, after whom the moss-genus *Bartramia* is named.

2. *N. ACUTA* Herb. in Bot. Mag. sub t. 3779; Bot. Mag. t. 6666. *N. geminiflora* Nutt. *Ixia acuta* Bart.—Bulb ovoid, ¾-1 in. diam.; tunics dark brown. Root-leaves 2-3, linear, plicate, ½-1 ft. long. Stem ½-1 ft. long, bearing 2-3 long-peduncled clusters, bracteated at the fork by a large linear leaf, and sometimes with one below it. Spathe 2-3-flowered, 1-1½ in. long; outer valve shorter. Perianth bright blue; segments obovate-cuneate, subequal, an inch long. Filaments very short; anthers ¼-½ in. long, curling up. Style-branches half as long as the anthers. Capsule turbinate.

Hab. Texas and Arkansas. Received alive lately from Messrs. Joad, Bull, and Greene.

3. *N. PURPUREA* Herb. in Bot. Mag. sub t. 3779. *Eustylus purpurea* Engelm. & A. Gray.—Bulb ½-1 in. diam. Root-leaves 1-3, linear, subpetiolate, plicate, 1-2 ft. long. Stem slender, 1-2 ft. long, with 1-4 clusters on long erect peduncles bearing 2-3 plicate leaves, the lowest a large one. Spathe 2-3-flowered, 1-1½ in. long; valves lanceolate, green, outer shorter. Perianth bright blue; outer segments ¾ in. long, broad obovate; inner smaller, subacute. Filaments very short; anthers linear, ¼ in. long, with a broad connective. Style-branches half as long as the anthers. Capsule clavate, ½ in. long.

Hab. Texas and Louisiana: first gathered by Drummond.

## Subgenus CHLAMYDOSTYLIS.

4. *N. BRUNNEA* S. Wats. Cont. xvii. 162. — Bulb 6–8 lin. diam. Stem nearly a foot long, bearing a single leaf 6–8 in. long, and a sheathing bract at the base of the peduncle. Spathe several-flowered,  $2\frac{1}{2}$  in. long. Perianth brown-purple,  $\frac{1}{2}$  in. long; outer segments obtuse; inner similar, but acuminate and tipped with yellow. Staminal column a line long; anthers yellow,  $\frac{1}{2}$  in. long. Style branches scarcely shorter.

Hab. North Mexico; Guadalajara, Pringle, 1888. Flowered at Cambridge, U. S. A., next year.

5. *N. NANA* S. Wats. Contr. xi. 160. — Bulb  $\frac{1}{4}$ – $\frac{1}{2}$  in diam., with tunics produced above its neck. Root-leaves 2–3, very narrow, 3–6 in. long. Stem shorter than the leaves, bearing 1–2 peduncled clusters, bracted by a reduced leaf. Spathe 1-flowered,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long; outer valve shorter. Perianth greenish white; segments subequal, oblanceolate,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Column  $\frac{1}{2}$  in. long; anthers  $\frac{1}{8}$  in.; connective narrow. Style-branches half as long as the anthers. Capsule  $\frac{1}{4}$  in. long.

Hab. Central Mexico; [province of San Luis Potosi, alt. 6000–8000 ft., Schaffner, 539! Parry & Palmer, 878! 887!

6. *N. TENUIS* Benth. Gen. Plant. iii. 696. *Chlamydstylis tenuis* Baker. *N. calestina* var. *tenuifolia* Herb.—Bulb wiry, small, ovoid, with dark brown tunics produced above its neck. Root-leaves 2–3, narrow linear or filiform, about as long as the stem. Stem 6–9 in. long, very slender, with a single reduced leaf from the middle. Spathe cylindrical, 1-flowered, an inch long; valves green, lanceolate, outer shorter. Perianth blue,  $\frac{1}{2}$  in. long; segments subequal, cuneate. Column shorter than the anthers, which are  $\frac{1}{8}$  in. long, and curl up spirally. Style-branches  $\frac{1}{2}$  in. long. Capsule turbinate,  $\frac{1}{4}$  in. long.

Hab. Highlands of Mexico and Guatemala; first collected by Hartweg. Native name, "Coquislte." Bulbs eaten.

7. *N. MEDUSÆ* Benth. Gen. Plant. iii. 696. *Chlamydstylis Medusæ* Baker. — Bulb not seen. Root-leaf single, firm, curved, subterete, above a foot long. Stem 1-headed,  $\frac{1}{2}$  ft. long, with a long terete leaf from near the summit. Spathe ventricose,  $1\frac{1}{2}$ –2 in. long; valves firm, green, outer shorter. Perianth blue, above 2 in. diam. when expanded; segments cuneate,  $\frac{3}{4}$ –1 in. broad. Column very short; anthers  $\frac{1}{4}$  in. long; connective very broad. Style reaching to the tip of anthers; branches very slender, spreading.

Hab. Central Brazil; province of Goyaz, on the Serra de Natividade, Gardner, 4005!

8. *N. PRINGLEI* S. Wats. Cont. xvi. 85.—Radical leaves shorter than the stem,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad, 2–3-nerved. — Stem a span long, usually simple, with a single leaf from the middle. Spathe  $1\frac{1}{2}$  in. long; valves unequal. Flowers fragrant, a delicate pale blue; outer segments oblong lanceolate, obtuse,  $1\frac{1}{4}$  in. long; inner rather shorter, minutely apiculate. Staminal column  $\frac{1}{2}$  in. long; anthers

$\frac{1}{4}$  in. long. Style-branches  $\frac{1}{8}$  in. long. Capsule oblong, 5-10 lines long.

Hab. Mexico; province of Chihuahua, *Pringle*, 1378.

9. *N. TRIFLORA* Herb. in Benth. Pl. Hartweg. 95. *Chlamydstylis triflora* and *cernua* Baker. — Bulb ovoid,  $\frac{3}{4}$  in. diam. Basal leaf single, linear, very plicate, above a foot long. Stem 1-headed, 1-1 $\frac{1}{2}$  ft. long, with a single reduced leaf from the middle. Spathe-valves very acuminate, green, subequal, 2 in. long. Perianth-segments broad obovate-cuneate, subequal, blue-violet,  $\frac{3}{4}$ -1 in. long. Column and anthers each  $\frac{1}{8}$  in. long. Style-branches  $\frac{1}{4}$  in. long.

Hab. Mountains of Guatemala, *Hartweg*, 625! *Salvin & Godman*!

10. *N. VERSICOLOR* S. Wats. Contr. xiv. 456. — Radical leaves linear, plicate, reaching a length of 2 $\frac{1}{2}$  ft. Stem 1 $\frac{1}{2}$ -2 ft. long, bearing 2 rather rigid bract-leaves. Spathes 1-4-flowered, 1 $\frac{1}{2}$ -2 in. long; valves subequal. Perianth  $\frac{3}{4}$  in. long; outer segments obovate-cuneate, cuspidate, violet; inner broadly elliptical, with a subhastate base, blue-violet, with an orange apiculus and angular yellow basal band. Column  $\frac{1}{4}$  in. long; anthers  $\frac{1}{8}$  in. long; connective broad. Style-arms as long as the anthers. Capsule  $\frac{1}{2}$  in. long.

Hab. Mexico; Rio Blanco, *Palmer*, 182. Native name, "Cucomite." Bulbs eaten boiled or roasted.

11. *N. GRANDIFLORA* Benth. in herb. Kew. *Gelasine grandiflora* Herb. in Bot. Mag. sub t. 3779. *Moræa foliosa* H. B. K. — Bulb ovoid,  $\frac{1}{2}$ -1 in. diam.; tunics dark brown. Basal leaf solitary, linear, very plicate, 1-1 $\frac{1}{2}$  ft. long. Stem stout for the genus, 1 $\frac{1}{2}$ -2 ft. long, 1-headed, bearing 1 long and 2 small sheathing leaves. Spathes ventricose, 1-1 $\frac{1}{4}$  in. long, 2-4-flowered; valves firm, green, scariose at the tip. Perianth bright blue, an inch long; segments obovate-cuneate; inner rather smaller. Column of filaments shorter than the anthers, which are  $\frac{1}{8}$  in. long; connective broad. Style-arms subulate. Capsule oblong-turbinate.

Hab. Andes of Ecuador, alt. 7000-11,000 ft.; first gathered by Humboldt and Jameson.

12. *N. BREVICAULIS* Baker. — Bulb ovoid,  $\frac{1}{2}$  in. diam. Root-leaf linear, plicate,  $\frac{1}{2}$ -1 ft. long. Stem very short, 1-2-headed, bearing 1-4 long linear plicate leaves. Spathes 1-3-flowered; second valve 1 $\frac{1}{2}$  in. long; outer subequal or produced into a long point. Perianth blue, under an inch long. Column of filaments shorter than the anthers.

Hab. Andes of Bolivia; Sorata, alt. 8000 ft., *Mandon*, 1224!

13. *N. SULPHUREA* Baker. — Bulb not seen. Root-leaf single, linear, plicate, a foot long. Stem a foot long, 1-2-headed, with a long leaf from the middle and 1-2 small ones above it. Inner valve of the spathe green, very acuminate, 2 in. long; outer much shorter. "Flowers large, yellowish white." Column very short; anthers  $\frac{1}{8}$  in. long. Style-branches subulate.

Hab. Brazil; province of Pianhy, near Oeiras, *Gardner*, 2320!

14. *N. PEARCEI* Baker. — Bulb globose,  $\frac{1}{2}$  in. diam., with dark brown tunics produced above its neck. Root-leaf single, linear, plicate. Stem 1-1 $\frac{1}{2}$  ft. long, bearing 1-3 long-peduncled clusters and 2-3 leaves, the lower elongated. Spathes 1-4-flowered, 1 $\frac{1}{4}$ -1 $\frac{1}{2}$  in. long; outer valves subequal. Perianth blue, under an inch long. Column of filaments as long as the anthers, each  $\frac{1}{8}$  in. long. Style-branches overtopping the anthers.

Hab. Andes of Peru; Huanuco, alt. 10,000 ft., *Pearce*, 85! Very near *N. multiflora*.

15. *N. MULTIFLORA* Benth. Gen. Plant. iii. 696. *Chlamydstylis multiflora* Baker. *Gelasine punctata* Herb.—Bulb ovoid, 1 in. diam. Basal leaf single, linear, plicate, 1-1 $\frac{1}{2}$  ft. long. Stem 1-1 $\frac{1}{2}$  ft. long, simple or forked, bearing about 2 reduced leaves. Spathe 1 $\frac{1}{2}$ -2 in. long, 3-6-flowered; outer valve shorter. Perianth blue, under an inch long; segments subequal, obovate-cuneate. Column of filaments longer than the anthers, which are  $\frac{1}{4}$  in. long. Style-branches as long as the anthers. Capsule clavate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long.

Hab. Highlands of Central Mexico; first gathered by Andrieux.

16. *N. PURRUCHUCANA* Benth. in herb. Kew. *Gelasine purruchucana* Herb. in Bot. Mag. sub t. 3779.—Bulb small, globose. Root-leaf single, linear, plicate, 1-1 $\frac{1}{2}$  ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem 1-1 $\frac{1}{2}$  ft. long, simple or deeply forked, bearing 1-2 long leaves. Spathes 1 $\frac{1}{2}$ -2 in. long, 4-6-flowered; valves broad, subequal, green, scarioso at the tip. Perianth blue-violet, an inch long; segments obovate-cuneate. Column very short; anthers  $\frac{1}{8}$  in. long. Style-branches subulate. Capsule turbinate-oblong.

Hab. Peru; hills round Lima; first gathered by Mathews (No. 784).

17. *N. BRACTEOLATA* Baker. *Chlamydstylis bracteolata* Baker. *Beatonia bracteolata* Klatt. — Bulb small, ovoid. Root-leaf single, narrow linear, plicate, a foot or more long. Stem slender, 1 $\frac{1}{2}$ -2 ft. long, bearing several peduncled heads and several reduced leaves. Spathes 3-flowered, above an inch long; valves green, lanceolate. "Perianth sulphur-yellow; segments subequal." Filaments monadelphous. Style-branches subulate.

Hab. Andes of Bolivia; Sorata, alt. 8000-9000 ft., *Mandon*, 1226!

## 24. DIPLARRHENA Labill.

*Perianth* without any tube above the ovary; outer segments obovate-cuneate, with a reflexing blade, the upper one rather larger and more concave than the two lower; inner segments much smaller, connivent. *Stamens* inserted at the base of the segments, 2 perfect, with short filaments and basifixed anthers, the upper one sterile. *Ovary* clavate, 3-celled; ovules many superposed; style short, filiform; style-branches dilated, emarginate. *Capsule* oblong, acutely triquetrous. *Seeds* moderately large, uniserial, angled by pressure.

1. *D. MORÆA* Labill. Voy. i. 157, t. 15. *Moræa diandra* Vahl. —Rootstock a short rhizome. Leaves 6-8 in a tuft, rigid, linear, equitant, 1-1 $\frac{1}{4}$  ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stems 1 $\frac{1}{2}$ -2 ft. long, with

a single terminal cluster and several reduced sheathing leaves. Spathes cylindrical, 2-3-flowered, 2 in. long; outer valves rigid, linear. Perianth whitish, rather fugitive; outer segments with a reflexing orbicular blade and cuneate claw; inner segments one-third shorter, much narrower, connivent. Stamens and style shorter than the inner segments. Capsule an inch long.

Var. *ALPINA* Hook. fl. Fl. Tasm. ii. 34. — An alpine form with slender stems, and short leaves not above  $\frac{1}{8}$  in. broad.

Var. *D. LATIFOLIA* Benth. Fl. Austral. vi. 400.—A robust variety with leaves 2-3 ft. long, nearly an inch broad; spathes longer, 5-6-flowered; petals variegated with lilac and yellow.

Hab. New South Wales, Victoria, and Tasmania. *D. latifolia* was gathered by Oldfield on Mount Lapeyrouse, in Tasmania.

25. *LIBERTIA Spreng. (Renealmia R. Br. Nematostigma Dietr.).*

*Perianth* without any tube above the ovary; segments spreading, obovate, the three outer usually shorter and firmer than the three inner. *Stamens* inserted at the base of the segments; filaments free or connate towards the base; anthers linear-oblong, versatile. *Ovary* subglobose; ovules many, superposed; style subulate; branches entire, filiform, stigmatose at the apex. *Capsule* small, coriaceous, loculicidally 3-valved. *Seeds* triquetrous. — *Rootstock* a short rhizome. *Leaves* linear, equitant. *Clusters* many, paniced; pedicels exceeding or equalling the bracts. *Flowers* small, generally white.

Clusters lax; pedicels longer than the bracts . . . . . Sp. 1-6.

Clusters dense; pedicels short.

Flowers white . . . . . Sp. 7.

Flowers blue . . . . . Sp. 8.

1. *L. PULCHELLA* Spreng. Syst. i. 169. *L. micrantha* A. Cunn. *L. Laurencii* Hook. fl. Fl. Tasm. ii. 34, t. 129. *Sisyrrinchium pulchellum* R. Br.—Root-leaves linear, entirely green, not rigid, 3-6 in. long. Stem  $\frac{1}{2}$ -1 ft. long, with a single reduced leaf below the middle, and 1 or few sessile or rarely peduncled 2-3-flowered umbels. Bracts green, lanceolate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; pedicels  $\frac{1}{4}$ -1 in. long. Perianth-segments white, subequal,  $\frac{1}{8}$  in. long. Stamens as long as the segments; filaments nearly free. Capsule subglobose,  $\frac{1}{4}$ - $\frac{1}{2}$  in. diam.

Hab. South Australia, Tasmania, New Zealand, ascending to 4000 ft. Also gathered lately by Sir W. Macgregor on the crest of the Owen Stanley Mountains, in New Guinea.

2. *L. TRICocca* Phil. in Linnæa, xxix. 63. — Root-leaves linear, entirely green, moderately firm,  $\frac{1}{2}$ -1 ft. long. Stem slender,  $\frac{1}{2}$ -1 ft. long, with a reduced leaf at the middle, and a small panicle consisting of several peduncled umbels. Umbels 3-6-flowered; bracts minute, green, lanceolate; pedicels  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Inner segments of perianth orbicular-cuneate, white,  $\frac{1}{8}$  in. long; outer shorter, oblong, green outside. Stamens  $\frac{1}{8}$  in. long; filaments connate at the base. Capsule subglobose,  $\frac{1}{4}$  in. diam.

Hab. Chili; about Valdivia and Concepcion.

3. *L. IXIOIDES* Spreng. Syst. i. 168; Reich. Hort. t. 157. *L. restioides* Klatt. *L. orbicularis* Colenso. *Sisyrrinchium ixioides* Forst. *Moræa ixioides* Thunb. — Root-leaves linear, a foot or more long, firm, with a broad pale midrib. Stem 1–2 ft. long, branched in the upper half; inflorescence an ample panicle, made up of numerous peduncled umbels; flowers 2–6 to an umbel; bracts minute, green, lanceolate; pedicels 1–2 in. long. Inner segments of perianth white, orbicular-cuneate,  $\frac{1}{4}$ – $\frac{1}{3}$  in. long; outer shorter, oblong, tinged greenish brown. Stamens  $\frac{1}{2}$  in. long; filaments cuneate at the base. Capsule turbinate or oblong,  $\frac{1}{2}$  in. long.

Hab. Frequent throughout New Zealand, ascending to 3000 ft.

4. *L. ELEGANS* Poepp. Fragn. 1. *L. ixioides* C. Gay. *Roterbe elegans* Steud. — Root leaves linear, moderately firm, entirely green, a foot or more long. Stem 1–2 ft. long, with a reduced leaf below the inflorescence, which is a panicle 3–6 in. long, composed of many peduncled umbels. Umbels 4–6-flowered; bracts many, minute, ovate, membranous; pedicels  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Inner segments of perianth orbicular, white,  $\frac{1}{4}$  in. long; outer oblong, green,  $\frac{1}{2}$  in. long. Stamens  $\frac{1}{2}$  in. long; filaments connate.

Hab. Chili. Figured by Feuillée in 1725. A plant gathered by Philippi (No. 348) and Dr. R. O. Cunningham differs from the type by its much shorter pedicels and denser umbels.

5. *L. PANICULATA* Spreng. Syst. i. 168; Bot. Mag. t. 6263. *Sisyrrinchium paniculatum* R. Br. — Leaves linear, moderately firm, entirely bright green, 1–2 ft. long. Stem as long as the leaves, branched in the upper half. Inflorescence an elongated panicle, consisting of numerous peduncled umbels. Umbels 2–4-flowered; pedicels an inch or more long; bracts lanceolate, green or subscariose,  $\frac{1}{4}$  in. long. Inner segments of perianth obovate, pure white,  $\frac{1}{4}$  in. long; outer rather shorter, oblong, tinged green outside. Stamens as long as the outer segments; filaments connate at the base. Capsule globose,  $\frac{1}{4}$ – $\frac{1}{2}$  in. diam.

Hab. Eastern and Southern Australia. A. Cunningham found on the Blue Mountains a form with few umbels, and very narrow more rigid leaves.

6. *L. GRANDIFLORA* Sweet, Hort. Brit. edit. 1, 498. *L. macrocarpa* Klatt. *Revealmia grandiflora* R. Br. — Leaves rigid, linear, 1–2 ft. long, with a pale midrib. Stem as long as the leaves, paniced in the upper half. Umbels 3–6-flowered; bracts lanceolate, green or subscariose,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long; pedicels erect, twice as long as the bracts. Inner perianth-segments orbicular-cuneate, pure white,  $\frac{1}{3}$ – $\frac{1}{2}$  in. long; outer oblong,  $\frac{1}{4}$  in. long, with a green-brown keel. Stamens much shorter than the perianth; filaments connate at the base. Capsule turbinate,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long.

Hab. New Zealand.

7. *L. FORMOSA* Grah. in Edinb. New Philos. Journ. xv. 383; Lindl. in Bot. Reg. t. 1630; Bot. Mag. t. 3294. *L. ixioides* Klatt in Mart. Fl. Bras. iii. 530, tab. 68, fig. 2. — Leaves rigid, linear, 1–1 $\frac{1}{2}$  ft. long. Stem 2–3 ft. long, with 1–2 reduced leaves below the inflorescence, which consists of many dense sessile many-flowered

umbels on a simple or branched axis; outer bract of the cluster large, ovate-cuspidate, membranous, inner small, oblong; pedicels  $\frac{1}{2}$  in. long. Inner segments of the perianth white, obovate-cuneate,  $\frac{1}{2}$  in. long; outer oblong, half as long, greenish brown. Stamens half as long as the perianth; filaments connate towards the base. Capsule globose,  $\frac{1}{4}$  in. diam.

Hab. Chili. *L. crassa* Graham, from Juan Fernandez, is a robust variety with very rigid leaves  $\frac{1}{2}$  in. broad.

8. *L. CÆRULESCENS* Kunth in Linnæa, xix. 382, *L. Lechleri* Griseb. *Sisyrinchium sessiliflorum* Hook. et Arn.—Leaves linear, rigid, green, a foot or more long. Stem 1–2 ft. long, bearing 2–4 reduced leaves. Inflorescence 4–6 in. long, consisting of very numerous many-flowered umbels, sessile on a simple or little-branched rachis; outer bract of the cluster firm, ovate-lanceolate, inner ovate, very membranous; pedicels very short. Flowers blue, inner segments oblong,  $\frac{1}{4}$  in. long; outer much shorter, greenish brown. Stamens as long as the perianth; filaments connate at the base. Capsule very small, globose.

Hab. Chili. Differs from all the other species by its blue flowers.

## 26. BELEMCANDA (*Rheede*) Adans.

(*Pardanthus* Ker.).

*Perianth* with a very short tube above the ovary; segments oblanceolate oblong, unguiculate, the three inner rather shorter, spirally twisted as they fade. *Stamens* inserted at the base of the segments; filaments subulate; anthers linear, basifixed. *Ovary* clavate, 3-celled; ovules many, superposed; style subulate; branches flattened and emarginate at the stigmatose apex. *Capsule* turbinate, loculicidally 3-valved down to the base, the valves separating from the persistent axile placenta. *Seeds* the size of a pea, globose, black.

1. *B. CHINENSIS* Leman in Red. Lil. t. 121. *B. punctata* Moench. *Ixia chinensis* Linn. Bot. Mag, t. 171. *Pardanthus chinensis* Ker; Flore des Serres, t. 1632.—Rootstock a short stoloniferous rhizome. Leaves about six in a lax tuft, equitant, ensiform, 1–1½ ft. long, an inch broad. Stem 2–3 ft. long, bearing a few reduced leaves. Inflorescence a lax corymbose panicle; clusters 3–12-flowered; outer spathe-valves lanceolate,  $\frac{1}{2}$ –1 in. long; pedicels 1–2 in. long, articulated at the apex. *Perianth*-segments red, spotted, fugitive, 1–1½ in. long. *Filaments*  $\frac{1}{2}$  in. long. *Capsule* 1–1½ in. long; valves reflexing, persistent,  $\frac{1}{2}$  in. broad.

Hab. China, Japan and Cochin China. Has been extensively cultivated for two centuries or more. *P. nepalense* Sweet and *P. japonicus* Hort. are garden varieties.

## 27. ORTHOSANTHUS Sweet.

*Perianth*-tube very short; segments oblong, subequal, spreading. *Stamens* inserted at the base of the perianth; filaments free or connate at the very base; anthers linear, erect. *Ovary* clavate, 3-celled; ovules many, superposed; style very short; branches

subulate, stigmatose at the apex. *Capsule* oblong-trigonus loculicidally 3-valved. *Seeds* minute, triquetrous.—*Rootstock* very short. *Leaves* firm, linear, equitant. *Clusters* many-flowered, paniced. *Flowers* fugitive, pale blue. *Pedicels* so short that the capsule is not protruded from the spathe. Very near *Sisyrinchium* both in habit and character.

Australian species . . . . . Sp. 1-5.  
Tropical American species . . . . . Sp. 6-7.

1. *O. MULTIFLORUS* Sweet, Fl. Austral. t. 11; Lodd. Bot. Cab. t. 1474. *Sisyrinchium cyaneum* Lindl. Bot. Reg. t. 1090. *Libertia azurea* Hort.—*Leaves* a dozen or more to a tuft, rigid, linear, 1-1½ ft. long, ¼-½ in. broad. *Stem* with inflorescence equalling or overtopping the leaves. *Clusters* several, forming a narrow panicle 4-6 in. long, some sessile, some peduncled; lower bracts large, linear. *Spathes* oblong, ½-¾ in. long; outer valves oblong, green with a scariose tip; pedicels very short. *Expanded flower* 1-1½ in. diam. *Capsule* oblong-trigonus, ½ in. long, not exerted from the spathe.

*Hab.* Southern and Western Australia. *Var. hebecarpa* Benth is a form with a pubescent capsule. The five Australian species are all very near to one another.

2. *O. MUELLERI* Benth. Fl. Austral. vi. 411. Very near *O. multiflorus*.—*Leaves* ½ in. broad, woolly on the keel and inner edge when young. *Stem* with panicle 6-9 in. long; clusters 2-4, sessile or peduncled, at first oblong, finally globose. *Spathes* ½ in. long, 3-4-flowered; outer valves oblong. *Capsule* oblong, acutely trigonus, ¼ in. long.

*Hab.* Western Australia. First gathered by Drummond and recently by Baron von Mueller.

3. *O. LAXUS* Benth. Fl. Austral. vi. 411. *Libertia laxa* Endl.—*Leaves* 1-1½ ft. long, ⅓ in. broad. *Stem* with inflorescence 2-3 ft. long. *Panicle* ½-1 ft. long; clusters many, all long-peduncled; lower branch subtended by a long linear leaf. *Spathes* few-flowered, ½ in. long; outer valves oblong, green with a membranous tip. *Perianth-segments* ½ in. long. *Capsule* oblong, acutely trigonus, ⅓ in. long; pedicel very short.

*Hab.* Western Australia. First gathered by Drummond.

4. *O. GRAMINEUS* Benth. Fl. Austral. vi. 411. *Libertia graminea* Endl.—*Leaves* very narrow, ½-1 ft. long. *Stem* very slender, about a foot long; spikes 1-3, long-peduncled. *Spathes* ½ in. long; outer valves oblong, green. *Capsule* oblong, acute.

*Hab.* West Australia. First gathered by Drummond.

5. *O. POLYSTACHYUS* Benth. Fl. Austral. vi. 411.—*Leaves* 1½-2 ft. long, ⅓-¼ in. broad. *Stem* with inflorescence 2-3 ft. long. *Panicle* 6-9 in. long; clusters very numerous, mostly several-fascicled, subtended by an ovate bract. *Spathes* oblong, 1-flowered, ⅓ in. long. *Perianth-segments* pale blue, ½ in. long. *Capsule* oblong, obtuse, ½ in. long, very shortly pedicellate, the top protruded beyond the tip of the spathe-valves.

*Hab.* Western Australia. First gathered by Drummond.



6. *O. CHIMBORACENSIS* Baker in Gard. Chron. 1876, ii. 67. *Moræa chimboracensis*, *acorifolia* and *gladioloides* H. B. K. *Sisyrrinchium Moritzianum* Klatt. *S. occisapungum* Ruiz.—Rhizome short, stout, oblique. Leaves rigid, linear, finely ribbed, a foot or more long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem subterete, 1–2 ft. long, bearing 1–2 reduced leaves. Panicle  $\frac{1}{2}$ –1 ft. long, with one or few short ascending branches and numerous sessile clusters. Spathes  $\frac{1}{2}$ – $\frac{3}{4}$  in. long, 3–4-flowered; outer valves oblong or oblong-lanceolate, green with a scarioso border. Perianth blue, with a short cylindrical tube and oblong segments  $\frac{1}{2}$  in. long. Stamens half as long as the segments. Capsule oblong-trigonus,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long; pedicels short.

Hab. Mexico, along the Andes to Bolivia and Peru. Mandon's 1209 is a high alpine variety with narrow leaves and few 1–2-flowered spathes.

7. *O. SPICATUS* Baker in Journ. Linn. Soc. xvi. 113. *Sisyrrinchium spicatum* Seubert.—Root with a dense crown of bristles. Leaves narrow-linear, strongly ribbed, 6–9 in. long. Peduncle leafless, distinctly winged,  $\frac{1}{2}$ –1 ft. long, bearing several sessile clusters in a dense terminal spike. Outer spathe-valves lanceolate,  $\frac{1}{2}$  in. long, brown with a membranous border. Perianth blue, with a short tube and oblong segments  $\frac{1}{4}$  in. long. Capsule small, oblong-trigonus, not exerted from the spathe.

Hab. Southern Brazil, *Sello*!

## 28. BOBARTIA Ker.

*Perianth*-tube none or very short; segments subequal, spreading, obovate. *Stamens* inserted at the base of the perianth; filaments short, free, flattened; anthers lanceolate. *Ovary* turbinate, 3-celled; ovules many, superposed; style short, triquetrous; branches spreading, subulate. *Capsule* coriaceous, turbinate, loculicidally 3-valved. *Seeds* small, angular.—*Rhizome* short, thickened into a corm in *B. filiformis*. *Leaves* rigid, terete or ensiform. *Clusters* fascicled, rarely single, usually overtopped by a rigid bract. *Flowers* more than one in a spathe, fugitive, pale yellow; pedicels usually as long as the spathe.

Clusters of flowers single . . . . .	Sp. 1–2.
Clusters of flowers fascicled.	
Stems terete . . . . .	Sp. 3–6.
Stems flat . . . . .	Sp. 7–8.

1. *B. FILIFORMIS* Ker, Gen. Irid. 30. *Moræa filiformis* Linn. fil.; Thunb. Diss. No. 10, tab. 2, fig. 2. *Marica filiformis* Ker. *Sisyrrinchium filiforme* Spreng.—Rootstock a small globose corm. Stem slender, terete, 1–2 ft. long, ending in a single cluster, subtended by a small subterete bract. Leaves slender, terete, rigid, shorter than the stem. Spathe cylindrical, 1–1 $\frac{1}{2}$  in. long; valves rigid, outer short. Perianth-segments obovate-cuneate, an inch long. Anthers and style-branches  $\frac{1}{8}$  in. long.

Hab. Cape Colony; south-western provinces.

2. *B. MACROSPATHA* Baker.—Stem terete, above a foot long,

ending in a single cluster not subtended by a produced bract, Spathe  $1\frac{1}{2}$  in. long; outer valve oblong, green, rigid, without any small bracts at its base. Perianth-segments an inch long. Anthers and style-arms  $\frac{1}{2}$  in. long, much exceeding the filaments.

Hab. Cape Colony; Zwelldam, *Burchell* 6987!

3. *B. BURCHELLII* Baker.—Stem slender, terete, 12–15 in. long, bearing 2–3 clusters, with a wiry terete bract produced beyond them, sometimes to a length of half a foot. Leaves 2–3, slender, terete, wiry, as long as the stem. Spathes cylindrical, under an inch long, subtended by small rigid bracts; pedicel short. Perianth-segments  $\frac{3}{4}$  in. long. Stamens  $\frac{1}{2}$  in. long. Capsule smooth, globose,  $\frac{1}{2}$  in diam.

Hab. Cape Colony; Zwelldam, *Burchell* 7145!

4. *B. APHYLLA* Ker, Gen. Irid. 30. *Moræa aphylla* Linn. fil.; Thunb. Diss. No. 9, tab. 2, fig. 1. *Marica aphylla* Ker. *Sisyrinchium aphyllum* Spreng.—Stem long, wiry, terete, bearing several crowded clusters, equalled or overtopped by a rigid subterete bract. Leaves none. Spathes cylindrical,  $1\frac{1}{2}$ –2 in. long, with several rigid ovate bracts at the base. Perianth-segments  $\frac{3}{4}$ –1 in. long. Anthers lanceolate,  $\frac{1}{2}$  in. long, twice as long as the filaments. Style-branches  $\frac{1}{2}$  in. long. Capsule turbinate.

Hab. Cape Colony; south-western provinces.

5. *B. SPATHACEA* Ker, Gen. Irid. 30. *B. indica* Linn. Amœn. i. 387, ex parte. *Moræa spathacea* Thunb. Diss. No. 11, t. 1, fig. 1. *Marica spathacea* Ker. *Aristea spathacea* Spreng. *Sisyrinchium spathaceum* Pers. *Xyris altissima* Lodd. Bot. Cab. t. 1900.—Stem terete, 2–3 ft. long, bearing a globose head of numerous clusters, subtended by one large rigid subterete and one smaller bract. Leaves long, slender, rigid, subterete. Spathes cylindrical, an inch long, with one or two small rigid ovate bracts at the base. Perianth-segments  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Anthers and style-branches  $\frac{1}{2}$  in. diam.

Hab. Cape Colony; southern provinces. A plant sent to the Kew herbarium by Wallich has fewer clusters, spathes  $1\frac{1}{2}$  in. long and a larger turbinate capsule.

6. *B. ROBUSTA* Baker.—Habit of *B. aphylla*, but peduncle much more robust, ending in a dense head of clusters, overtopped by a rigid subterete bract with a large dilated base. Spathe-valves rigid, 1– $1\frac{1}{2}$  in. long. Perianth-segments an inch long. Stamens  $\frac{2}{3}$  as long as the perianth. Capsule turbinate,  $\frac{1}{2}$  in. long. The rigid brown valves very rugose on the back.

Hab. Cape Colony; central region, *Burchell*, 6124!

7. *B. GLADIATA* Ker, Gen. Irid. 30. *Ixia gladiata* Linn. fil. *Moræa gladiata* Thunb. *Marica gladiata* Ker in Bot. Reg. t. 229. *Sisyrinchium gladiatum* Spreng.—Stem stout, rigid, much compressed,  $1\frac{1}{2}$ –2 ft. long, bearing several crowded clusters subtended by a long or short linear bract. Leaves rigid, linear, 2–3 ft. long. Spathes cylindrical,  $1\frac{1}{2}$ –2 in. long, each subtended by 2–3 small ovate rigid bracts. Perianth-segments an inch or more long. Anthers  $\frac{1}{2}$  in. long. Capsule coriaceous, turbinate,  $\frac{1}{2}$ – $\frac{1}{4}$  in. long.

Hab. Cape Colony; south-western provinces.

8. *B. ANCEPS* Baker.—Stems much flattened,  $1\frac{1}{2}$ –2 ft. long, ending in several clusters overtopped by a rigid linear bract. Leaves 3–4, rigid, linear, as long as the stem. Spathes cylindrical, an inch long, with 2–3 rigid ovate bracts at the base. Perianth-segments  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{3}$  in. long. Style-branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; Zwellendam, Burchell 6913!

## 29. SISYRINCHIUM Linn.

*Perianth* with scarcely any tube above ovary; segments oblong, subequal, spreading from above the base. *Stamens* inserted at the base of the perianth; filaments more or less connate; anthers erect or versatile. *Ovary* turbinate or globose, 3-celled; ovules many, superposed; style short, subulate; branches subulate, stigmatose at the apex. *Capsule* subglobose or turbinate, loculicidally 3-valved. *Seeds* many, minute.—*Rhizome* none or very short. *Leaves* linear or terete. *Peduncle* flattened or terete, leafless or leaty. *Flowers* usually several in a cluster, usually blue or yellow. *Clusters* solitary or fascicled, rarely spicate or paniced. *Capsule* exserted from the spathe. I have classified the species according to stem and inflorescence. Herbert's arrangement, founded on stamen characters, will be found in Bot. Reg. 1843, Misc. p. 84, and Mr. Bentham has followed this, with modifications, in 'Genera Plantarum.'

Clusters of flowers separate. Stems terete	Sp. 1–11.
Clusters of flowers separate. Stems flattened.	
Flowers blue, rarely white	Sp. 12–16.
Flowers reddish	Sp. 17.
Flowers yellow.	
Acaulescent	Sp. 18–26.
Stem more or less leafy	Sp. 27–43.
Clusters of flowers fascicled in a single head	Sp. 44–52.
Clusters of flowers sessile, spicate or paniced	Sp. 53–58.

1. *S. LEUCANTHUM* Colla in Mem. Taur. xxxix. 17.—Root-fibres many, long and slender, terete, shorter than the stem. Stem slender, leafless, terete,  $\frac{1}{2}$ –1 ft. long, ending in a single cluster, overtopped by a linear leaf. Spathes 2–6-flowered; outer valves  $\frac{3}{4}$ –1 in. long, lanceolate, green, with a narrow white membranous edge. Perianth-segments oblong, white,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Filaments nearly or quite free down to the base. Capsule small, subglobose.

Hab. Chili and Argentine republic. Differs from the dwarf one-headed forms of *junceum* by its filaments free to the base. *S. Nuno* Colla loc. cit. t. 54, is doubtful. The stem is said to be ancipitous and the flower violet with a yellow throat.

2. *S. BIFLORUM* Griseb. Symb. Fl. Argent. 238.—Stem 1–1 $\frac{1}{2}$  ft. long, slender, simple, rigid, leafless, terete. Leaves setaceous, very slender, shorter than the stem, sheathing its base. Spathes

usually 2-flowered, valves lanceolate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth-segments oblong-spathulate, yellow, under  $\frac{1}{2}$  in. long. Filaments nearly free. Capsule  $\frac{1}{4}$  in. long.

Hab. Argentine republic; province of Tucuman.

3. *S. FILIFOLIUM* Gaudich. in Freye. Voy. 133; Hook. fl. Fl. Antarc. ii. 352, t. 126; Bot. Mag. t. 6829. *S. Gaudichaudii* Diétr.—Root-fibres long and slender. Root-leaves 3-6, green, subterete, 4-6 in. long. Stem terete, leafless,  $\frac{1}{2}$ -1 ft. long, ending in 1-2 clusters overtopped by a reduced leaf. Spathes 3-4-flowered; outer valves oblong,  $1\frac{1}{2}$  in. long, green with a white membranous edge. Perianth-segments obovate,  $\frac{1}{2}$  in. long, pure white with 3 red veins and a yellow base. Filaments  $\frac{1}{4}$  in. long, joined towards the base. Capsule subglobose,  $\frac{1}{4}$  in. long.

Hab. Falkland islands. Drawn for Bot. Mag. in 1885, from plants sent by Mr. F. W. Burbidge.

4. *S. GRANDIFLORUM* Dougl. in Bot. Reg. t. 1364; Bot. Mag. t. 3509; Sweet, Brit. Flow. Gard. ser. 2, t. 388, non Cav. *S. Douglasii* Diétr.; Lemaire, Flore des Serres, t. 146. *Eriphlema grandiflorum* Herb.—Root-fibres many, long and slender. Stem simple, terete,  $\frac{1}{2}$ -1 ft. long. Produced leaves 2-3, subterete, short, sheathing the lower part of the stem. Flowers 2-3, cernuous; outer spathe-valve linear, leaf-like,  $1\frac{1}{2}$ -2 in. long. Perianth-segments obovate, bright purple, rarely white,  $\frac{3}{4}$  in. long. Filaments half as long as the perianth, connate only at the base. Style as long as the perianth.

Hab. Vancouver's Island and California eastward to the Rocky Mountains, ascending to 6000 ft. A very distinct and handsome species.

5. *S. SETACEUM* Klatt in Linnæa, xxxi. 85; Fl. Bras. iii. 540, tab. 71, fig. 1.—Densely tufted. Stems 3-5 in. long, very slender, simple, terete, leafless, ending in a single cluster overtopped by a linear reduced leaf. Leaves very slender, terete, as long as the stem. Spathes 2-3-flowered,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth-segments rose-red, acute,  $\frac{1}{10}$  in. long. Filaments united to the apex in a pilose cylindrical column. Capsule very small, globose.

Hab. Monte Video; gathered by Sello.

6. *S. TRINEVE* Baker in Journ. Bot. 1876, 267. *S. Bakeri* Klatt.—Root-fibres long and slender. Stem simple, slender, rigid, terete, leafless, a foot long, ending in a single cluster, overtopped by a linear-subulate bract. Leaves rigid, slender, subterete, about as long as the stem. Spathes 2-3-flowered; outer valves linear or lanceolate, without any white membranous edge,  $\frac{3}{4}$ - $1\frac{1}{4}$  in. long. Perianth yellow,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Filaments connate in a cylindrical column. Capsule oblong, brown, glossy,  $\frac{1}{3}$  in. long.

Hab. Andes of Bolivia, Sorata, alt. 8000-15,000 ft., Mandon 1218! 1220 bis! An allied species in an imperfect state was found by Pearce at Huanuco, alt. 10,000 ft.

7. *S. MIDDLETONI* Baker.—Root-fibres densely tufted, long cylindrical. Stem slender, terete, erect, a foot long, ending in a single cluster of flowers, with a terete leaf some distance below it.

Leaves 2-3, slender, terete, half as long as the stem. Spathes 1-2-flowered, 1-1½ in. long; valves lanceolate, green with a narrow white edge. Perianth-segments oblanceolate-oblong, ¼ in. long. Filaments ⅓ in. long. connate to the apex in an ampullæform tube.

Hab. Patagonia, *Capt. Middleton!* (Herb. Forsyth).

8. *S. JUNCEUM* E. Meyer in Rel. Haenk. i. 118; Knowles & West. Floral Cab. iii. 17, 95.—Root-fibres densely tufted, long and slender. Stem leafless, terete, fistulose, 1-2 ft. long, ending in a long whip-like bract, from the axis of which is produced one sessile or a few or several shortly peduncled clusters. Produced leaves 2-3, weak, subterete, sheathing the lower part of the stem, often as long as the stem. Spathes 1-1½ in. long, few- or many-flowered; outer-valves lanceolate, green with a distinct white border. Perianth-segments oblong, ⅓-½ in. long, rose-red, rarely white. Filaments connate in an ampullæform tube. Capsule small, globose.

Hab. Chilia, Bolivia, Southern Peru and Argentine region, ascending to 15,000 ft. Very variable. I cannot separate specifically *S. scirpiforme* and *junciforme* Poppig, *S. roseum* Herb., *S. Philippii* Klatt and *S. gracile, roseum, floribundum, scirpeum, scabrum, asperulum* and *colchaguense* Philippi.

9. *S. PILIFERUM* Klatt, Erganz. 45.—Densely tufted. Stem very slender, leafless, terete, ½ ft. long, ending in 2-4 clusters, one sessile in the axis of a small subulate bract, the others shortly peduncled. Leaves very slender, thread-like, fine pilose, about as long as the stem. Spathes ⅓ in. long; outer valves oblong, green with a white edge; pedicels exserted. Perianth yellow, ⅓-½ in. long. Filaments connate in a pilose cylindrical column. Capsule globose, very small.

Hab. Paraguay, *Balansa 553!* This is referred by Grisebach in Symb. Fl. Argent. to *setaceum*, and the same plant given as inhabiting several of the Argentine provinces.

10. *S. GRACILE* Klotzsch; Baker in Journ. Bot. 1876, 268.—Base of the tufts surrounded by a dense mass of fine fibres. Stems slender, terete, above a foot long, ending in several clusters on slender erecto-patent produced peduncles bracteated at the base by reduced leaves. Leaves slender, rigid, subterete, shorter than the stem. Spathes cylindrical, 1-2-flowered, ⅓-1 in. long; outer valves rigid, lanceolate. Perianth pale yellow, ¼ in. long. Filaments connate in a column as long as the erect anthers, ⅓ in. long.

Hab. South Brazil, *Sello 3863!*

11. *S. BURCHELLII* Baker.—Root-fibres very slender. Tufts crowded on a short rhizome. Stem slender, leafless, terete, 1½-2½ in. long, ending in a single cluster, subtended by a small lanceolate bract. Spathe ¼ in. long; outer valves oblong, with a narrow white edge. Perianth-segments lanceolate, yellow. Stamens not seen.

Hab. Central Brazil, *Burchell 5961!*

12. *S. SECUNDIFLORUM* Klatt in Linnæa, xxxi. 91; Fl. Bras. iii. 511, tab. 71, fig. 2.—Densely tufted. Root-fibres very slender.

stems narrowly winged, simple, leafless, 3-6 in. long, ending in a linear bract, from the axis of which arise 2-4 shortly peduncled clusters. Root-leaves narrow linear, shorter than the stem. Spathes 2-4-flowered,  $\frac{1}{4}$  in. long; valves oblong, with a distinct white edge. Perianth-segments oblong, acute,  $\frac{1}{8}$  in. long, white with violet veins. Filaments united in a pilose ampullæform column. Capsule depresso-globose,  $\frac{1}{8}$  in diam.

Hab. Central Brazil; Minas Geraes, *Regnell* 444!

13. *S. ANGUSTIFOLIUM* Miller, Gard. Dict. edit. vi. No. 2. *S. Bermudiana* Linn. Sp. Plant. 1853, ex parte (Dill. Hort. Elth. 49, t. 41, fig. 49). *S. gramineum* Curt. in. Bot. Mag. t. 464; Red. Lil. t. 282. *S. anceps* Cav. Diss. vi. 345, t. 190, fig. 2; Lodd. Bot. Cab. t. 1220; Engl. Bot. edit. iii. t. 1491. *Marica anceps* Ker.—Root-fibres long and slender. Stems about a foot long, flattened and distinctly winged down to the base,  $\frac{1}{8}$  in. diam., usually branched, with 2-3 heads on long erect winged peduncles, with a reduced leaf from the fork and often 1-2 lower down. Root-leaves thin, linear, shorter than the stem,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Spathes 1-4-flowered, about an inch long; valves lanceolate, with a narrow white edge. Perianth  $\frac{1}{2}$  in. long, violet with a yellow base; segments obovate, distinctly mucronate. Filaments united in a cylindrical column  $\frac{1}{8}$  in. long. Capsule globose,  $\frac{1}{8}$  in. diam.

Var. *S. BELLUM* S. Wats. in Proc. Amer. Acad. xii. 277. *S. Douglassianum* Herb.—Stems branched, more narrowly winged than in the type, usually without any leaf below the fork. Leaves and spathe-valves firmer, the latter rather shorter, with a more distinct white edge and more exerted pedicels.—California and New Mexico.

Var. *S. MUCRONATUM* Mich. Fl. Bor. Amer. ii. 83. *Marica mucronata* Ker.—Stems simple, narrowly winged throughout, usually leafless, ending in a sessile cluster overtopped by a linear bract. Leaves narrow and more rigid. Capsule and seeds smaller.—Rocky Mountains and British North America.

Var. *S. GENICULATUM* Herb. in Bot. Reg. 1843, Misc. 81. *S. minus* Engelm. & A. Gray.—Dwarf, densely tufted, much branched. Stems slender, narrowly winged low down, often bearing 1-2 leaves below the fork. Flowers, capsules and seeds smaller than in the type.—Texas.

Hab. Sitcha and Hudson's Bay, through British North America and throughout the United States. Also mountains of Mexico, Ireland and naturalised in New Zealand. Other forms are *S. Nuttallianum*, *Aurelianum* and *acuminatum* Herb., *S. excisum*, and probably *S. homomallum* Klatt.

14. *S. CHILENSE* Hook. in Bot. Mag. t. 2786. *S. ramosum*, var. *chilense* Herb.—Root-fibres long and slender. Stem 1-1 $\frac{1}{2}$  ft. long, flattened and narrowly winged upward,  $\frac{1}{12}$ - $\frac{5}{16}$  in. diam., subterete towards the base, bearing often 4-6, sometimes as many as 12-20 heads on long, erect, narrowly winged peduncles, with a reduced leaf from the base of each and often one lower down. Root-leaves weak, linear, shorter than the stem. Spathes 3-6-flowered,  $\frac{3}{4}$ -1 in. long; valves rigid, lanceolate. Perianth  $\frac{1}{2}$  in. long, lilac, with a yellow base; segments oblong, mucronate. Filaments united

nearly to the top in a cylindrical column. Capsule globose,  $\frac{1}{6}$  in. diam.

Var. *S. SCABRUM* Cham. et Schlecht. in Linnæa, vi. 57.—Dwarfer, with narrower leaves and smaller flowers and capsules.—Mountains of Mexico.

Hab. Throughout Tropical America from Mexico to Uruguay and Chili; and naturalised in Mauritius. I cannot separate specifically *S. Berteroi* and *S. Lechleri* Steud and *S. azureum* Philippi, and cannot draw any definite line of demarcation between the forms of *S. chilense* and the northern *S. angustifolium* Miller. An infusion of the leaves is drunk like tea by the Chilians.

15. *S. BERMUDIANA* Linn. Sp. Plant. 1353, ex parte (Dill. Hort. Elth. tab. 41, fig. 48). *S. iridoides* Curt. in Bot. Mag. t. 94.—Root-fibres long and slender. Stem a foot or more long, flattened and broadly winged,  $\frac{1}{6}$  in. diam., bearing 2-3 clusters on erect winged peduncles and a leaf from the middle. Root-leaves thin, linear, nearly as long as the stem,  $\frac{1}{4}$  in. broad. Spathes sometimes 6-8-flowered,  $\frac{3}{4}$ -1 in. long; valves lanceolate, green with a very narrow white edge. Petals obovate, mucronate, violet,  $\frac{1}{2}$  in. long. Filaments joined to the apex in a cylindrical column  $\frac{1}{6}$  in. long. Capsule oblong;  $\frac{1}{3}$  in. long.

Hab. Bermuda. Well figured by Dillenius in 1732. Gathered lately by Governor Lefroy and Professor Moseley. Not hardy in our London gardens.

16. *S. MACRANTHUM* Griseb. Symb. Argent. 326.—Stems flattened, broadly winged, leafless, 1-1 $\frac{1}{2}$  ft. long,  $\frac{1}{4}$  in. broad. Root-leaves linear, 6-9 in. long,  $\frac{1}{8}$  in. broad, scabrous on the margin. Clusters 1-4, on peduncles bracteated at the base, 1-2-flowered; spathe-valves lanceolate,  $\frac{2}{3}$ -1 in. long. Perianth-segments violet,  $\frac{3}{4}$ -1 in. long. Filaments joined nearly to the apex in a cylindrical column  $\frac{1}{4}$  in. long.

Hab. Argentine region; provinces of Salta and Cadoba.

17. *S. MINUTIFLORUM* Klatt in Linnæa, xxxi. 71.—Root-fibres slender. Stems flattened, 2-4 in. long, bearing 1-2 leaves. Root-leaves narrow linear, shorter than the stem. Spathe terminal, 1-3-flowered,  $\frac{1}{4}$  in. long. Perianth rose-red,  $\frac{1}{6}$  in. long. Filaments connate in a glabrous cylindrical column  $\frac{1}{12}$  in. long. Capsule globose, very small.

Hab. Monte Video, *Sello* 113. Grisebach's Argentine plant so-called is *S. micranthum*.

18. *S. SCHAFFNERI* S. Wats. in Proc. Amer. Acad. xviii. 160.—Root-fibres very slender. Stem simple, leafless, 2-4 in. long, distinctly winged down to the base,  $\frac{1}{8}$  in. diam. at the top. Root-leaves weak, linear,  $\frac{1}{8}$  in. broad, at most as long as the stem. Spathes 2-6-flowered; valves equal,  $\frac{1}{2}$  in. long, or the outer larger and leaf-like. Perianth yellow,  $\frac{1}{4}$  in. long. Filaments  $\frac{1}{2}$  in. long, free nearly or quite to the base. Capsule globose or turbinate  $\frac{1}{6}$  in. diam.

Hab. Mexico; mountains of San Luis Potosi and Chihuahua.

19. *S. PUSILLUM* H. B. K. Nov. Gen. i. 323. *Marica pusilla* Ker.—Stem simple, leafless, narrowly winged, about 2 in. long. Root-leaves numerous, very narrow, 2 nerved, 1-2 $\frac{1}{2}$  in. long. Spathe

1-flowered,  $\frac{1}{2}$  in. long; pedicel as long as the spathe. Perianth yellow,  $\frac{1}{4}$  in. long. Column of filaments cylindrical.

Hab. Andes of Ecuador on the slope of Pinchincha. Gathered by Humboldt.

20. *S. UNISPATHEUM* Klatt in Linnæa, xxxiv. 737.—Densely tufted. Root-fibres long and slender. Peduncle simple, leafless, slender, 2 ft. long, narrowly margined towards the top only. Leaves  $\frac{1}{3}$  in. broad, about as long as the stem, which ends in a long subterete leaf. Spathes 4-flowered; valves lanceolate, an inch long; pedicels much exserted. Flowers not seen, probably yellow. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Andes of Bolivia; Sorata, alt. 9000—11,000 ft., Mandon 1219!

21. *S. JAMESONI* Baker in Journ. Bot. 1876, 269.—Densely tufted. Stems simple, leafless, 6–8 in. long, very narrow, winged only towards the top. Root-leaves narrow linear, rigid, rather shorter than the stem. Spathes 2–4-flowered; outer valve rigid, lanceolate, above an inch long, the other shorter. Perianth yellow,  $\frac{1}{3}$  in. long. Filaments free down to the base. Capsule oblong,  $\frac{1}{3}$  in. long.

Hab. Andes of Ecuador, Jameson 246!

22. *S. PATAGONICUM* Philippi.—Root-fibres slender. Stem simple, leafless, 5–6 in. long, flattened and distinctly winged down to the base,  $\frac{1}{2}$  in. diam. Leaves linear,  $\frac{1}{2}$  in. diam., much shorter than the stem. Flowers 2–3 in a cluster; spathe-valves lanceolate, 1–1 $\frac{1}{2}$  in. long; pedicels much shorter. Perianth  $\frac{1}{2}$  in. long, yellow veined with brown. Filaments  $\frac{1}{2}$  in. long, connate above the middle; anthers small, oblong.

Hab. Patagonia, on the banks of the Rio Palera, Guagardo!

23. *S. ACRE* Mann in Proc. Amer. Acad. vii. 206.—Root-fibres slender. Stem simple, leafless, 1–1 $\frac{1}{2}$  ft. long, distinctly winged throughout,  $\frac{1}{2}$ – $\frac{3}{8}$  in. diam. Leaves linear, shorter than the stem. Spathes 4–6 flowered; outer valves lanceolate,  $\frac{3}{4}$ –1 in. long; pedicels exserted. Perianth yellow,  $\frac{1}{3}$  in. long. Filaments free down to the base. Capsule turbinate,  $\frac{1}{3}$  in. long.

Hab. Mountains of the Sandwich Islands, alt. 3500–7000 ft. Used by the natives for tattooing in black.

24. *S. CALIFORNICUM* Dryand. in Ait. Hort. Kew, edit. 2, iv. 135. *S. lineatum* Torrey. *S. flavidum* Kellogg. *Marica californica* Ker in Bot. Mag. t. 983. *Hydastylus californicus* Salisb. *Echthronema californica* Herb.—Root-fibres long and slender. Stem simple, leafless, 1–1 $\frac{1}{2}$  ft. long, broadly winged throughout,  $\frac{1}{2}$  in. diam. Leaves many, weak, linear, shorter than the stem. Spathe 3–6-flowered; outer valves lanceolate, 1–1 $\frac{1}{2}$  in. long. Perianth-segments oblong,  $\frac{1}{2}$  in. long, yellow veined with brown. Filaments  $\frac{1}{4}$  in. long, slightly connate at the base only; anthers linear, versatile. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. California eastward to Oregon. There is a specimen from Kew gardens in the herbarium of Bishop Goodenough, dried in 1797. I have not



seen *S. arizonicum* Rothrock, from Arizona, which must be either the same or a near neighbour.

25. *S. BOGOTENSE* H. B. K. Nov. Gen. i. 323. *Marica bogotensis* Ker.—Root-fibres slender. Stem simple, leafless, distinctly winged, 3-5 in. long,  $\frac{1}{2}$  in. diam. Leaves linear, 2-3 in. long,  $\frac{1}{2}$  in. broad. Spathes 2-4-flowered; outer valve  $\frac{3}{4}$  in. long. Perianth small, yellow. Column of filaments very short. Capsule the size of a pea.

Hab. Andes of Bogota. First gathered by Humboldt. May be only an alpine variety of *S. tinctorium*.

26. *S. TINCTORIUM* H. B. K. Nov. Gen. i. 324. *S. tingens* Steud. *S. rigidum* Lehm. *Marica tinctoria* Ker.—Root-fibres long and slender. Stem simple, leafless, 1-2 ft. long,  $\frac{1}{4}$  in. diam., broadly winged throughout. Root-leaves many, weak, linear, shorter than the stem. Spathe 4-10-flowered; outer valve lanceolate,  $1\frac{1}{2}$ -2 in. long, the next shorter. Perianth-segments oblong,  $\frac{1}{2}$  in. long, yellow veined with brown. Filaments  $\frac{1}{8}$  in. long, free down to the base; anthers versatile. Capsule turbinate,  $\frac{1}{3}$  in. long.

Hab. Andes and mountains of Mexico. The whole plant, especially the fruit, stains paper purple. Both this and *S. acre* are closely allied to *S. californicum*.

27. *S. MICRANTHUM* Cav. Diss. vi. 144, t. 191, fig. 2; Ker in Bot. Mag. t. 2116. *S. micranthum* Pers. *Marica micrantha* Ker.—Densely tufted. Root-fibres very slender. Stems 3-6 in. long, flattened and narrowly winged, branching from low down and bearing several peduncled clusters and several linear leaves. Spathes 2-6-flowered; outer valves lanceolate,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long; pedicels exserted, very slender. Perianth pale yellow,  $\frac{1}{8}$ - $\frac{1}{4}$  in. long. Filaments united to the top in a cylindrical column; anthers small, oblong. Capsule globose,  $\frac{1}{3}$  in. diam.

Hab. Widely spread in Tropical America and naturalised in Australia near Port Jackson. I cannot separate specifically the Chilian *S. valdivianum* Philippi.

28. *S. TENUIFOLIUM* Humb. et Bonpl. in Willd. Hort. Berol. t. 92; Bot. Mag. t. 2117, 2313. *S. Hartwegii* Baker. *Marica tenuifolia* Ker. *Echthronema tenuifolia* Herb.—Root-fibres fleshy, cylindrical. Stems slightly acipitious, 3-12 in. long, often branched low down and bearing several heads, with reduced leaves from the base of the peduncles and sometimes 1-2 lower down. Root-leaves subterete or narrow linear, weak, shorter than the stem. Spathes ventricose, 3-4-flowered; outer valves ovate-lanceolate,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long, with a distinct white border. Perianth-segments oblong, pale yellow,  $\frac{1}{3}$  in. long. Filaments connate at the base, free above it; anthers linear,  $\frac{1}{8}$  in. long. Capsule oblong,  $\frac{1}{3}$  in. long.

Hab. Mountains of Mexico, ascending to 10,000 ft. *S. toluicense* Peyritsch in Linnæa, xxx. 18, is probably a form of this species.

29. *S. QUADRANGULATUM* Klatt in Linnæa, xxxii. 284.—Root-fibres rather fleshy. Stem simple, erect, 1-1 $\frac{1}{2}$  ft. long, 4-winged, bearing 1-2 reduced leaves. Radical leaves narrow linear, rigid, 6-9 in. long,  $\frac{1}{4}$  in. broad. Spathe valves lanceolate,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long.

Perianth-segments yellow, under  $\frac{1}{2}$  in. long. Filaments free nearly to the base. Capsule turbinate, the size of a pea.

Hab. Mexico; peak of Orizaba, alt. 12,000 ft., *Liebmann*.

30. *S. UNGUICULATUM* Griseb. Symb. Fl. Argent. 326. — Stems narrowly winged,  $\frac{1}{2}$ –1 ft. long, forked, bearing only a reduced leaf from the fork. Root-leaves narrow linear, half as long as the stem,  $\frac{1}{2}$  lin. broad, scabrous on the edge. Spathe-valves lanceolate,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Perianth-segments obovate-unguiculate, yellow,  $\frac{1}{2}$  in. long. Filaments connate to the top in a cylindrical tube; anthers oblong, small. Capsule ovoid,  $\frac{1}{2}$  in. long.

Hab. Argentine republic, gathered by Lorentz and Hieronymus.

31. *S. IRIDIFOLIUM* H. B. K. Nov. Gen. i. 323; Lodd. Bot. Cab. t. 1979. *S. laxum* Otto in Bot. Mag. t. 2312. *Marica iridifolia* Ker in Bot. Reg. t. 646. — Root-fibres slender. Stems 1–1 $\frac{1}{2}$  ft. long, distinctly winged, bearing 2 or more branches and 2–3 reduced leaves. Root-leaves weak, linear, much shorter than the stem. Spathes 4–6-flowered; outer valves lanceolate, 1–1 $\frac{1}{2}$  in. long. Perianth-segments oblong-cuspidate,  $\frac{1}{2}$  in. long, pale yellow with brown veins. Filaments united in a ventricose column nearly to the top; anthers small, oblong. Capsule turbinate,  $\frac{1}{2}$  in. long.

Hab. Widely spread in Tropical America. *S. Pearcei* Philippi in *Linnaea*, xxxiii. 251, is probably a variety of the same species with shorter spathe-valves.

32. *S. COULTERIANUM* Klatt. — Root-fibres long and rather fleshy. Stems broadly winged, 2–3 in. long, bearing a single recurved linear leaf of about the same length from the base, with 1 recurved linear leaf from the middle and bearing 2–4 heads on short peduncles, each with a lanceolate leaf from the base. Spathe-valves ventricose,  $\frac{3}{4}$  in. long. Perianth yellow,  $\frac{1}{2}$  in. long. Filaments free nearly or quite to the base. Capsule oblong.

Hab. Mexico; mountains of Zimapan, *Coulter* 1539! We have an allied plant with flexuose broadly-winged stems a foot or more long, and longer, less ventricose spathe-valves, of which I have not seen flowers, from Orizaba, *F. Muller* 1331! *Bourgeau* 2852!

33. *S. MANDONI* Baker in Journ. Bot. 1876, 269. — Root-fibres densely tufted, short, fleshy, cylindrical. Stems surrounded at the base by numerous fine fibres,  $\frac{1}{2}$ –1 ft. long, flattened and broadly winged, branched and bearing 2–3 linear leaves. Spathes 3–4-flowered; valves lanceolate,  $\frac{3}{4}$ –1 in. long. Perianth-segments oblong, bright yellow veined with brown,  $\frac{1}{2}$  in. long. Filaments united at the base only; anthers large, linear, versatile. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Temperate region of the Andes of Bolivia, *Mandon* 1217! New Granada, *Jurgensen* 387! Nearly allied to *S. convolutum*.

34. *S. CONVOLUTUM* Nocca, Pl. Select. Hort. Ticin. t. 1; Red. Lil. t. 47; Willd. Hort. Berol. t. 91. *Ichthronema convolutum* Herb. *Marica acorifolia* Ker. — Root-fibres slender. Stem a foot long, flattened and broadly winged, usually forked, bearing 1–2 long leaves. Root leaves weak, linear, shorter than the stem. Spathes an inch long, 3–4-flowered. Perianth-segments oblong,

$\frac{1}{2}$  in. long, bright yellow veined with brown. Filaments  $\frac{1}{2}$  in. long, united only at the base; anthers linear, versatile. Capsule oblong,  $\frac{1}{3}$  in. long.

Hab. Tropical America. Introduced into cultivation about 1815.

85. *S. GRAMINIFOLIUM* Lindl. in Bot. Reg. t. 1067. *S. ascendans* Poppig, Fragm. 4. *S. majale* Link, Klotzsch & Otto, Ic. t. 10. *Echthronema graminifolia* Herb.—Root-fibres fleshy, cylindrical. Stems  $\frac{1}{2}$ – $1\frac{1}{2}$  ft. long, flattened and narrowly winged, simple or branched, with 1–2 leaves below the fork. Root-leaves weak, linear, shorter than the stems. Spathes ventricose, 4–8-flowered; outer valves oblong,  $\frac{3}{4}$ –1 in. long. Perianth-segments oblong, yellow,  $\frac{1}{2}$  in. long. Filaments united below the middle in a cylindrical column; anthers linear, versatile. Capsule oblong,  $\frac{1}{3}$  in. long.

Var. *S. MACULATUM* Hook. in Bot. Mag. t. 3197. *Echthronema maculata* Herb.—A robust variety, with several heads and perianth-segments spotted with dark red at the base.

Hab. Chili, about Valparaiso, &c.

86. *S. PACHYRHIZUM* Baker in Journ. Bot. 1876, 269. *S. Sellowii* Klotzsch, inedit.—Root-fibres fleshy, cylindrical. Stems 1–2 ft. long, flattened and narrowly winged, copiously branched in the upper third, without any leaf below the fork. Root-leaves linear, weak, much shorter than the stem. Clusters a dozen or more; spathes 3–6-flowered; outer valves lanceolate, rigid,  $\frac{1}{3}$ – $\frac{1}{2}$  in. long; pedicels exserted. Perianth yellow,  $\frac{1}{4}$  in. long. Filaments united to the top in a cylindrical column. Capsule globose,  $\frac{1}{3}$  in. diam.

Hab. South Brazil, *Sello* 3862!

87. *S. RESTIODES* Spreng. Syst. i. 167.—Densely tufted. Root-fibres long and slender. Stem slender, erect, a foot or more long, obscurely ancipitous, with many narrow linear leaves from the forks. Root-leaves very small or absent. Spathes 1–2-flowered,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long; valves rigid, lanceolate. Perianth very small, yellow. Filaments joined only at the base. Capsule globose,  $\frac{1}{3}$  in. diam.

Hab. Central Brazil, Paraguay, Argentine region and Uruguay. Scarcely more than a slender variety of *S. vaginatum*.

88. *S. VAGINATUM* Spreng. Syst. i. 166. *S. sulcatum* Gillies in Hook. Ic. t. 218.—Densely tufted. Root-fibres long and slender. Stems a foot or more long, distinctly ancipitous, copiously branched from low down, bearing many small linear sheathing leaves from the nodes or elsewhere. Root-leaves small or not developed. Spathe-valves rigid, lanceolate,  $\frac{1}{2}$  in. long. Perianth bright yellow,  $\frac{1}{4}$  in. long. Filaments connate towards the base. Capsule globose,  $\frac{1}{3}$  in. diam.

Hab. Central and Southern Brazil, Paraguay and Uruguay.

89. *S. GLAZIOVII* Baker in Journ. Bot. 1876, 268.—Root-fibres very slender. Stem a foot long, flattened and broadly winged throughout,  $\frac{1}{3}$  in. diam., bearing 1–3-heads on winged erect peduncles, and about 3 short erect reduced leaves. Spathes about

3-flowered,  $\frac{3}{4}$  in. long; valves firm, green, lanceolate. Perianth-segments yellow,  $\frac{1}{3}$  in. long. Filaments joined to the top in a cylindrical column as long as the anthers. Capsule small, globose.

Hab. South Brazil, *Glaziou* 6722! Allied to *S. alatum*, but with stamens like those of *S. Bermudiana* and its allies.

40. *S. WEIRI* Baker in Journ. Bot. 1876, 268. — Stems 3–5 in. long, copiously branched from low down, distinctly winged, flexuose,  $\frac{1}{2}$  in. diam., bearing many erect linear leaves an inch long. Spathes ventricose, 1–3-flowered; outer valves rigid, lanceolate. Perianth yellow,  $\frac{1}{2}$  in. long. Filaments free above the base. Capsule globose, cernuous,  $\frac{1}{2}$  in. diam.

Hab. Campos of South Brazil, *Weir*, 372! *Glaziou* 15506! Nearly allied to *S. alatum*.

41. *S. ALATUM* Hook. Ic. t. 219. *S. Marchio* Steud. *Souza Marchio* Vell. Fl. Flum. vii. t. 1. — Root-fibres wiry. Stems 1–1 $\frac{1}{2}$  ft. long, flexuose, broadly winged,  $\frac{1}{2}$  in. diam., usually branched, bearing many alternate rigid ascending linear leaves 2–3 in. long. Spathes 2–4-flowered, about an inch long; valves rigid, lanceolate. Perianth yellow,  $\frac{1}{2}$ – $\frac{1}{3}$  in. long. Filaments free nearly to the base; anthers linear, versatile. Capsule subglobose,  $\frac{1}{4}$  in. diam.

Var. *POLYPHYLLUM* Baker. — Leaves more numerous, shorter, about 20 to a stem. — Demerara.

Var. *PEARCEI* Baker. — Stems 1–2 ft. long. Lower leaves 4–5 in. long. — Andes of Sandillani, alt. 7000–9000 ft.

Var. *GUATEMALENSE* Baker. — Lower leaves 6–8 in. long. Capsule  $\frac{1}{2}$  in. diam. — Mountains of Guatemala.

Hab. Widely spread in Tropical America, especially Brazil.

42. *S. INCURVATUM* Gardn. in Hook. Ic. t. 513. — Root-fibres slender. Stems simple, a foot or more long, broadly rigidly winged,  $\frac{1}{2}$  in. diam., bearing many short erect rigid leaves with a broad clasping base. Spathes oblong,  $\frac{1}{2}$ – $\frac{2}{3}$  in. long; outer valves oblong-navicular. Perianth-segments obovate, yellow,  $\frac{1}{3}$  in. long. Filaments shortly connate. Capsule globose,  $\frac{1}{4}$  in. diam.

Hab. Brazil; on the Organ Mountains, near the summit, *Gardner* 5890! *Glaziou* 3624!

43. *S. PLATYPHYLLUM* S. Wats. Contr. xviii. 155. — Root-fibres many, slender. Lower leaves ensiform, 6–8 in. long,  $\frac{1}{2}$ – $\frac{3}{4}$  in. broad. Stem broadly winged, leaty, branched. Heads few, separate; spathe-valves firm, oblong-navicular, above an inch long; pedicels shortly exerted. Perianth yellow,  $\frac{3}{4}$  in. long; segments oblong. Free portion of filaments  $\frac{1}{2}$  in. long. Style cleft nearly to the base. Capsule globose,  $\frac{1}{3}$  in. diam.

Hab. North Mexico; Guadalupe, *Pringle*!

44. *S. BREVIPES* Baker. — Root-fibres long, slender. Tufts crowded, mixed with copious old rudimentary brown leaves, splitting into fine fibres. Stems very slender, subterete, leafless, 3–4 in. long, ending in a fascicle of about 3 clusters. Root-leaves narrow linear, as long as the stem. Spathes  $\frac{1}{2}$ – $\frac{1}{3}$  in. long; outer

valves oblong, with a broad white edge; pedicels very short. Flowers not seen. Capsule oblong,  $\frac{1}{4}$  in. long.

Hab. Peruvian Andes; gathered by Maclean.

45. *S. RIGIDIFOLIUM* Baker. — Root-fibres long and not very slender. Tufts densely crowded on a short rhizome, mixed with old rudimentary brown leaves, splitting into fine fibres. Stem slender, wiry, obscurely ancipitous, leafless, 6-9 in. long, ending in a subterete tip  $1\frac{1}{2}$  in. long, from the base of which arise 1-2 clusters. Produced root-leaves several, rigid, narrow linear, shorter than the stem,  $\frac{1}{2}$  in. diam. Spathes 3-4-flowered; outer valves oblong. Flowers not seen. Capsule oblong, torulose,  $\frac{1}{4}$  in. long.

Hab. Andes of Bolivia; Achala, alt. 12,000 ft., *Mandon* 1214!

46. *S. LUZULA* Klotzsch; Klatt in *Linnæa*, xxxi. 89. — Root-fibres very slender. Stems crowded on a short rhizome, slender, subterete, wiry, a foot or more long, bearing only at the base a short sheathing rudimentary leaf, ending in a short terete tip, subtending a dense cluster of spathes. Spathes 3-4-flowered,  $\frac{1}{4}$  in. long; outer valves oblong, green, with a broad white edge; pedicels much exserted. Perianth small, rose-red. Filaments joined in a cylindrical hairy column. Capsule globose,  $\frac{1}{12}$  in. diam.

Hab. Campos of Central Brazil; gathered by Sello and Riedel.

47. *S. LATERALE* Baker in *Journ. Bot.* 1876, 269. — Root-fibres slender. Stems slender, terete, leafless, 6-9 in. long, ending in a long terete point, at the base of which are placed 1-2 sessile spathes. Root-leaves slender, subterete, as long as the stem. Spathes cylindrical, 2-4-flowered,  $\frac{3}{4}$  in. long; outer valves lanceolate; pedicels much exserted. Perianth  $\frac{1}{3}$  in. long, bright yellow, with brown veins. Filaments connate to the top in a long cylindrical column; anthers small, oblong. Capsule globose,  $\frac{1}{8}$  in. diam.

Hab. Andes of Bolivia; Sorata, alt. 8000-9000 ft., *Mandon* 1220!

48. *S. FASCICULATUM* Klatt in *Linnæa*, xxxi. 97. — Densely tufted. Root-fibres very slender. Stems rigid, terete, leafless, 1-2 ft. long, ending in a terete point, with a fascicle of clusters at its base. Root-leaves terete or narrow linear, much shorter than the stem. Spathes 2-8-flowered,  $\frac{1}{2}$  in. long; outer valves lanceolate, rigid, pale green; pedicels much exserted. Perianth  $\frac{1}{2}$  in. long, yellow, with brown veins. Filaments united to the top in a cylindrical tube; anthers small, oblong. Capsule globose,  $\frac{1}{8}$  in. diam.

Hab. Uruguay, Paraguay, and banks of the Parana.

49. *S. SELLOWIANUM* Klatt in *Linnæa*, xxxi. 375; *Fl. Bras.* iii. 359, tab. 70, fig. 2. — Densely tufted. Root-fibres very slender. Stems simple, leafless, broadly winged, 3-24 in. long, ending in a long leafy point, at the base of which is a fascicle of sessile clusters. Root-leaves weak, linear,  $\frac{1}{2}$ -1 ft. long. Spathes 5-6-flowered,  $\frac{3}{4}$  in. long; outer valves lanceolate, pale green; pedicels hairy, much exserted. Perianth yellow,  $\frac{1}{8}$  in. long. Filaments connate in a cylindrical column. Capsule small, globose.

Hab. Monte Video, *Sello*!

50. *S. PLATYCAULE* Baker. — Densely tufted. Root-fibres long, very slender. Stems simple, leafless, broadly winged,  $\frac{1}{2}$  ft. long,  $\frac{1}{8}$  in. diam., ending in a large linear point, bearing at its base a small bundle of sessile or shortly-peduncled spathes. Root-leaves thin, linear,  $\frac{1}{4}$  in. broad, as long as the stem. Spathes  $\frac{3}{4}$  in. long; outer valves lanceolate, dark green, with a narrow white edge; pedicels cernuous, not longer than the valves. Perianth small, white, with brown veins. Stamens not seen. Capsule globose,  $\frac{1}{8}$  in. diam.

Hab. Paraguay, *Balansa* 555! Nearly allied to *S. Sellowianum*.

51. *S. CONGESTUM* Klatt in *Linnæa*, xxxi. 98. — Root-fibres slender. Stems erect, leafless, rigidly narrowly winged,  $1\frac{1}{2}$  ft. long, ending in a small rigid linear point, with a fascicle of clusters at its base. Leaves rigid, narrow linear, closely ribbed,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad, nearly or quite as long as the stem. Spathes  $\frac{1}{2}$  in. long; outer valves rigid, lanceolate. Perianth pale yellow,  $\frac{1}{4}$  in. long. Filaments connate only at the base.

Hab. South Brazil, *Sello* 2967! May be a variety of *S. palmifolium*.

52. *S. PALMIFOLIUM* Linn. Mant. 122, excl. syn. *S. racemosum* Pers. *S. macrocephalum* Graham. *S. altissimum* Tenore. *S. marginatum* Klatt. *Glumosiæ palmifolia* Herb. *Moræa palmifolia* Thunb. *M. alata* Vahl.—Root-fibres subcylindrical. Stems leafless, broadly rigidly winged,  $1\frac{1}{2}$ –2 ft. or more long, ending in a linear rigid tip, bearing at its base a fascicle or congested panicle of many clusters. Leaves rigid, linear, 1–2 ft. or more long,  $\frac{1}{3}$  in. broad, with many raised ribs. Spathes about an inch long; outer valves rigid, lanceolate. Perianth  $\frac{1}{2}$ – $\frac{3}{4}$  in. long, pale yellow, veined with brown. Filaments connate at the base only; anthers large, linear. Capsule subglobose,  $\frac{1}{4}$ – $\frac{1}{2}$  in. diam.

Hab. Widely spread in South America, especially in South Brazil and Uruguay, ascending to 10,000 ft. in the Andes of New Granada.

53. *S. MONOSTACHYUM* Baker in *Journ. Bot.* 1876, 268. *S. aurantiacum* Griseb. *S. Clarazii* Baker. — Densely tufted. Root-fibres long and slender. Stems slender, acutely angled, leafless,  $\frac{1}{2}$ –1 ft. long, bearing 1–4 contiguous erect sessile clusters. Root-leaves many, narrow linear, much shorter than the stem. Spathes cylindrical, 2–3-flowered, much shorter than the stem; outer valve oblong,  $\frac{3}{4}$  in. long, or in the lower clusters cuspidate. Perianth bright yellow,  $\frac{3}{4}$  in. long. Filaments united at the base only; anthers small, oblong. Capsule globose,  $\frac{1}{4}$  in. diam.

Hab. Uruguay, Argentine region, and North Patagonia. Is perhaps (see *Erganz.* 43) the earlier-named *S. avenaceum* Klatt in *Linnæa*, xxxi. 373, but of that the flowers are said to be violet.

54. *S. SESSILIFLORUM* Poppig, *Fragm.* 9. *S. Huismo* Dombey.—Root-fibres long, subcylindrical. Stem subterete, 2 ft. long including the simple rarely forked spike, which consists of several spaced-out clusters. Reduced stem-leaves 2–3. Root-leaves linear, a foot or more long,  $\frac{1}{4}$  in. broad. Perianth violet; segments obovate,  $\frac{1}{4}$  in. long. Filaments united in a cylindrical column. Capsule oblong.

Hab. Chili and Juan Fernandez. Differs from *S. cuspidatum* mainly by its violet flowers.

55. *S. CUSPIDATUM* Poppig, Fragm. 3. *S. arenarium* Poppig. *S. alenostemon* Philippi. *S. flexuosum* Lindl. — Root-fibres subcylindrical. Stem subterete or obscurely ancipitous, 1–2 ft. long including the simple or rarely forked spike, which consists of several spaced-out many-flowered clusters on a flexuose rachis, each of which is subtended by an oblong bract  $\frac{3}{4}$ –1 in. long. Reduced stem-leaves 2–3. Root-leaves linear, 6–12 in. long. Perianth yellow,  $\frac{1}{2}$  in. long. Stamens united towards the base. Capsule small, globose.

Hab. Chili and Andes of Mendoza.

56. *S. NERVOSUM* Philippi in Linnæa, xxxiii. 251. — Stem robust, compressed, narrowly winged, 2 ft. long including the spike, which consists of several spaced-out 10–12-flowered clusters, bearing 2–3 reduced leaves below the inflorescence. Root-leaves equitant, linear, glaucous, strongly ribbed,  $\frac{1}{2}$  in. broad. Perianth yellow, veined with brown, above  $\frac{1}{2}$  in. long.

Hab. Chili; Andes of Santiago, *Philippi*.

57. *S. STRIATUM* Smith, Icon. Pict. t. 9; Red. Lil. t. 66. *S. spicatum* Cav. Diss. t. 10. *S. nigricans* C. Gay. *S. lutescens* Lodd. Bot. Cab. t. 1870. *Marica striata* Ker in Bot. Mag. t. 701. *Moræa sertula* Jacq. Hort. Schoen. t. 11. — Root-fibres slender. Stem stout, narrowly winged, bearing 1–2 reduced leaves below the inflorescence,  $1\frac{1}{2}$ –2 ft. or more long including the spike or panicle, which consists of numerous spaced-out 12–20-flowered sessile clusters, each subtended by a large-flowered ovate bract. Root-leaves 8–10, firm, linear, a foot or more long,  $\frac{1}{2}$  in. broad. Spathe-valves under an inch long; inner many, entirely membranous. Perianth  $\frac{3}{4}$  in. long; segments oblanceolate, pale yellow, veined with brown. Filaments united halfway up. Capsule globose,  $\frac{1}{4}$  in. diam.

Hab. Chili and Andes of Mendoza. Widely spread in cultivation.

58. *S. BALANSÆ* Baker. — Stem simple, tufted, flattened, narrowly winged, 1–2 ft. long, bearing down to the base many alternate sheathing leaves with short free linear points, and towards the top 3–4 distant sessile erect 1–2-flowered clusters. Spathes  $\frac{1}{2}$  in. long; outer valve rigid, lanceolate-navicular. Perianth bright yellow,  $\frac{1}{4}$  in. long. Filaments united only at the base; anthers large, linear, versatile. Capsule globose,  $\frac{1}{8}$  in. diam.

Hab. Paraguay *Balansa* 547! 548! Leaves like those of *S. alatum*.

### 30. TAPEINIA Juss.

*Perianth* without any tube above the ovary; segments oblong, subequal, spreading. *Stamens* inserted at the base of the segments; filaments connate at the base; anthers lanceolate, versatile. *Ovary* oblong, 3-celled; ovules many, superposed; style subulate; branches filiform, stigmatose at the tip. *Capsule* subglobose, loculicidally 3-valved. *Seeds* obovoid. — Very near *Sisyrinchium*.

1. T. MAGELLANICA Ker, Gen. Irid. 9. *Iria magellanica* Lam. Illust. t. 109. *I. pumila* Forst. Comm. Goett. ix. 20, t. 8. *Morea magellanica* Willd. *Sisyrinchium pumilum* Hook. fil. Fl. Antarc. t. 129. *Galaxia obscura* Cav. — Stems densely tufted, 1-headed. Leaves many, linear, firm, equitant,  $\frac{1}{2}$ –1 in. long. Peduncle very short. Spathe 1-flowered; valves firm, linear,  $\frac{1}{2}$ –1 in. long; pedicel short. Perianth blue,  $\frac{1}{4}$  in. long. Capsule  $\frac{1}{2}$  in. diam.

Hab. Valdivia southward to Cape Horn.

### 31. PATERSONIA R. Br. (*Genosiris* Lab.).

*Perianth*-tube elongated, cylindrical, slender; outer segments obovate-cuneate, spreading; inner minute, erect. *Stamens* inserted at the throat of the tube; filaments short, more or less connate; anthers erect. *Ovary* clavate, 3-celled; ovules many, superposed; style filiform, usually articulated above the middle; style-branches obovate, petaloid, stigmatose round the edge. *Capsule* linear-oblong, loculicidally 3-valved. *Seeds* angled by pressure. — *Rhizome* short-creeping. *Leaves* rigid, linear, condensed into a distichous basal rosette. *Clusters* 2, forming a terminal spike enclosed in large rigid bracts. *Flowers* very fugitive, nearly always blue; pedicels short.

East Australian . . . . . Sp. 1–5.  
West Australian.

Leaves linear, rigid, sessile.

Bracts of the spike glabrous . . . . . Sp. 6–15.

Bracts of the spike hairy on the back . . . . . Sp. 16–17.

Leaves petioled, plicate . . . . . Sp. 18.

1. P. GLAUCA R. Br. Prodr. 304; Bot. Mag. t. 2677; Lodd. Bot. Cab. t. 1182; Endl. Icon. t. 50. *Genosiris fragilis* Labill. Pl. Nov. Holl. i. 13, t. 9.—Tufts crowded on a short rhizome. Leaves rigid, narrow linear,  $\frac{1}{2}$ –1 $\frac{1}{2}$  ft. long,  $\frac{1}{8}$ – $\frac{1}{4}$  in. broad. Peduncle slender, terete, usually shorter than the leaves. Bracts of the spike lanceolate, rigid, glabrous, 1–1 $\frac{1}{2}$  in. long; clusters 2–4-flowered. Spathes cylindrical, as long as the bracts. Perianth with tube reaching to the tip of the bracts or beyond; outer segments obovate,  $\frac{1}{2}$  in. long; inner oblong-lanceolate,  $\frac{1}{8}$  in. long. Stamens united halfway up.

Hab. East Australia; New South Wales, Victoria and Tasmania.

2. P. LONGISCAPA Sweet, Fl. Austral. t. 39.—Leaves rigid, narrow linear,  $\frac{1}{2}$ –1 $\frac{1}{2}$  ft. long. Peduncle longer than the leaves. Bracts of the spike rigid, glabrous, nearly 2 in. long; clusters 3–4-flowered. Ovary and perianth-tube slightly hairy, the latter not exerted beyond the bracts; outer segments obovate,  $\frac{3}{4}$  in. long; inner linear-lanceolate,  $\frac{1}{12}$  in. long. Filaments united halfway up.

Hab. East Australia; Victoria, South Australia and Tasmania.

3. P. LONGIFOLIA R. Br. Prodr. 303. *Genosiris longifolia* F. M. —Leaves narrow linear, rigid,  $\frac{1}{2}$ –1 $\frac{1}{2}$  ft. long, under  $\frac{1}{12}$  in. broad, hairy when young, glabrous when mature. Peduncle slender, hairy, 3–6 in. long. Bracts of the spike 1–1 $\frac{1}{4}$  in. long, very hairy



when young, prominently ribbed. Perianth-tube  $\frac{3}{4}$  in. long; outer segments as long as the tube; inner minute.

Hab. New South Wales.

4. *P. GLABRATA* R. Br. Prodr. 304; Lodd. Bot. Cab. t. 768. *Genosiris glabrata* F. M.—Leaty stem produced to a length of 3-4 in. Leaves linear, rigid,  $\frac{1}{2}$ -1 ft. long,  $\frac{1}{8}$ - $\frac{1}{4}$  in. broad, hairy on the edges towards the base. Peduncle slender, 3-9 in. long, glabrous or slightly hairy. Bracts of the spike lanceolate, brown,  $1\frac{1}{2}$ -2 in. long, glabrous in the type, thinly deciduously hairy in var. *P. media* R. Br. Ovary and base of perianth-tube hairy; outer segments obovate,  $\frac{3}{4}$ -1 in. long; inner minute, oblong-lanceolate. Column of filaments  $\frac{1}{8}$  in. long.

Hab. East Australia; Queensland, N. S. Wales and Victoria.

5. *P. SERICEA* R. Br. Prodr. 303; Bot. Mag. t. 1041. *Genosiris sericea* F. M.—Leaves rigid, linear,  $\frac{1}{2}$ -1 $\frac{1}{2}$  ft. long,  $\frac{1}{2}$  in. broad, hairy when young towards the base. Peduncle hairy, about as long as the leaves. Bracts of the spike  $1\frac{1}{2}$ -2 in. long, brown-black, densely deciduously hairy. Ovary very villose. Outer perianth-segments suborbicular, an inch long; inner small, ovate or lanceolate. Filaments free in the upper half.

Hab. Eastern Australia; Queensland, N. S. Wales and Victoria. *P. subalpina* F. M. is a dwarf mountain form with spikes nearly an inch long. Var. *latifolia* Benth. is a robust form with stouter spikes, and leaves  $\frac{1}{2}$  in. broad. *P. glabrata* Bot. Reg. t. 51, is probably a form of this species.

6. *P. GRAMINEA* Benth. Fl. Austral. vi. 408.—Rootstock a short thick rhizome. Leaves narrow linear,  $\frac{1}{2}$ -1 ft. long,  $\frac{1}{2}$  in. broad, not rigid, with a few prominent ribs, glabrous throughout or hairy towards the base. Peduncle very slender, glabrous, a foot or more long. Bracts of the spike equal, green, glabrous,  $\frac{3}{4}$  in. long. Flower seen in bud only. Ovary and perianth-tube glabrous.

Hab. West Australia; gathered by Drummond.

7. *P. INÆQUALIS* Benth. Fl. Austral. vi. 408.—Leaf-bearing stem shortly produced. Leaves linear, rigid, under a foot long,  $\frac{1}{2}$  in. broad, strongly ribbed, hairy on the surfaces towards the base. Peduncle slender, rather shorter than the leaves. Bracts of the spike unequal, green, glabrous, the outer an inch long, the inner shorter. Ovary hairy. Perianth-tube glabrous,  $\frac{1}{2}$  in. long; outer segment obovate, under an inch long; inner small, suborbicular. Filaments free at the summit.

Hab. West Australia; Stokes Inlet, Maxwell!

8. *P. MAXWELLI* F. M.; Benth. Fl. Austral. vi. 405.—Leaves rigid, linear,  $\frac{1}{2}$  ft. long,  $\frac{1}{2}$  in. broad, scabrous on the brown margin. Peduncle slender, about as long as the leaves. Spike cylindrical, an inch long; bracts lanceolate, rigid, brown, glabrous. Clusters 1-2-flowered. Perianth white; tube glabrous,  $\frac{3}{4}$  in. long; outer segments obovate,  $\frac{1}{2}$  in. long; inner obovate, minute. Filaments  $\frac{1}{2}$  in. long, connate to the top.

Hab. West Australia, Maxwell!

9. *P. OCCIDENTALIS* R. Br. Prodr. 304. *P. sapphirina* Lindl. Bot. Reg. 1839, t. 60. *Genosiris occidentalis* F. M. — Leaves rigid, 1–2 ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Peduncle  $\frac{1}{2}$ –2 ft. long. Bracts of the spikes rigid, glabrous,  $1\frac{1}{2}$ –2 in. long. Clusters many-flowered. Ovary and perianth-tube more or less hairy; outer segments broad-oblong, an inch or more long; inner minute ovate or lanceolate. Filaments short, connate nearly to the apex.

Hab. West Australia. Of the plants described by Endlicher in 'Plantæ Preissianæ,' Mr. Bentham does not venture to separate from this species *P. tenuispatha*, *turfosa*, *Diesingii*, *nana*, *compar*, *flaccida*, *sylvestris*, and *montana*.

10. *P. DRUMMONDII* F. M.; Benth. Fl. Austral. vi. 407. — Leaves condensed in a rosette, linear, rigid, twisted, 4–8 in. long,  $\frac{1}{2}$  in. broad, the edges ciliated towards the base. Peduncle slender, glabrous, shorter than the leaves. Bracts of the spike acutely keeled, green, glabrous,  $1\frac{1}{4}$ – $1\frac{1}{2}$  in. long. Flower not seen.

Hab. West Australia; gathered by Drummond.

11. *P. PYGMÆA* Lindl. Swan River App. 58. *Genosiris pygmæa* F. M. — Leaf-bearing portion of the stem shortly produced. Leaves linear, rigid, 3–6 in. long,  $\frac{1}{2}$  in. broad, hairy when young, glabrous when mature. Peduncle as long as or shorter than the leaves, deciduously woolly. Bracts of the spike  $1\frac{1}{2}$ –2 in. long, brown, glabrous, lanceolate. Ovary glabrous or slightly hairy. Perianth-tube  $1\frac{1}{2}$  in. long; outer segments obovate,  $\frac{3}{4}$  in. long; inner minute. Filaments  $\frac{1}{2}$  in. long, joined to the top.

Hab. West Australia.

12. *P. JUNCEA* Lindl. Swan River App. 58. *Genosiris juncea* F. M. — Leaves very narrow, rigid, 4–8 in. long, under a line broad, ciliated when young. Peduncle slender, as long as or longer than the leaves. Bracts of the spike brown, rigid, glabrous, lanceolate,  $1\frac{1}{2}$  in. long. Perianth-tube glabrous, exerted; limb not seen.

Hab. West Australia. Var. *elongata* Benth. is a form with longer leaves, and longer stouter peduncles. *P. Roei* Endl. is probably the same species.

13. *P. LIMBATA* Endl. in Pl. Preiss. ii. 29. — Leaves very rigid, ensiform,  $\frac{1}{2}$ – $1\frac{1}{4}$  ft. long,  $\frac{1}{2}$  in. broad, with a distinct brown edge, often woolly when young. Peduncle as long as or longer than the leaves, thickened towards the top. Spike compressed,  $1\frac{1}{2}$ –2 in. long; bracts rigid, glabrous, acutely keeled. Clusters many-flowered. Ovary and perianth-tube very woolly, the latter  $1\frac{1}{2}$  in. long; outer segments obovate,  $\frac{3}{4}$  in. long; inner minute, linear-lanceolate. Filaments connate nearly to the top.

Hab. West Australia.

14. *P. UMBROSA* Endl. in Pl. Preiss. ii. 31. — Leaves rigid, linear, 1–2 ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Peduncle about as long as the leaves. Spathe compressed; outer bracts rigid, glabrous, acutely keeled, 2–3 in. long. Perianth-tube above 2 in. long, slightly pubescent, exerted beyond the tip of the bracts; outer segments obovate, above an inch long; inner linear-subulate. Filaments  $\frac{1}{2}$  in. long, united to the top in a cylindrical column.

Hab. West Australia. *P. xanthina* F. M., of which we have no specimen at Kew, seems to differ principally by its yellow flowers.

15. *P. MACRANTHA* Benth. Fl. Austral. vi. 407. — Leaves linear, above a foot long,  $\frac{1}{4}$  in. broad, not so rigid as in *P. sericea*, hairy only on the edges towards the base. Peduncle flattened, glabrous, a foot long, with a reduced leaf from the middle. Bracts of the spike brownish, naked, 3 in. long. Ovary slightly villose. Perianth-tube not exerted; outer segments obovate, above an inch long. Column of filaments  $\frac{1}{8}$  in. long.

Hab. West Australia; Darling range. Gathered by Collie.

16. *P. LANATA* R. Br. Prodr. 303; Sweet, Fl. Austral. t. 15. *Genosiris lanata* F. M. — Leaves rigid, linear,  $\frac{1}{2}$ –1 ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad, hairy on the edges towards the base. Peduncle hairy, about as long as the leaves. Bracts of the spike ovate, dark brown, 1–1 $\frac{1}{2}$  in. long, deciduously villose. Outer segments of the perianth broadly rounded, an inch long; inner small, obovate-cuneate. Filaments united nearly to the top.

Hab. West Australia. *P. pannosa* Endl. is a robust variety with broader leaves.

17. *P. RUDIS* Endl. in Fl. Preiss. ii. 29. *Genosiris rudis* F. M. — Leaves linear, rigid, 1–1 $\frac{1}{2}$  ft. long,  $\frac{1}{8}$ – $\frac{1}{4}$  in. broad, hairy on the edges and also on the surfaces towards the base. Peduncle stout, hairy, about as long as the leaves. Bracts of the spike 1 $\frac{1}{2}$ –2 in. long, dark brown, prominently ribbed, deciduously woolly on the back. Flower like that of *P. sericea*.

Hab. West Australia.

18. *P. BABIANOIDES* Benth. Fl. Austral. vi. 408. — Rootstock a short thick rhizome. Leaves like those of a *Babiana*, shortly petioled, linear, plicate, the glabrous blade 4–6 in. long,  $\frac{1}{4}$  in. broad, the petiole loosely hairy. Peduncle 1–2 in. long. Bracts of the spike lanceolate, densely hairy, 1–1 $\frac{1}{4}$  in. long, not rigid. Ovary densely hairy. Perianth-tube glabrous,  $\frac{3}{4}$  in. long; outer segments large, obovate; inner small, cuspidate. Filaments shortly united.

Hab. West Australia; gathered by Drummond. Very different from all the other species.

### 32. CLEANTHE *Salisb.*

*Perianth-tube* short; segments all obovate-cuneate, the three outer much smaller than the three inner. *Stamens* inserted at the throat of the perianth-tube; filaments short, subulate; anthers linear, versatile. *Ovary* cylindrical, 3-celled; ovules many, superposed; style subulate; style branches short, petaloid, cuneate. *Capsule* cylindrical. — Habit of *Aristea*, from which it differs by its unequal perianth-segments.

1. *C. MELALEUCA* Salisb. in Trans. Hort. Soc. i. 312. *Moræa lugens* Linn. fl. *M. melaleuca* Thunb. Diss. No. 1, t. 1, fig. 3. *Aristea melaleuca* Ker in Bot. Mag. t. 1277. — Rhizome short. Leaves many, rigid, linear, 3–4 in. long. Stem terete, a foot long, bearing a few long-peduncled clusters. Outer spathe-valves lanceolate; pedicels  $\frac{1}{2}$ –1 in. long. Perianth fugitive; inner segments

pale blue, 1-1½ in. long; outer, half as long, blackish, with a white base. Style ½ in. long. Anthers as long as the filaments.

Hab. Cape Colony; south-western district. Introduced by Masson to Kew Gardens in 1788. The plate in Bot. Mag. is copied from his coloured drawing, now at the British Museum.

### 33. SYMPHYSTEMON Miers. (*Psythirisma* Herb.).

*Perianth*-tube funnel-shaped; segments oblong, subequal. *Stamens* inserted at the throat of the tube; filaments connate at the base; anthers oblong, versatile. *Ovary* turbinate, 3-celled; ovules many, superposed; style filiform; branches elongated, subulate. *Capsule* subglobose, loculicidally 3-valved. *Seeds* minute, triquetrous. —Habit of *Sisyrinchium*, from which it differs by its produced funnel-shaped *perianth*-tube.

1. *S. NARCISSOIDES* Miers in Trans. Linn. Soc. xix. 97. *Sisyrinchium narcissoides* Cav. Diss. vi. t. 191, fig. 3. *S. odoratissimum* Lindl. Bot. Reg. t. 1283. *Galaxia narcissoides* Willd. *Gladiolus biflorus* Thunb. *Solenomelus biflorus* Baker. —Rhizome none; radical fibres densely tufted. Leaves many, narrow linear, ¾-1 ft. long. Peduncle terete, 1-1½ ft. long, bearing 1-2 long-peduncled clusters. Spathes 4-8-flowered, 1-1½ in. long; outer valve oblong-lanceolate, green, with a membranous edge; pedicels long. *Perianth* pale yellow, 1¼-1½ in. long; segments oblong, acute, as long as the funnel-shaped tube. Filaments free at the top; anthers versatile. *Capsule* subglobose, ¾-¾ in. diam.

Hab. Southern Chili and Straits of Magellan.

2. *S. ACAULE* Benth. inedit. *Sisyrinchium acaule* Klatt. *Solenomelus acaulis* Baker. —Rhizome short; root-fibres long and wiry. Tufts crowded. Leaves rigid, narrow linear, 1-2 in. long. Stem very short, 1-headed. Spathe-valves rigid, dark green, oblong, ½ in. long; pedicels short. *Perianth* blue, with a narrowly funnel-shaped tube ½ in. long, and oblong segments half as long as the tube. Filaments free in the upper half; anthers small, oblong, versatile.

Hab. Andes of Bolivia, alpine region, 16,000-17,000 ft., Mandon 1212!

3. *S. NIGRICANS* Benth. Gen. Plant. iii. 700. *Susarium nigricans* Philippi. *Solenomelus nigricans* Baker. —Stem ancipitous leaty, ½ ft. long, its leaves linear, turning black, the lowest 2-3 in. long, ¼ in. broad. Spathe solitary, ventricose, 3-4-flowered, above an inch long; outer valve ovate, with a narrow scariose margin. *Perianth* yellow; tube ⅓ in. long; segments as long as the tube. *Ovary* shorter than the tube, slightly pilose. *Stamens* monadelphous.

Hab. Chili, near Talca, Philippi.

### 34. CHAMÆLUM Phil.

*Perianth*-tube cylindrical or narrowly funnel-shaped; segments subequal. *Stamens* inserted at the throat of the tube; filaments connate in a tube; anthers linear, erect. *Ovary* oblong, 3-celled;

ovules many, superposed; style subulate, with three very short spreading cusps. *Capsule* oblong-trigonous, loculicidally 3-valved. *Seeds* minute.—Habit of *Sisyrrinchium*. It differs from *Solenomelus* only by having three short spreading cusps to the style.

1. C. LUTEUM Phil. in Linnæa, xxxiii. 250. *Solenomelus Chamælum* Baker. — Rhizome short-creeping; root-fibres long and wiry. Leaves firm, terete, pubescent, 2–3 in. long. Peduncle very short, 1-headed. Spathe 1–1½ in. long; outer valves oblong-lanceolate, green, with a scarioso edge; pedicel very short. Perianth yellow, 1½–2 in. long; segments oblong-lanceolate, as long as the filiform tube. Anthers as long as the column of filaments.

Hab. Chili; Cordilleras of the province of Santiago, *Philippi*!

2. C. ANDINUM Benth. Gen. Plant. iii. 700. *Sisyrrinchium frigidum* Popp. *S. andinum* Phil. *Susarium andinum* Phil. *Solenomelus andinum* Baker. — Rhizome very short; root-fibres long and wiry. Produced basal leaf 1, linear, overtopping the stem. Stem 1–4 in. long, subterete, bearing several heads in a terminal cluster, which is subtended by two large rigid ovate or lanceolate bracts. Spathes 1–1½ in. long; outer valves rigid; pedicels short. Perianth yellow; segments oblong, ½–¾ in. long, longer than the tube. Anthers longer than the column of filaments.

Hab. Andes of Chili.

### 85. SOLENOMELUS Miers.

*Perianth* with a subcylindrical tube, and equal spreading oblong segments. *Stamens* inserted at the throat of the tube; filaments entirely connate; anthers oblong, subsessile at the throat of the column, erect. *Ovary* cylindrical, 3-celled; ovules many, superposed; style simple, subulate; stigma capitate. *Capsule* oblong, loculicidally 3-valved. *Seeds* minute.—Habit of *Sisyrrinchium*, from which it differs by its perianth-tube and unbranched style.

1. S. CHILENSIS Miers in Trans. Linn. Soc. xix. 95, t. 8. *Sisyrrinchium pedunculatum* Gillies in Bot. Mag. t. 2965. *S. longistylum* Lemaire in Flore des Serres, t. 255. *Cruckshankia graminea* Miers. — Rhizome short. Leaves linear, grass-like, ½–1 ft. long. Stem subterete, 1–1½ ft. long, bearing 1–3 long-peduncled clusters and as many reduced leaves. Spathes ventricose, an inch long; outer valves oblong, green, with a white membranous edge; pedicels very short. Perianth yellow, an inch long; segments oblanceolate-oblong, as long as the slender tube. Anthers much shorter than the pubescent column of filaments. *Capsule* oblong-trigonous, not exerted from the spathe.

Hab. Chili; about Valparaiso and Santiago. Native name, "Maisillo." *S. punctatus* Miers is a form with narrow leaves, and perianth-segments dotted with red near the base.

2. S. LECHLERI Baker. *Lechlera Sisyrrinchium* Griseb. *Sisyrrinchium Segethi* Philippi. — Tufts densely crowded on a very short rhizome. Leaves many, firm, subterete, erect, ¼–1 ft. long. Peduncle 1-headed, terete, as long as the leaves. Spathe 1–1½ in.

long; outer valves rigid, lanceolate, green with a narrow white edge; pedicel short; ovary cylindrical,  $\frac{1}{2}$  in. long. Perianth blue; segments oblong, twice as long as the cylindrical tube. Anthers oblong,  $\frac{1}{2}$  in. long, half as long as the cylindrical column of filaments.

Hab. Andes of Chili, *Lechler* 2966! *Philippi*!

### 36. ARISTEA *Ker.*

*Perianth* with a short cylindrical tube and subequal oblong spreading segments, twisting up spirally after flowering. *Stamens* inserted at the throat of the perianth-tube; filaments short, free, filiform; anthers erect, linear-oblong. *Ovary* oblong or cylindrical, 3-celled; ovules many, superposed; style filiform, with three small obovate branches, stigmatose round the edge. *Capsule* oblong or cylindrical, acutely or obtusely angled, loculicidally 3-valved. *Seeds* small, globose or angled by pressure. *Herbs* with leaves in a distichous basal rosette, rarely undershrubs, with alternate leaves on a woody stem. *Peduncles* terete or flattened. *Flowers* clustered, fugitive, usually blue; spathe-valves small; clusters forming spikes, racemes or corymbose panicles.

Subgenus ARISTEA PROPER. — Herbaceous. Leaves condensed into a radical rosette.

Capsule oblong, with rounded sides.	
Peduncle flattened and winged	Sp. 1-9.
Peduncle subterete.	Sp. 10-14.
Capsule oblong, acutely angled.	
Leaves subterete	Sp. 15-17.
Leaves flat	Sp. 18-22.
Capsule cylindrical	Sp. 23-25.

Subgenus NIVENIA (Vent.) — Shrubs. Leaves not condensed into a rosette . . . Sp. 26-27.

1. A. ANCEPS *Ecklon*; *Klatt* in *Linnæa*, xxxiv. 353.—Leaves many, rigid, linear, 4-8 in. long. Peduncles  $\frac{1}{2}$ -1 ft. long, leafless, equally flattened throughout, ending in a single head, overtopped by linear bract and formed by one or few clusters. Spathe-valves entirely membranous, brown,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, slightly lacerated. Perianth-segments oblong,  $\frac{1}{2}$  in. long. Capsule oblong, obtusely nearly sessile, torulose,  $\frac{1}{2}$  in. long.

Hab. Cape Colony (eastern provinces), Natal, Transvaal and mountains of Abyssinia. Dr. Pax in *Engler's Hochgeb. Flora, Trop. Africa*, p. 173, separates the Abyssinian plant and calls it *A. abyssinica*.

2. A. ALATA *Baker* in *Journ. Linn. Soc.* xxi. 405.—Leaves above a foot long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem 1 $\frac{1}{2}$ -2 ft. long, flattened and broadly winged throughout, bearing 2 reduced leaves and a stalked side cluster beside the end one. Outer valves of spathe  $\frac{1}{4}$ - $\frac{3}{8}$  in. long, green with a membranous edge; inner not lacerated. Perianth-segments small. Capsule oblong, obtusely angled,  $\frac{1}{2}$  in. long; pedicel as long as capsule.

Hab. Mountains of Masai-country, alt. 6000—8000 ft., *Joseph Thomson!* A plant gathered by Mr. H. H. Johnston on Mount Kilimanjaro is probably a dwarfed form of the same species.

2. *A. CLADOCARPA* Baker in Journ. Linn. Soc. xx. 268.—Leaves linear, not very rigid,  $\frac{1}{2}$ –1 ft. long,  $\frac{1}{4}$  in. broad. Peduncle as long as the leaves, flattened and winged, bearing a large leaf from the middle. Clusters few, forming a very lax, usually simple spike with a flat rachis; outer bracts ovate,  $\frac{1}{8}$  in. long, green with a brown membranous edge; inner not lacerated. Perianth-segments oblong,  $\frac{1}{4}$  in. long. Capsule oblong-cylindrical, obtusely angled,  $\frac{1}{2}$  in. long, with a very short pedicel.

Hab. Central Madagascar. Gathered by Baron, Parker, Humblot and Hildebrandt 3709.

3. *A. ANGOLENSIS* Baker in Trans. Linn. Soc. ser. 2, i. 270.—Leaves linear, not very rigid, 6–9 in. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Peduncle simple, flattened, longer than the leaves, bearing 3–4 reduced leaves. Inflorescence  $\frac{1}{2}$ –1 ft. long, the upper clusters sessile, the lower terminal on short ascending peduncles; outer bracts ovate or oblong,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, green with a narrow membranous edge; inner not lacerated. Perianth-segments  $\frac{1}{2}$  in. long. Capsule oblong, obtusely angled, sessile,  $\frac{1}{4}$  in. long.

Hab. Angola; province of Huilla, alt. 4999—5000 ft., *Welwitsch* 1550!

4. *A. TORULOSA* Klatt. Erganz. 48.—Leaves linear, moderately rigid, 3–12 in. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Peduncle  $1\frac{1}{2}$ –2 ft. long, winged below the summit and furnished with several reduced leaves. Clusters many, forming a long narrow panicle, the upper sessile, the lower at the end or side or in the axis of short ascending peduncles; rachises subterete, slender; outer bracts ovate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, green with a broad white membranous border, inner more or less lacerated. Perianth-segments  $\frac{1}{3}$  in. long. Capsule small, oblong; pedicel very short.

Hab. Kaffraria, Natal and the Transvaal. First collected by Drège and Krauss.

5. *A. SCHIZOLENA* Harv.; Baker in Journ. Bot. 1876, 267.—Leaves ensiform, moderately firm, a foot or more long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Peduncle  $1\frac{1}{2}$ –2 ft. long, flattened and winged in the lower half, bearing several reduced leaves. Clusters several forming a lax spike 3–6 in. long with a subterete flexuose rachis; outer bracts ovate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, green with a membranous edge; inner not lacerated. Perianth-segments  $\frac{1}{2}$  in. long. Capsule oblong, subsessile, obtusely angled,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; Graham's Town, northward to Natal.

6. *A. COMPRESSA* Buching. in. Krauss, Pl. Natal, Exsic. No. 358.—Leaves linear, moderately firm,  $\frac{1}{2}$ –1 ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Peduncle  $1$ – $1\frac{1}{2}$  ft. long, compressed and winged throughout, bearing 3–4 reduced leaves. Inflorescence rarely a spike, usually a small rhomboid panicle; lateral cluster usually sessile; outer bracts ovate,  $\frac{1}{4}$  in. long, green with a membranous edge; inner not lacerated. Perianth  $\frac{1}{4}$  in. long. Capsule oblong, subsessile, obtusely angled,  $\frac{1}{4}$  in. long.

Hab. Natal. Gathered by Krauss, Gerrard and Sanderson.

7. *A. MAJUBENSIS* Baker.—Basal leaves 3-4, rigid, linear, 3-4 in. long. Stem slender, obscurely ancipitous, 6-8 in. long, bearing 1-2 rudimentary leaves. Panicle 1-2 in. long, composed of 3-4 clusters on short ascending peduncles; outer spathe-valve oblong,  $\frac{1}{3}$  in. long, with a brown centre and membranous edge. Perianth bright blue,  $\frac{1}{3}$  in. long. Capsule small, oblong, obtusely angled, subsessile.

Hab. Natal; pass on the summit of Imquela mountain, Majuba, *Scott-Elliott* 1638!

8. *A. PLATYCAULIS* Baker in *Gard. Chron.* 1887, i. 732.—Leaves firm, ensiform, a foot long, an inch broad. Peduncle as long as the leaves, flattened and broadly winged. Inflorescence a deltoid panicle 8-9 in. long; main axis flattened,  $\frac{1}{2}$  in. diam.; branches ascending; clusters dense, lateral sessile; bracts small, lanceolate. Perianth  $\frac{1}{2}$  in. long. Capsule small, oblong, obtusely angled.

Hab. Cape Colony; coast of Pondoland. Described from a plant flowered by Mr. J. H. Tillet, at Sprowston near Norwich, in April, 1887.

9. *A. LASTII* Baker.—Root-leaves linear,  $\frac{1}{2}$ -1 ft. long,  $\frac{1}{3}$ - $\frac{1}{4}$  in. broad, not rigid. Peduncle a foot long below the panicle, flattened and broadly winged throughout, with a large leaf above the middle. Clusters 3-4, all on long flat peduncles, forming a lax corymb. Outer bracts ovate,  $\frac{1}{3}$  in. long, green with a brown membranous edge; inner not lacerated. Perianth bright blue,  $\frac{1}{2}$  in. long. Capsule oblong, obtusely angled, subsessile,  $\frac{1}{3}$  in. long.

Hab. East Tropical Africa; Namuli Makua country. Collected by Mr. J. T. Last in 1887.

10. *A. ANGUSTIFOLIA* Baker in *Journ. Linn. Soc.* xx. 269.—Leaves many, subterete, rigid, a foot or more long,  $\frac{1}{2}$  lin. diam. Peduncle slender, subterete, longer than the leaves. Clusters 5-6, forming a very lax spike; outer bracts ovate,  $\frac{1}{4}$  in. long, green with a broad membranous edge; inner not lacerated. Perianth-segments,  $\frac{1}{3}$  in. long. Capsule oblong, obtusely angled,  $\frac{1}{2}$  in. long, subsessile.

Hab. Central Madagascar, *Baron* 1805! First gathered in 1882.

11. *A. MADAGASCARIENSIS* Baker in *Journ. Bot.* 1876, 267.—Leaves rigid, narrow linear, 4-6 in. long. Peduncle slender, terete,  $\frac{1}{2}$ -1 ft. long, bearing 1-2 reduced leaves. Clusters many, forming a lax simple spike 3-6 in. long, each subtended by an ovate or lanceolate green bract; spathe-valves small, oblong, not lacerated; pedicels very short. Perianth-segments  $\frac{1}{2}$  in. long. Capsule oblong, obtusely angled, subsessile,  $\frac{1}{4}$ - $\frac{1}{3}$  in. long.

Hab. Mountains of Central Madagascar. First gathered by Bojer in 1823, *Hildebrandt* 3844!

12. *A. KITCHINGII* Baker in *Journ. Linn. Soc.* xx. 269.—Leaves linear, very rigid,  $1\frac{1}{2}$ -2 ft. long,  $\frac{1}{3}$  in. broad. Peduncle subterete, shorter than the leaves, bearing 3-4 reduced leaves. Inflorescence sometimes above a foot long, consisting of numerous spaced-out clusters forming a simple spike, or with a few short ascending



branches with a cluster at the end. Flowers 5-6 to a cluster; bracts ovate,  $\frac{1}{4}$  in. long, green with a brown membranous edge; inner not lacerated. Perianth-segments  $\frac{1}{2}$  in. long. Capsule oblong, obtusely angled,  $\frac{1}{2}$  in. long; pedicel very short.

Hab. Central Madagascar. First gathered by Mr. L. Kitching in 1880.

13. *A. FLEXICAULIS* Baker.—Leaves linear, moderately firm, a foot or more long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Peduncle as long as the leaves, subterete towards the tip, the base not seen. Inflorescence a rhomboid panicle 6-9 in. long, with a flexuose subterete axis and several ascending branches; lateral clusters sessile; outer bracts  $\frac{1}{4}$  in. long, ovate, green, with a membranous edge; inner not lacerated. Perianth  $\frac{1}{4}$  in. long. Capsule subglobose, nearly sessile,  $\frac{1}{4}$  in. long.

Hab. Transvaal. Gathered by Mr. C. Mudd in 1884, when collecting for Messrs. Veitch.

14. *A. COOPERI* Baker.—Leaves firm, narrow linear,  $\frac{1}{2}$  ft. long,  $\frac{1}{12}$  in. broad. Stem slender, subterete, longer than the leaves, bearing 1-2 reduced leaves. Clusters few, laxly corymbose; outer bracts ovate,  $\frac{1}{4}$  in. long, green with a narrow membranous tip; inner not lacerated. Perianth  $\frac{1}{4}$  in. long. Capsule small, oblong, obtusely angled, subsessile.

Hab. Orange Free State, *Cooper* 3212!

15. *A. ZEYHERI* Baker.—Leaves slender, rigid, subterete, 4-6 in. long. Peduncle slender, terete, 6-9 in. long, bearing 1-2 reduced leaves. Clusters 1-2, the side one sessile; outer bract ovate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, green with a narrow membranous tip; inner lacerated. Perianth as long as the ovary. Capsule not seen. Ovary cylindrical, shortly pedicellate,  $\frac{1}{2}$  in. long.

Hab. Cape Colony, *Zeyher* 4050! May be *A. juncea* Ecklon, which has not been described.

16. *A. JUNCIFOLIA* Baker in Journ. Bot. 1876, 267.—Leaves many, very rigid, linear-subulate,  $\frac{1}{2}$  ft. long. Peduncle subterete, 6-9 in. long, bearing 2-3 rigid reduced leaves. Clusters forming a short panicle, the lower on short ascending pedicels, the upper sessile, subtended by large, firm, green, oblong-navicular bracts  $\frac{3}{4}$ -1 $\frac{1}{2}$  in. long; outer spathe-valves oblong,  $\frac{1}{2}$  in. long, green with a brown scarioso tip; inner not lacerated. Perianth  $\frac{1}{2}$  in. long. Capsule oblong, acutely angled,  $\frac{1}{2}$  in. long, with a peduncle as long as itself.

Hab. Cape Colony; south-western provinces. Collected lately by Bolus (4626) on Mount Muizenberg, and previously by Dr. Thom and Admiral Grey.

17. *A. RACEMOSA* Baker in Journ. Bot. 1876, 267. *Witsenia spicata* E. Meyer.—Leaves slender, rigid, subulate, a foot or more long. Peduncle subterete, a foot or more long, bearing 2-3 reduced leaves. Clusters few, the lower at the end of short ascending peduncles, the upper sessile; outer bracts oblong,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, green with a membranous edge; inner not lacerated. Perianth  $\frac{1}{4}$  in. long. Capsule oblong, acutely angled,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; pedicel short.

Hab. Cape Colony; south-western provinces. Collected by Drège and Burchell.

18. *A. CYANEA* Soland. in Ait. Hort. Kew, i. 67; Andr. Bot. Rep. t. 10; Red. Lil. t. 462; Bot. Mag. t. 458. *A. eriophora* Pers. *Ixia africana* Linn. *Moræa africana* Murr. *M. Aristeia* Lam.—Leaves linear, moderately rigid, 3–6 in. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Peduncle subterete, 2–6 in. long, bearing a reduced leaf at the middle. Clusters 1–4, laxly corymbose; outer bracts ovate,  $\frac{1}{2}$  in. long, with a firm centre and fimbriated membranous edge; inner much lacerated. Perianth  $\frac{1}{2}$  in. long. Capsule oblong, acutely angled,  $\frac{1}{2}$  in. long; pedicel short.

Hab. Cape Colony; south-western provinces. The commonest species of the genus.

19. *A. OLIGOCEPHALA* Baker.—Leaves firm, linear,  $\frac{1}{2}$  ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Peduncle subterete, 6–9 in. long, bearing 1–2 reduced leaves. Clusters 1–4 on long ascending naked peduncles; outer bracts ovate,  $\frac{1}{2}$  in. long, green with a membranous edge; inner slightly lacerated at the tip. Perianth  $\frac{1}{2}$  in. long. Capsule oblong, acutely angled,  $\frac{1}{2}$  in. long; pedicel short.

Hab. Cape Colony; southern provinces, Zeyher 4049! Fappe!

20. *A. DICHOTOMA* Ker, Gen. Irid. 13. *A. intermedia* Ecklon. *A. glauca* Klatt. *Moræa dichotoma* Thunb.—Leaves linear, rigid, 6–9 in. long,  $\frac{1}{2}$  in. broad. Peduncle subterete, about as long as the leaves, bearing few or several clusters on long ascending peduncles, rarely simple; outer bracts ovate-lanceolate,  $\frac{1}{2}$  in. long, green with a narrow white edge; inner white, membranous, slightly lacerated. Perianth  $\frac{1}{2}$  in. long. Capsule oblong, acutely angled,  $\frac{1}{2}$  in. long; pedicel short.

Hab. Cape Colony; southern provinces; frequent. *A. bracteata* Zeyher, is a dwarf monocephalous variety with larger flowers than in the type.

21. *A. CAPITATA* Ker in Bot. Mag. t. 605. *A. cærulea* Vahl. *A. bracteata* and *spicata* Pers. *A. major* Andr. Bot. Rep. t. 160. *Gladiolus capitatus* Linn. *Moræa cærulea* Thunb.—Leaves linear, rigid, 2–4 ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem stout, subterete, 3–4 ft. long, inflorescence included, bearing several reduced leaves. Clusters many, forming a narrow panicle, sessile or the lowest shortly peduncled; outer bracts ovate,  $\frac{1}{2}$  in. long, green with a membranous edge; inner not lacerated. Perianth  $\frac{1}{2}$  in. long. Capsule oblong, very rigid, acutely angled,  $\frac{3}{4}$ –1 in. long; pedicel short.

Hab. Cape Colony; south-western provinces. The finest of all the Cape species.

22. *A. PANICULATA* Baker.—Leaves like those of *A. capitata*. Stem stout, terete, 3–4 ft. long, inflorescence included; clusters many, arranged in a lax panicle a foot long, the side ones all peduncled; outer bracts ovate,  $\frac{1}{2}$  in. long, green with a membranous tip; inner not lacerated. Perianth  $\frac{1}{2}$  in. long. Ovary clavate, shortly stalked. Capsule not seen.

Hab. Cape Colony; province of Vitenhage, Macowan 2077!

23. *A. ECKLONI* Baker in Journ. Linn. Soc. xvi. 112. *A. dichotoma* Ecklon non Ker.—Leaves linear, not rigid, 6–18 in. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem flattened throughout, 1–1 $\frac{1}{2}$  ft. long, bearing several reduced leaves. Clusters many, forming a lax corymbose

panicle with a flattened rachis; outer bracts lanceolate,  $\frac{1}{4}$  in. long, green with a broad membranous edge. Perianth-limb blue,  $\frac{1}{3}$  in. long. Capsule cylindrical,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long; pedicel  $\frac{1}{4}$ – $\frac{1}{2}$  in. long.

Hab. Cape Colony; eastern provinces, Kaffraria and Natal. *Wredovia pulchra* Ecklon, Topog. Verz. 16, which has not been described and which I have not seen, is said to have cinnabar-red flowers and to be intermediate between *Sisyrrinchium* (i. e., *Aristea pusilla* and *spiralis*) and typical *Aristea*. It grows in the province of Caledon, on hills between Hemmel and Aarde.

24. A. SPIRALIS Ker in Konig & Sims, Ann. i. 236. *Moræa spiralis* Linn. fil.; Ker. in Bot. Mag. t. 2520. *Sisyrrinchium spirale* and *melaleucum* Ecklon.—Leaves linear, moderately firm, 6–9 in. long,  $\frac{1}{2}$ – $\frac{1}{4}$  in. broad. Stem acutely angled throughout, 1–1 $\frac{1}{2}$  ft. long, bearing several reduced leaves. Clusters few, forming a very lax simple spike, each subtended by a large ovate-lanceolate green bract, by which the inner bracts are hidden. Perianth-segments oblong, whitish,  $\frac{1}{2}$ – $\frac{1}{4}$  in. long, the outer with a greenish-black keel. Capsule cylindrical, 2–2 $\frac{1}{2}$  in. long; pedicel  $\frac{1}{2}$ – $\frac{1}{4}$  in. long.

Hab. Cape Colony; south-western provinces.

25. A. PUSILLA Ker in Konig & Sims, Ann. i. 236; Bot. Mag t. 1231. *Moræa pusilla* Thunb. *Sisyrrinchium pusillum* Ecklon.—Leaves rigid, linear, 3–6 in. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem  $\frac{1}{2}$ –1 ft. long, bearing 1–3 reduced leaves. Clusters few, arranged in a simple spike, each subtended by a large green lanceolate bract, by which the inner bracts are hidden. Perianth-limb blue,  $\frac{1}{2}$ – $\frac{1}{4}$  in. long. Capsule cylindrical, an inch long; pedicel short.

Hab. Cape Colony; southern provinces.

#### Subgenus NIVENIA.

26. A. FRUTICOSA Pers. Sym. i. 41. *Ixia fruticosa* Thunb. *Witsenia fruticosa* Ker. *W. capitata* Klatt. *Nivenia fruticosa* Baker.—A dwarf much-branched undershrub, with the upper part of the short branches covered with rigid distichous linear erecto-patent leaves 1 $\frac{1}{2}$ –2 in. long. Flowers in a single oblong, nearly sessile cluster; outer spathe-valves rigid, lanceolate, nearly an inch long. Perianth blue, with a cylindrical tube  $\frac{1}{2}$  in. long and oblong segments shorter than the tube. Capsule not seen.

Hab. Cape Colony; south-western provinces.

27. A. CORYMBOSA Benth. Gen. Plant. iii. 701. *Witsenia corymbosa* Ker in Bot. Mag. t. 895; Red. Lil. t. 453; Lodd. Bot. Cab. t. 254; Paxt. Mag. iii. 269. *Nivenia corymbosa* Baker. *N. stylosa* Salisb. *N. binata* Klatt.—Stems elongated, shrubby, much branched; branches flattened. Leaves linear, rigid, erecto-patent, 4–6 in. long. Clusters many, forming a dense corymbose panicle with a flattened peduncle; spathes oblong,  $\frac{1}{4}$  in. long; outer bracts rigid, inner membranous. Perianth blue, with a cylindrical tube exerted from the spathe and oblong segments  $\frac{1}{4}$  in. long. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western provinces.

## 37. WITSENIA Thunb.

*Perianth* with a long funnel-shaped tube and short erect ovate-lanceolate segments, pilose on the outside. *Stamens* inserted at the throat of the tube; filaments short, flattened; anthers lanceolate. *Ovary* oblong, crowned by a glandular ring at the base of the long filiform style, which is minutely tricuspidate at the stigmatose apex. *Capsule* small, turbinate, coriaceous, loculicidally 3-valved. *Seeds* few, angular.

1. W. MAURA Thunb. Diss. Nov. Gen. ii. 34, with figure; Red. Lil. t. 245 and 463; Bot. Reg. t. 5; Flore des Serres, t. 72; Paxt. Mag. viii. 221. *W. tomentosa* Salisb. *Antholyza maura* Linn. *Ixia disticha* Lam.—Stems woody, erect, 2-4 ft. long; branches flattened, closely leaty to the top. Leaves distichous, rigid, ensiform,  $\frac{1}{2}$  ft. long. Clusters crowded in oblong heads; spathes 1-flowered,  $1\frac{1}{2}$  in. long; valves rigid, acute, outer shorter. *Perianth* not fugitive; tube 2 in. long,  $\frac{1}{4}$  in. diam. at the throat, brownish towards the base, blue-black towards the top; segments  $\frac{1}{2}$  in. long. *Capsule* bright brown,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western provinces. A most distinct and curious plant.

## 38. KLATTIA Baker.

*Perianth* with a short cylindrical tube and very long subequal very narrow unguiculate segments. *Stamens* inserted at the throat of the tube; filaments long, free, filiform; anthers linear. *Ovary* turbinate, 3-celled; ovules few in a cell; style long, filiform, minutely tricuspidate at the stigmatose apex. *Capsule* turbinate, loculicidally 3-valved. *Seeds* one or few in a cell, angled or compressed.

1. K. PARTITA Baker in Journ. Linn. Soc. xvi. 109. *Witsenia partita* Ker.—Stems woody, branched, 1-2 ft. long; branches flattened, closely leaty to the tip. Leaves rigid, linear, erectopatent, 6-9 in. long. Clusters 1-2-flowered, forming dense oblong terminal heads. Spathe-valves rigid, lanceolate,  $\frac{3}{4}$ -1 in. long. *Perianth* bright blue; tube  $\frac{1}{4}$  in. long; segments 2-2 $\frac{1}{2}$  in. long, with a lanceolate blade  $\frac{1}{2}$  in. long and a long filiform claw. *Stamens* and style reaching nearly to the tip of the perianth-segments. *Capsule*  $\frac{1}{4}$  in. long.

Hab. Cape Colony; south-western provinces.

## 39. SCHIZOSTYLIS Backh. et Harv.

*Perianth* hypocrateriform, with a cylindrical tube and campanulate limb with six subequal oblong segments. *Stamens* inserted at the throat of the tube; filaments filiform; anthers linear, basifixed. *Ovary* clavate, 3-celled; ovules many, superposed; style subulate, not longer than the perianth-tube; branches long, spreading, subulate. *Capsule* obovoid-oblong, obtuse, loculicidally 3-

valved. *Seeds* small, angled.—Differs from *Hesperantha*, as from all the other *Ixia*, by its non-bulbous rootstock.

1. *S. COCCINEA* Backh. et Harv. in Bot. Mag. t. 5422.—Root-fibres densely tufted, some rather fleshy. Basal-leaves 2-3, linear, grass-like, 1-1½ ft. long. Stem slender, terete, 1-2 ft. long, bearing 2-3 reduced leaves. Flowers 6-12 in a lax or dense distichous spike; outer spathe-valve oblong-navicular, green, an inch or more long; inner shorter. Perianth-tube slender, an inch long; segments oblong and bright red, an inch long. Anthers ½ in. long, as long as the filaments. Style-branches ¾ in. long.

Hab. Cape Colony; eastern provinces, from Kaffraria northward to Natal and the Transvaal.

2. *S. PAUCIFLORA* Klatt in Linnæa, xxxv. 380. *S. ixioides* Harv.—Habit of *S. coccinea*, but spathe shorter, perianth-tube twice as long as the spathe, and limb shorter than the tube.

Hab. Orange Free State, Natal and the Transvaal.

40. HESPERANTHA Ker.

*Perianth* rotate, with a cylindrical tube and 6 subequal oblong spreading subequal segments. *Stamens* inserted at the throat of the tube; filaments filiform; anthers lanceolate, basifixed. *Ovary* 3-celled; ovules many, superposed; style not longer than the perianth-tube, with 3 long subulate branches. *Capsule* small, turbinate, loculicidally 3-valved. *Seeds* small, globose or angled by pressure.—*Rootstock* a small corm, with a flat base. *Leaves* few, narrow, distichous. *Flowers* small, various in colour, arranged in a distichous spike; spathe-valves herbaceous, generally about as long as the perianth-tube. Very near to *Geissorhiza*.

Flowers erecto-patent. Perianth-tube straight.

Flowers small (¼-½ in. diam.) . . . . . Sp. 1-16.

Flowers larger . . . . . Sp. 17-23.

Perianth-tube curved . . . . . Sp. 24-26.

1. *H. ALPINA* Benth. Gen. Plant. iii. 703. *Geissorhiza alpina* Hook. fil.—Corm small, globose. Basal leaves 2-3, linear, erect, glabrous, 3-4 in. long. Stem simple, ½-1 ft. long, bearing 1-2 reduced leaves. Flowers few, in a lax spike; outer spathe-valve oblong, green, ½-¾ in. long. Perianth-tube straight, ½-¾ in. long; segments oblong, as long as the tube, the inner white, the outer claret-red outside. Style-branches ¼ in. long.

Hab. Cameroon mountains, Guinea, alt. 8000-10,000 ft. Gathered by Mann in 1862 and H. H. Johnston in 1886.

2. *H. PETITIANA* Baker in Journ. Linn. Soc. xvi. 93. *Ixia Petitiانا* A. Rich.—Corm small, globose. Basal leaves 2, erect, linear, glabrous, 6-9 in. long. Stem simple, a foot long, with a long sheathing leaf. Flowers few, in a lax spike; outer spathe-valve oblong, pale green, ½-¾ in. long. Perianth-tube straight, ½ in. long; segments oblong, ½ in. long; the inner white, the outer

tinged with claret-red outside. Anthers  $\frac{1}{4}$  in. long. Style-branches  $\frac{1}{4}$  in. long.

Hab. Mountains of Abyssinia. *H. uniflora* Hochst. is a dwarf variety with a single erect terminal flower.

3. *H. CINNAMOMEA* Ker in König et Sims, Ann. i. 225; Bot. Mag. t. 1054. *Ixia cinnamomea* Linn. fil.—Corm conical,  $\frac{1}{4}$ – $\frac{1}{2}$  in. diam.; outer tunics brown, membranous. Basal leaves 2, lanceolate, falcate, spreading, glabrous, usually crisped, 2–3 in. long. Stem slender, simple, terete, 3–9 in. long, bearing 2–3 small sheathing leaves. Flowers 3–12 in a short secund spike; outer spathe-valve green, oblong, obtuse,  $\frac{1}{4}$  in. long. Perianth-tube straight, equalling or a little exceeding the spathe; segments linear-oblong, spreading,  $\frac{1}{2}$  in. long, the outer claret-red, the inner white. Anthers  $\frac{1}{4}$  in. long. Style-branches shorter than the stamens.

Hab. Cape Colony; south-western provinces.

4. *H. MONTANA* Klatt, Ergänz. 57.—Leaves lanceolate, obtuse, strongly ribbed, the lower spreading,  $1\frac{1}{2}$  in. long, the upper sheathing the stem. Stems simple or forked, 3–4 in. long. Flowers 1–3; outer spathe-valve ovate, acute,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth with a straight tube  $\frac{1}{2}$ – $\frac{3}{4}$  in. long and ovate acute segments of the same length, the inner white, the outer purplish.

Hab. Cape Colony! province of Clanwilliam, *Dr. Meyer*.

5. *H. FALCATA* Ker in König & Sims, Ann. i. 225. *Ixia falcata* Linn. fil.; Jacq. Ic. t. 276; Bot. Mag. t. 566. *I. cinnamomea* Andr. Bot. Rep. t. 44.—Corm conic,  $\frac{1}{4}$ – $\frac{1}{2}$  in. diam.; tunics dark brown, lacerated at the base. Basal leaves 2–4, lanceolate, glabrous, falcate 2–3 in. long. Stems  $\frac{1}{2}$ –1 ft. long, simple or forked, with 1–2 small sheathing leaves. Flowers 2–10 in a lax distichous spike; outer spathe-valve oblong,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, green with a narrow brown edge. Perianth-tube straight, as long as the spathe; segments oblong, spreading  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, the inner white, the outer claret-red. Anthers  $\frac{1}{4}$  in. long. Style-branches  $\frac{1}{4}$  in. long.

Hab. Cape Colony; south-western provinces.

6. *H. FLEXUOSA* Klatt, Ergänz. 60. — Corm globose; outer tunics castaneous, cuspidate at the top. Leaves narrow linear, superposed,  $\frac{1}{2}$  lin. broad. Stem flexuose, forked, 9–10 in. long. Flowers in a short flexuose spike; outer spathe-valve oblong,  $\frac{1}{2}$  in. long, green with a narrow brown edge. Perianth-tube cylindrical, reddish,  $\frac{1}{2}$  in. long; segments ovate, acute, the outer reddish, the inner white.

Hab. Little Namaqualand, *Drège* 2639.

7. *H. GRAMINIFOLIA* D. Don in Sweet, Brit. Flow. Gard. edit. 2, 503. *H. pilosa* var. *nuda* Ker in Bot. Mag. t. 1255.—Corm small, globose, with crustaceous brown tunics. Leaves 3–5, linear, glabrous, 4–6 in. long,  $\frac{1}{2}$  in. broad, the upper reduced and sheathing the stem. Stem simple, rarely forked,  $\frac{1}{2}$ –1 ft. long. Flowers 2–6 in a lax distichous spike; outer spathe-valve oblong, green,  $\frac{1}{2}$  in. long. Perianth-tube straight, a little longer than the spathe;

segments oblong-lanceolate, spreading,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, the inner white, the outer reddish brown. Style-branches  $\frac{1}{4}$  in. long.

Hab. Cape Colony; south-western provinces.

8. *H. PILOSA* Ker in König et Sims, Ann. i. 225; Bot. Mag. t. 1475. *Leia pilosa* Linn. fil.—Corm globose,  $\frac{1}{4}$  in. diam.; outer tunics crustaceous, brown. Basal leaves 2, linear, erect, pilose, strongly ribbed, 3-6 in. long. Stem slender, erect, pilose, simple,  $\frac{1}{2}$ -1 ft. long, with a large sheathing leaf. Flowers 2-10 in a lax distichous spike; outer spathe-valve oblong, acute, green,  $\frac{1}{2}$  in. long. Perianth-tube straight, or in the lower flowers curved,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; segments oblong-lanceolate, as long as the tube, the inner white, the outer claret-red. Style-branches  $\frac{1}{4}$  in. long.

Hab. Cape Colony; south-western provinces.

9. *H. LUTEA* Benth. Gen. Plant. iii. 702. *Geissorhiza lutea* Ecklon.—Corm not seen. Basal leaves 3-4, linear, glabrous, 2-3 in. long, the inner one sheathing the base of the stem. Stem slender, simple or forked, 3-4 in. long. Flowers 3-6 in a lax distichous spike; outer spathe-valve oblong or oblong-lanceolate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, green with a scariose tip. Perianth-tube straight,  $\frac{1}{4}$  in. long; segments oblong,  $\frac{1}{3}$  in. long, yellow, the three outer claret-red on the back. Anthers  $\frac{1}{3}$  in. long. Style-branches overtopping the anthers.

Hab. Cape Colony; province of Caledon, Zeyher!

10. *H. NAMAQUENSIS* Baker.—Corm small, globose. Leaves 2-3, narrow linear, glabrous, 3-4 in. long. Stems slender, 3-4 in. long, simple or branched low down. Flowers about 6, in a lax distichous spike with a flexuose axis; outer spathe-valve green, lanceolate,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth with a straight cylindrical tube  $\frac{1}{4}$  in. long; segments white, oblong, as long as the tube. Stamens reaching to the tip of the segments.

Hab. Namaqualand, Scully 50!

11. *H. CUCULLATA* Klatt, Erganz. 59.—Corm oblong; outer tunics castaneous. Leaves 3, linear, glabrous, 2-3 in. long, the inner one sheathing the base of the stem. Stem erect, terete, 3-4 in. long. Flowers 3, crowded; outer spathe-valve ovate-oblong, green,  $\frac{1}{2}$  in. long. Perianth-tube straight,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; segments oblong-lanceolate, lilac, about as long as the tube.

Hab. Cape Colony! province of Clanwilliam, Dr. Meyer.

12. *H. GRACILIS* Baker.—Corm not seen. Basal leaves 3, narrow linear, erect, glabrous, 6-8 in. long. Stem very slender, shorter than the leaves, with a small sheathing leaf at the middle. Flowers 2, distant; outer spathe-valve oblong or oblong-lanceolate, green,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth-tube straight, shorter than the spathe; segments oblong, bright red,  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{3}$  in. long. Style branches  $\frac{1}{4}$  in. long.

Hab. Natal; base of perpendicular rocks at Isangwaan, Wood 923!

13. *H. FIBROSA* Baker.—Corm small, globose, with brown crustaceous tunics produced into long fibres above its neck. Produced

leaves 2-3, linear, 4-6 in. long, firm, with revolute edges, the uppermost sheathing the stem about its middle. Stem simple, terete, 6-9 in. long. Flowers 3-6 in a lax distichous spike; outer spathe-valve oblong, green,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth-tube straight, as long as the spathe; segments oblong, concolorous,  $\frac{1}{4}$  in. long. Anthers and style-branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western provinces, *Zeyher* 3960!

14. *H. LEUCANTHA* Baker.—Corm not seen. Leaves 3, linear, erect, glabrous, the longest 6-8 in. long. Stem simple, very slender,  $\frac{1}{2}$  ft. long. Flowers 3-4 in a short distichous spike; outer spathe-valve oblong, green,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth-tube straight, as long as the spathe; segments white, oblong,  $\frac{1}{3}$  in. long. Anthers  $\frac{1}{2}$  in. long. Style-branches nearly as long as the segments.

Hab. Natal; Oliver's Hoek pass, *Wood* 3437!

15. *H. MODESTA* Baker.—Corm not seen. Basal leaves 2, narrow linear, erect, glabrous, 2-3 in. long. Stem simple, very slender,  $\frac{1}{2}$  ft. long, with a sheathing leaf at the middle. Flowers 2-4, in a lax distichous spike; outer spathe-valve oblong, green,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth-tube straight, as long as the spathe; segments oblanceolate, pink,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Anthers  $\frac{1}{2}$  in. long. Style-branches  $\frac{1}{2}$  in. long.

Hab. Natal; Beevari river, *Wood* 3231!

16. *H. ERECTA* Benth. Gen. Plant. iii. 703. *Geissorhiza erecta* Baker.—Corm small, globose; tunics crustaceous, brown. Leaves 3, linear, superposed, glabrous, erect, 3-4 in. long. Stem slender, simple or forked, 6-8 in. long. Flowers 4-8, in a short erect distichous spike with a flexuose rachis; outer spathe-valve green, oblanceolate,  $\frac{1}{2}$  in. long. Perianth-tube straight, as long as the spathe; segments oblong, concolorous,  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{2}$  in. long. Style-branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; Namaqualand, north of the Olifants river, *Drege* 8468!

17. *H. HUMILIS* Baker in Journ. Bot. 1876, 239.—Corm globose, 1 in. diam., with many rigid brown tunics lacerated from the base. Basal leaves 3-4, spreading, linear-oblong, glabrous, 1-2 in. long,  $\frac{1}{2}$  in. broad. Stem scarcely any. Flowers 1-2; outer spathe-valve ovate, green, firm, broad, above  $\frac{1}{2}$  in. long. Perianth-tube straight, slender,  $\frac{1}{2}$  in. long; segments obovate, as long as the tube. Style-branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; karoo region, on the Roggeveld, *Burchell* 1320!

18. *H. WOODII* Baker.—Corm not seen. Basal leaves 2, linear, glabrous, a foot long. Stem slender,  $1\frac{1}{2}$  ft. long, bearing two long-sheathing leaves. Flowers 3-6, in a very lax distichous spike; outer spathe-valve green, lanceolate, an inch long. Perianth with a straight tube an inch long and oblong bright mauve-purple segments nearly as long. Anthers and style-branches  $\frac{1}{2}$  in. long.

<sup>\*</sup>Hab. Mountains of Natal, alt. 3500 ft., *Wood* 1868!

19. *H. PULCHRA* Baker.—Corm not seen. Leaves 3-4, super-



posed, narrow linear, firm, glabrous, strongly ribbed,  $\frac{1}{2}$ -1 ft. long, all with long sheaths. Stem simple,  $1\frac{1}{2}$ -2 ft. long. Flowers several, in a lax distichous spike; outer spathe-valve oblong-lanceolate, pale green,  $1-1\frac{1}{2}$  in. long. Perianth with a straight tube  $\frac{3}{4}$ -1 in. long and oblong bright pink segments  $\frac{3}{4}$  in. long. Anthers  $\frac{1}{2}$  in. long. Style-branches  $\frac{1}{2}$  in. long.

Hab. Mountains of Transkeian Kaffraria, alt. 2500-3000 ft., *Rev. R. Baur* 159!

20. *H. BAURII* Baker in Journ. Bot. 1876. 182. *H. rubella* Baker. *H. disticha* Klatt.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics crustaceous, dark brown. Produced leaves usually 3, superposed, linear, glabrous,  $\frac{1}{2}$ -1 ft. long. Stem slender, simple, 1-2 ft. long. Flowers many, in a lax distichous spike with a flexuose rachis; outer spathe-valve oblong, obtuse, green,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth with a straight tube  $\frac{1}{2}$  in. long and oblong bright pink segments of the same length. Anthers  $\frac{1}{4}$  in. long. Style-branches as long as the anthers.

Hab. Kaffraria, Orange Free State and Natal. First gathered by Drège.

21. *H. CANDIDA* Baker.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics brown, crustaceous. Leaves 3-4, linear, erect, grass-like, glabrous, the lower 6-9 in. long, the upper one small and sheathing. Stem slender, simple, 4-9 in. long. Flowers 1-3, laxly disposed; outer spathe-valve green, oblong-lanceolate,  $\frac{3}{4}$  in. long. Perianth-tube straight,  $\frac{1}{2}$  in. long; segments white, oblong, concolorous,  $\frac{3}{4}$  in. long. Anthers and style-branches  $\frac{1}{4}$  in. long.

Hab. Orange Free State, *Cooper* 746! An allied plant, gathered by Prof. McOwan on the Boschberg, has the outer segments tinged with claret-red on the back, and is very likely a distinct species.

22. *H. LACTEA* Baker.—Corm not seen. Leaves 3-4, linear, erect, superposed, all sheathing the stem, 4-8 in. long. Stem erect, simple, 1-2 ft. long. Flowers many, arranged in a distichous spike with a flexuose rachis; outer spathe-valve green, oblong or oblong-lanceolate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth-tube straight,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long; segments oblanceolate-oblong, white, concolorous,  $\frac{3}{8}$  in. long. Anthers and style-branches half as long as the segments.

Hab. Low hills of Natal, *Sanderson* 240! *Wood* 1118!

23. *H. LONGITUBA* Baker in Journ. Linn. Soc. xvi. 96. *Geissorhiza longituba* Klatt.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics crustaceous, black. Leaves generally 3, linear, not rigid, 6-9 in. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, the inner one sheathing the base of the stem. Stem slender, simple,  $\frac{1}{2}$ -2 ft. long. Flowers few, in a lax distichous spike; outer spathe-valve oblong-lanceolate, green,  $\frac{3}{4}$ -1 in. long. Perianth-tube straight, erecto-patent,  $1-1\frac{1}{2}$  in. long; segments oblong,  $\frac{3}{4}$  in. long, the inner white, the outer claret-red. Anthers and style-branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; central and eastern provinces. *H. acuta* Ker (*Ixia acuta* Licht.), from the Middle Roggeveld, differs, according to the description, by its second spike and acute perianth-segments.

24. *H. TYSONI* Baker.—Corm not seen. Leaves 2-4, narrow

linear, erect, glabrous,  $\frac{1}{2}$  ft. long. Stem slender,  $1\frac{1}{2}$  ft. long. Flowers 5-6 in a lax secund spike; spathe-valves oblong-lanceolate,  $\frac{1}{2}$  in. long. Perianth tube cylindrical, curved, as long as the spathe; segments oblong, whitish,  $\frac{1}{2}$  in. long. Stamens nearly reaching to the top of the segments.

Hab. Cape Colony; East Griqualand, Tyson 1580! Near *H. angusta*.

25. *H. ANGUSTA* Ker in König et Sims, Ann. i. 225. *H. virginica* Ker. *H. radiata*, var. *angusta* Ker. *Ixia angusta* Willd. *I. linearis* Jacq. Ic. t. 279, non Thunb.—Corm small, ovoid; tunics crustaceous, brown. Leaves 3-4, linear, glabrous, grass-like, the lower 4-6 in. long, the upper reduced and sheathing. Stems simple or forked,  $\frac{1}{2}$ -1 ft. long. Flowers few, in a lax distichous spike with a flexuose rachis; outer spathe-valve green, oblong,  $\frac{1}{4}$ - $\frac{1}{3}$  in. long. Perianth with a curved tube  $\frac{1}{4}$  in. long and oblong white reflexing segments  $\frac{1}{2}$  in. long. Anthers and style-branches  $\frac{1}{4}$  in. long.

Hab. Cape Colony; southern provinces and Namaqualand. *H. bulbifera* Baker in Journ. Bot. 1876, 182, from the cataracts of the Boschberg, which has bulbilla in the axils of the long flaccid leaves, is likely to be a variety of this species.

26. *H. RADIATA* Ker in König et Sims, Ann. i. 224. *Ixia radiata* Jacq. Ic. t. 280; Ker in Bot. Mag. t. 573; Red. Lil. t. 441. *I. fistulosa* Andr. Bot. Rep. t. 59. *Gladiolus recurvus* Thunb. *Ixia recurva* Vahl.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics thick, rigid, brown-black, lacerated from the base. Leaves 5-6, the lower narrow linear, glabrous, 4-6 in. long, the upper reduced and sheathing. Stem slender, simple,  $1-1\frac{1}{2}$  ft. long. Flowers few or many, in a lax secund spike; outer spathe-valve oblong-lanceolate, green,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth with a much-curved tube  $\frac{1}{2}$  in. long and oblong-lanceolate segments  $\frac{1}{3}$  in. long, the inner white, the outer claret-red. Anthers and style-branches  $\frac{1}{4}$  in. long.

Var. *CARICINA* Ker in Bot. Mag. t. 790. *H. caricina* Klatt. *H. setacea* Eckl.—Basal leaves subterete. Flowers smaller.

Hab. Cape Colony; principally in the south-western provinces, but extending northward to Natal, Wood 4056!

#### 41. GEISSORHIZA Ker.

*Perianth-tube* short, cylindrical; segments oblong, subequal, spreading. *Stamens* inserted at the throat of the perianth-tube; filaments short, free, filiform; anthers linear, basifixed. *Ovary* 3-celled; ovules many, superposed; style subulate, longer than the perianth-tube; branches spreading, subulate, shorter than in *Hesperantha*. *Capsule* obovate or oblong, rarely cylindrical, loculicidally 3-valved. *Seeds* small, globose or angled by pressure.—Rootstock, leaves and habit of *Hesperantha*, from which it differs mainly by its longer style, with shorter branches.

Perianth-tube shorter than the spathe.

Flowers small . . . . .	Sp. 1-11.
Flowers larger . . . . .	Sp. 12-20.

Perianth-tube as long or a little longer than  
the spathe . . . . . Sp. 21-27.  
Perianth-tube much longer than the spathe . . . . . Sp. 28-30.

1. *G. BOJERI* Baker in Journ. Bot. 1876. 239.—Corm globose,  $\frac{1}{3}$  in. diam; outer tunics finely fibrous, reticulated upwards. Produced leaves 3-4, superposed, narrow linear, glabrous, rigid, reaching 6-8 in. Stem simple, 1-2 ft. long. Flowers few, laxly spicate; outer spathe-valve oblong,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, green with a brown tip. Perianth-tube shorter than the spathe; segments oblong, pink,  $\frac{1}{3}$  in. long. Anthers  $\frac{1}{3}$  in. long. Style as long as the stamens, with short spreading branches above the anthers. Capsule cylindrical, an inch long.

Hab. Mountains of Central Madagascar. First gathered by Hilsenberg and Bojer in 1822. Differs from all the Cape species by its cylindrical capsules.

2. *G. HUMILIS* Ker in König et Sims, Ann. i. 223. (*G. setacea* Ker in Bot. Mag. t. 1255, excl. syn. *G. Brehmii* Eckl. *Ixia humilis* Thunb.—Corm globose,  $\frac{1}{4}$ - $\frac{1}{2}$  in. diam.; tunics brown, crustaceous. Leaves 3, linear-subulate, firm, glabrous, the lower 4-6 in. long, the upper sheathing the base of the stem. Flowers few, forming a lax spike with a flexuose axis; outer spathe-valve oblong, green to the tip,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth with a straight tube  $\frac{1}{3}$  in. long and oblong bright yellow segments  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Anthers  $\frac{1}{3}$  in. long. Style reaching to the top of the anthers, with spreading branches  $\frac{1}{3}$  in. long.

Var. *GRANDIFLORA* Baker.—More robust, with broader leaves and larger plain yellow flowers.

Var. *BICOLOR* Baker.—Outer perianth-segments broadly striped with red down the back.

Var. *G. JUNCEA* Link.—Basal leaves long and slender, terete. Stem longer, with 2 sheathing leaves. Flower plain yellow.

Hab. Cape Colony; south-western provinces.

3. *G. ORNITHOGALOIDES* Klatt in Lindbæ, xxxiv. 656. *G. ramuleoides* Ecklon.—Corm globose,  $\frac{1}{4}$ - $\frac{1}{2}$  in. diam.; tunics brown, crustaceous, bristly at the top. Basal leaves 2-3, subsetaceous or narrow linear, glabrous, not rigid, 2-4 in. long. Stems simple or forked, very slender, with a single short sheathing leaf; flowers solitary; outer spathe-valve oblong, green,  $\frac{1}{4}$  in. long. Perianth pale yellow (turning bluish when dried) with a straight tube  $\frac{1}{3}$  in. long and oblong segments  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Anthers reaching to the tip of the perianth. Style-branches very short.

Hab. Cape Colony; Caledon, Zeyher 3966!

4. *G. FLAVA* Klatt, Erganz. 58.—Corm globose, tunics squamose, lacerated from the base. Leaves erect, narrow linear, 1-nerved, those of the stem with a ventricose sheath. Stem erect, hairy, flexuose, branched, 3-4 in. long; branches 1-2-flowered; outer spathe-valve oblong, green,  $\frac{1}{4}$  in. long. Perianth yellow, with a cylindrical tube  $\frac{1}{3}$  in. long and obovate segments  $\frac{1}{4}$  in. long. Style overtopping the anthers.

Hab. Cape Colony; *Breutel* (Herb. Lubeck).

5. *G. PURPUREO-LUTEA* Baker in Journ. Bot. 1876, 238.—Corm ovoid,  $\frac{1}{3}$  in. diam.; tunics very thick, brown, lacerated from the base. Leaves 3, thick, linear, glabrous, strongly ribbed, the lower 2-3 in. long, the upper sheathing the base of the stem. Stems simple or forked from the base, glabrous, flexuose, 2-4 in. long; flowers 1-2 to a stem; outer spathe-valve oblong, green,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth with a straight purplish black tube  $\frac{1}{8}$  in. long, a purplish black throat and oblong lemon-yellow segments. Anthers  $\frac{1}{8}$  in. long. Style overtopping the anthers; branches short, spreading.

Hab. Cape Colony; south-western provinces, *Thunberg!* *Drège* 8476!

6. *G. FILIFOLIA* Baker in Journ. Bot. 1876, 238.—Corm very small. Leaves 3, erect, filiform, the lower 6-7 in. long, the upper sheathing the stem at the middle. Stem slender, simple,  $\frac{1}{2}$  ft. long. Flowers 3, laxly spicate; outer spathe-valve lanceolate, green,  $\frac{1}{4}$  in. long. Perianth with a straight tube  $\frac{1}{8}$  in. long and oblong whitish segments  $\frac{1}{2}$  in. long, purplish at the base. Stamens  $\frac{1}{2}$  shorter than the segments. Style-branches short.

Hab. Cape Colony; south-western district, *Dr. R. A. Prior!* (Herb. Mus. Brit.).

7. *G. PAPPEI* Baker.—Corm globose,  $\frac{1}{8}$  in. diam.; tunics brown, membranous, bristly at the top. Stem very slender, glabrous, 2-3 in. long, with two superposed terete leaves 1-1 $\frac{1}{2}$  in. long. Flowers 3-4 in a short spike with a flexuose rachis; outer spathe-valve oblong,  $\frac{1}{8}$  in. long, green with a membranous edge. Perianth reddish, concolorous, with a straight tube  $\frac{1}{8}$  in. long and oblong segments  $\frac{1}{4}$  in. long. Stamens nearly as long as the limb.

Hab. Cape Colony; south-western district, *Zeyher* 3965, 3967! *Pappe!*

8. *G. WRIGHTII* Baker in Journ. Bot. 1876, 238.—Corm globose,  $\frac{1}{8}$  in. diam.; tunics crustaceous, brown, ending in short cusps. Basal leaves 2-3, narrow linear, glabrous, 6-9 in. long, closely deeply ribbed. Stems simple or forked, glabrous, 6-9 in. long, with a long sheathing leaf at the base. Flowers 6-8 in a lax spike with a flexuose rachis; outer spathe-valve ovate-oblong, green,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth with a straight tube  $\frac{1}{8}$  in. long and oblong concolorous segments  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{8}$  in. long. Style-branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; Simon's Bay, *C. Wright* 253!

9. *G. SECUNDA* Ker in Konig et Sims, Ann. i. 225. *Ixia secunda* Delar.; Ker in Bot. Mag. t. 597. *I. pusilla* Andr. Bot. Rep. t. 245.—Corm globose,  $\frac{1}{4}$ - $\frac{1}{2}$  in. diam.; tunics crustaceous, bright brown. Basal leaves 2, linear, glabrous, 4-6 in. long. Stems slender, simple,  $\frac{1}{2}$ -1 ft. long, with 1-2 leaves, with strongly ribbed ventricose sheaths. Flowers 3-6 in a lax spike with a very slender flexuose rachis; outer spathe-valve oblong,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, green with a brown membranous tip. Perianth a straight tube  $\frac{1}{8}$  in. long and concolorous oblong bright red segments  $\frac{1}{2}$  in. long. Anthers linear,  $\frac{1}{8}$  in. long. Style as long as the stamens, with short spreading branches.

Var. *G. SETIFOLIA* Eckl. Top. Verz. 22. — Leaves very slender, setaceous. Flowers as in the type.

Var. *G. RAMOSA* Klatt in Linnæa, xxxiv. 657.—Taller than the type, with deeply forked stems, with longer spikes.

Var. *G. PUBILLA* Klatt, Ergänz. 58 (Bot. Mag. t. 1105). — Flowers pale rose or nearly white.

Var. *BICOLOR* Baker.—Stems tall, simple. Leaves very long, filiform. Flowers smaller than in the type, white; the outer segments keeled with bright red.

Hab. Cape Colony; south-western provinces.

10. *G. GRAMINIFOLIA* Baker. *G. hirta* Baker in Journ. Linn. Soc. xvi. 94, excl. syn. *Hesperantha quinqueangularis* Klatt, excl. syn.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics brown, crustaceous or squamose. Leaves 3, linear, firm, pilose on the ribs, especially beneath, the lower 6–9 in. long, the upper much shorter, with a ventricose sheath. Stems slender, flexuose, simple or forked,  $\frac{1}{2}$ –1 ft. long. Flowers few, in a lax spike with a flexuose rachis; outer spathe-valves oblong,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, green, with a brown membranous tip. Perianth deep red or pale red or nearly white, with a short tube, and oblong segments  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Anthers  $\frac{1}{6}$  in. long. Style-branches  $\frac{1}{2}$  in. long, spreading above the anthers.

Var. *BICOLOR* Baker. — Flowers white, with the outer segments keeled with bright red.

Hab. Cape Colony; south-western provinces.

11. *G. GRACILIS* Baker.—Corm not seen. Stem simple,  $\frac{1}{2}$ –1 ft. long, with a rudimentary leaf at the base and a tight hairy sheath at the middle, produced into a small erect linear strongly-nerved hairy blade. Flowers 2–3 in a lax spike; outer spathe-valve oblong, obtuse, brown and scariose above the base. Perianth with a very short tube, and oblong pale lilac segments  $\frac{1}{2}$  in. long. Anthers linear,  $\frac{1}{6}$  in. long. Style-branches short.

Hab. Eastern Griqualand; Mount Zuurberg, alt. 5000 ft., *Tysm* 1872!

12. *G. FURVA* Ker in König et Sims, Ann. i. 224. *Ixia furva* Soland.—Corm very small, globose. Basal leaves 2, filiform, erect, 3–4 in. long. Stem slender, simple, 1-flowered, 3–4 in. long, with a single leaf with tight sheath and a short point. Outer spathe-valve oblong,  $\frac{1}{2}$  in. long, brown and scariose in the upper half. Perianth bright red-purple, with a straight tube  $\frac{1}{2}$  in. long, and oblong segments  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Anthers  $\frac{1}{6}$  in. long, as long as the filaments. Style-branches spreading above the anthers.

Hab. Cape Colony; south-western provinces, *Masson!* *Drege* 8478! *Bolus* 4341!

13. *G. HIRTA* Ker in König et Sims, Ann. i. 223. *G. ciliaris* Salisb. *G. rosea* Eckl. *Ixia hirta* Thunb. *Hesperantha kermesina* Klatt.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics crustaceous, dull brown. Leaves 3, linear, hairy, moderately firm, the lower 4–6 in. long, the upper with a long ventricose sheath and short free point. Stems simple or forked,  $\frac{1}{2}$ –1 ft. long. Flowers 2–6 in a lax spike with a flexuose rachis; outer spathe-valve oblong,  $\frac{1}{2}$  in. long, brown and

membranous above the base. Perianth bright red, concolorous, with a straight tube  $\frac{1}{2}$  in. long, and oblong segments  $\frac{3}{4}$ -1 in. long. Anthers linear,  $\frac{1}{4}$  in. long, equalling the filaments. Style-branches  $\frac{1}{2}$  in. long.

Var. *G. QUINQUANGULARIS* Eckl. *Hesperantha ciliata* Klatt.—Flowers a uniform pale rose-red.

Hab. Cape Colony; south-western provinces. First gathered by Thunberg and Auge.

14. *G. ROCHENSIS* Ker in König and Sims, Ann. i. 223. *G. Rocheana* Sweet. *G. tulipifera* Klatt. *Rochea venusta* Salisb. *Ixia Rochensis* Ker in Bot. Mag. t. 598. *I. radians* Thunb.—Corm globose,  $\frac{1}{4}$  in. diam.; tunics crustaceous, brown-black. Leaves 3, the lower basal, subterete, glabrous, 3-4 in. long, the upper with a long sheath and short free point. Stem simple or forked low down, each branch bearing a single flower; outer spathe-valve oblong,  $\frac{1}{2}$  in. long, brown and scariose in the upper half. Perianth bright violet-purple, with a straight tube  $\frac{1}{4}$  in. long, and obovate segments  $\frac{3}{4}$ -1 in. long, with a paler band across the middle, and a dark blotch at the base. Anthers linear,  $\frac{1}{4}$  in. long, as long as the filaments. Style-branches  $\frac{1}{2}$  in. long.

Var. *G. MONANTHA* Sweet. *Ixia monanthos* Thunb.—Stem 1-flowered. Flower smaller, darker purple; claw almost concolorous.

Var. *SPITHAMÆA* Ker in Bot. Mag. sub t. 598.—More robust, with a forked stem, and several flowers in a spike.

Hab. Cape Colony; south-western provinces.

15. *G. BELLENDENI* Macowan in Journ. Linn. Soc. xxv. 393.—Differs from *G. Rochensis* var. *spithamæa* by its less strongly-ribbed sheathing leaf, shorter perianth-tube, lower part of segments subpellucid without any nectary on the claw.

Hab. Cape Colony; Malmesbury province, at Groenkloof, Macowan, Herb. Norm. 810!

16. *G. LATIFOLIA* Baker in Journ. Linn. Soc. xvi. 94. *Ixia latifolia* Delaroche.—Corm unknown. Basal leaves ensiform, strongly ribbed, a little shorter than the stem; cauline with a long sheath. Stem a foot long, simple, rather flattened. Flowers in a simple spike; outer spathe-valve scariose. Perianth purple; segments oblong.

Hab. Cape Colony. A doubtful species, known to me only from Delaroche's description.

17. *G. CORRUGATA* Klatt, Erganz. 57.—Corm ovoid; tunics crustaceous, castaneous. Leaves 4, linear-subulate, corrugated. Stem simple, 1-flowered,  $1\frac{1}{2}$ -2 in. long; outer spathe-valves oblong, green,  $\frac{1}{2}$  in. long. Perianth with a straight tube  $\frac{1}{12}$  in. long, a brown throat, and bright yellow oblong segments  $\frac{2}{3}$  in. long. Style-branches overtopping the anthers.

Hab. Cape Colony; province of Clanwilliam, Dr. Meyer.

18. *G. IMBRICATA* Ker in König et Sims, Ann. i. 224. *G. arenaria* Eckl. *G. sabulosa* Klatt. *Ixia imbricata* Delar.—Corm globose,

$\frac{1}{2}$  in. diam.; tunics thick, dark brown, lacerated. Basal leaves 2, linear, glabrous, firm, strongly ribbed, 3-8 in. long; cauline 1, with a ventricose sheath and long free point. Stem simple or forked,  $\frac{1}{2}$ -1 ft. long; flowers few or many, in a lax spike with a flexuose rachis; outer spathe-valve oblong,  $\frac{1}{2}$  in. long, green, with a membranous tip. Perianth with a straight tube  $\frac{1}{4}$  in. long; segments oblong, white,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, the outer broadly keeled with red. Anthers linear,  $\frac{1}{6}$  in. long. Style-branches  $\frac{1}{2}$  in. long.

Var. *G. obtusata* Ker in Bot. Mag. t. 672.—Habit more robust, and leaves broader and more obtuse than in the type. Flowers larger, with a limb  $\frac{3}{4}$ -1 in. long; outer segments flushed with red outside.

Hab. Cape Colony; south-western provinces.

19. *G. INFLEXA* Ker in König et Sims, Ann. i. 223. *G. vaginata* Sweet, Brit. Flow. Gard. t. 138. *Ixia inflexa* Delar.—Corm globose,  $\frac{1}{2}$  in. diam., with thick rigid much lacerated brown tunics. Basal leaves 2, linear, thick, rigid, glabrous, strongly ribbed, 4-6 in. long; cauline 1, with a loose strongly-ribbed sheath, and long free point. Stem  $\frac{1}{2}$ -1 ft. long, simple or forked low down; flowers several, in a lax spike with a flexuose rachis; outer spathe-valve oblong,  $\frac{1}{3}$ - $\frac{1}{2}$  in. long, brown and scariose upwards. Perianth with a straight tube  $\frac{1}{4}$  in. long, a dark purple throat, and oblong pale yellow segments  $\frac{3}{4}$ -1 in. long. Anthers linear,  $\frac{1}{4}$  in. long, exceeding the purple filaments. Style-branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western provinces.

20. *G. QUADRANGULA* Ker, Gen. Irid. 88. *Ixia quadrangula* Delar.—Corm crowned with bristles. Leaves few, sheathing, rigid, subquadrangular, the 1-2 lower ones overtopping the flowers. Stem slender, simple; flowers few, in a lax spike; spathe-valves persistent. Perianth blue, with a tube much shorter than the spathe and ovate segments.

Hab. Cape Colony. A doubtful species, known only from the description of Delaroché.

21. *G. NANA* Klatt, Erganz. 57.—Corm globose, very small. Basal leaves 3-4, linear, glabrous, moderately firm, an inch long. Stems very slender, simple or forked from the base, 1-2 in. long, each branch 1-flowered; outer spathe-valve oblong, green,  $\frac{1}{2}$  in. long. Perianth with a blue tube as long as the spathe, and oblong segments  $\frac{1}{2}$  in. long, the inner whitish, the outer blue. Stamens half as long as the limb. Style-branches short.

Hab. Cape Colony; Zwellendam, Zeyher 3967!

22. *G. SETACEA* Baker in Journ. Linn. Soc. xvi. 95. *G. recurvifolia* Klatt, excl. syn. *Ixia setacea* Thunb.—Corm ovoid,  $\frac{1}{4}$  in. diam.; outer tunics crowned with bristles. Basal leaves 3-4, linear, glabrous, moderately firm, 1-3 in. long. Stems 2-3 in. long, very slender, simple or deeply forked, bearing 1-2 small sheathing leaves low down, each branch 1-flowered; spathe-valves oblong, green,  $\frac{1}{2}$ - $\frac{1}{2}$  in. long. Perianth with a tube as long as the

spathe, and oblong whitish segments  $\frac{1}{3}$  in. long, often tinged red outside. Anthers linear,  $\frac{1}{8}$  in. long. Style-branches short.

Hab. Cape Colony; southern provinces; first gathered by Thunberg. The plant figured under this name by Ker in Bot. Mag. is *G. humilis*.

23. *G. BRACTEATA* Klatt, *Erganz.* 57. *Weihea elatior* Eckl.—Corm not seen. Leaves 5-6, thin, linear, glabrous, 2-4 in. long, crowded near the base of the stem. Stems slender, 6-8 in. long, with 1-2 distant branches and 1-2 small sheathing leaves; flowers solitary; outer spathe-valve oblong, green,  $\frac{1}{3}$  in. long. Perianth with a tube as long as the spathe, blue throat, and white oblong segments  $\frac{1}{3}$  in. long. Stamens half as long as the perianth. Style-branches short.

Hab. Cape Colony; Uitenhage, *Zeyher*!

24. *G. DREGEI* Baker.—Corm ovoid,  $\frac{1}{4}$  in. diam.; tunics brown, membranous. Leaves 5-6, lanceolate, glabrous, an inch long, concentrated at the base of the stem. Stems 2-3 in. long, slender, simple, bearing a reduced sheathing leaf at the middle. Flowers 4-6 in a short spike with a very flexuose axis; outer spathe-valve oblong, green,  $\frac{1}{4}$  in. long. Perianth with a tube as long as the spathe, a bright blue throat, and oblong white segments  $\frac{1}{4}$  in. long. Stamens one-third as long as the segments. Style-branches not overtopping the anthers.

Hab. Cape Colony; south-western provinces, *Thunberg*! *Drège*! *Ecklon & Zeyher* 221!

25. *G. FOLIOSA* Klatt in *Linnæa*, xxxiv. 658. —Corm globose,  $\frac{1}{4}$ - $\frac{1}{2}$  in. diam.; tunics crustaceous, brown, ending in many short cusps. Basal leaves 4-6, lanceolate, glabrous, firm, strongly ribbed, 2-3 in. long. Stems 4-6 in. long, simple or forked, bearing 1-2 small sheathing leaves; flowers 3-6 in a lax spike; outer spathe-valve oblong, green,  $\frac{1}{3}$  in. long. Perianth with a straight tube  $\frac{1}{4}$  in. long, and oblong whitish segments  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{8}$  in. long, as long as the filaments. Style-branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; southern provinces; first gathered by Bowie.

26. *G. BOLUSII* Baker.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics brown, membranous, ending in short bristles. Leaves 4-6, thin, linear, glabrous, the lower 2-3 in. long, the upper shorter. Stem slender, simple, very flexuose, 4-8 in. long. Flowers 4-8 in a spike; outer spathe-valve oblong,  $\frac{1}{8}$  in. long, green with a brown membranous tip. Perianth with a tube as long as the spathe, and oblong white segments  $\frac{1}{4}$ - $\frac{1}{3}$  in. long. Stamens half as long as the segments. Style-branches not overtopping the anthers.

Hab. Cape Colony; Dutoit's Kloof, alt. 2300 ft., *Bolus* 5247!

27. *G. GRANDIS* Hook. fil. in Bot. Mag. t. 5877.—Corm globose,  $\frac{3}{4}$  in. diam.; tunics of finely reticulated fibres. Basal leaves ensiform, glabrous, strongly ribbed, 6-8 in. long. Stem about a foot long, bearing several reduced leaves. Flowers 4-8 in a lax spike; outer spathe-valve oblong, green, 1-1 $\frac{1}{2}$  in. long. Perianth with a straight tube an inch long, and rather longer oblong whitish segments. Anthers claret-purple,  $\frac{1}{8}$  in. long, about as long as the



filaments. Style but little exerted from the tube, the ascending falcate branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; Port Elizabeth. Described from a plant sent by Mr. Jno. Wilson that flowered at Kew in 1868. Recedes from typical *Geissorhiza* in the direction of *Acidanthera*.

28. *G. MINIMA* Baker in Journ. Bot. 1876, 239.—Corm not seen. Leaves 2-3, basal, terete, firm, falcate, glabrous, 1-1 $\frac{1}{2}$  in. long. Stem very slender, simple, leafless, an inch long. Flowers 1-2; spathe-valves oblong-lanceolate,  $\frac{1}{2}$  in. long, green tinged with red. Perianth with a straight tube,  $\frac{1}{4}$  in. long, and a limb not more than half as long with oblong white segments. Anthers linear,  $\frac{1}{2}$  in. long. Style-branches short.

Hab. Namaqualand; Modderfonteins berg, alt. 4000-5000 ft., Drège 2632!

29. *G. GEMINATA* E. Meyer in herb. Drège. — Corm not seen. Leaves 3-4, all distantly superposed and sheathing the stem, firm, setaceous, glabrous, 3-6 in. long. Stems slender, 6-10 in. long, simple or deeply forked; flowers 1-2 to a branch; outer spathe-valve oblong-lanceolate, green,  $\frac{1}{2}$  in. long. Perianth with a blue funnel-shaped tube,  $\frac{1}{2}$  in. long; segments oblong,  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{2}$  in. long. Style-branches not overtopping the anthers.

Hab. Cape Colony; south-western provinces, Drège!

30. *G. excisa* Ker in König et Sims, Ann. i. 223. *Ixia excisa* Linn. fil.; Ker in Bot. Mag. t. 584. *I. ovata* Burm. *Weihea excisa* Burm.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics brown, crustaceous, tipped with short cusps. Basal leaves 2-3, oblong or lanceolate, firm, glabrous, obtuse or acute,  $\frac{1}{2}$ -1 in. long, copiously dotted with black. Stems flexuose, 2-6 in. long, simple, rarely forked. Flowers 2-5 in a lax spike; outer spathe-valve oblong, green,  $\frac{1}{2}$  in. long. Perianth with a straight tube  $\frac{1}{2}$  in. long, and oblong spreading segments  $\frac{1}{2}$  in. long, the inner white, the outer claret-purple outside. Anthers  $\frac{1}{2}$  in. long. Style overtopping the anthers; branches short, spreading.

Hab. Cape Colony; south-western provinces.

#### 42. DIERAMA K. Koch.

Perianth with a short cylindrical tube, dilated at the throat and oblong subequal segments. Stamens inserted at the throat of the perianth-tube; filaments short; anthers linear, basifixed. Ovary oblong, 3-celled; ovules many, superposed; style exerted from the perianth-tube, with short spreading clavate entire branches. Capsule oblong, small, membranous, loculicidally 3-valved. Seeds small, globose or angled by pressure.—Rootstock a large corm. Leaves long, linear, rigid. Flowers in paniced spikes; spathe-valves lanceolate, membranous, not lacerated.

1. *D. PENDULA* Baker in Journ. Linn. Soc. xvi. 99. *D. ensiflorum* K. Koch et Bouché. *D. cupuliflora* and *ignea* Klatt. *Ixia pendula* Linn. fil. *Sparaxis pendula* Ker in Bot. Reg. t. 1360. *Watsonia palustris* Pers.—Corm large, globose; tunics of parallel

fibres produced above its neck. Basal leaves 5-6, linear, very rigid,  $1\frac{1}{2}$ -2 ft. long. Stem including inflorescence 2-4 ft. long; spikes several, cernuous, with the flowers crowded towards the top; spathe-valves lanceolate-acuminate,  $\frac{3}{4}$  in. long, membranous, brownish or dotted with brown. Perianth white or pale or dark mauve-purple, with a tube  $\frac{1}{4}$ - $\frac{1}{2}$  in., and oblong segments  $\frac{3}{4}$ -1 in. long. Stamens half as long as the limb. Style-branches  $\frac{1}{2}$  in. long.

Var. *PUMILA* Baker.—Leaves very narrow. Whole flowers not more than  $\frac{1}{2}$  in. long, white or mauve-purple.—Mountains of Natal.

Hab. South-eastern provinces of Cape Colony, ascending to 4500 ft. on the Boschberg, northward to Natal and Mount Kilimanjaro.

2. *D. PULCHERRIMA* Baker in Journ. Linn. Soc. xvi. 90. *Sparaxis pulcherrima* Hook. fl. in Bot. Mag. t. 5555.—Habit of *D. pendula*, but more robust, with broader leaves. Stems 5-6 ft. long, larger spathes and larger flowers, typically bright blood-purple.

Hab. Cape Colony; Uitenhage northward to the Transvaal.

#### 43. STREPTANTHERA Sweet.

*Perianth* with a short funnel-shaped tube and spreading subequal imbricated obovate segments. *Stamens* inserted at the throat of the perianth-tube; filaments short, flattened; anthers linear, basifixed. *Ovary* oblong, 3-celled; ovules many, superposed; style as long as the stamens, with short spreading clavate entire branches. *Capsule* small, subglobose, membranous, loculicidally 3-valved. *Seeds* small, subglobose.—*Rootstock* a corm with fibrous tunics. *Leaves* short, flabellate. *Flowers* 2-3 in a spike; spathe-valves large, membranous, dotted and streaked with brown.

1. *S. ELEGANS* Sweet, Brit. Flow. Gard. t. 209; Lodd. Bot. Cab. t. 1359.—Corm ovoid, 1 in. diam., with fibrous tunics and a long neck. Leaves 6-8 in a basal rosette, lanceolate, glabrous, moderately firm, 3-4 in. long. Stems forked low down, a little longer than the leaves, each branch 1-2-flowered; spathes  $\frac{1}{2}$  in. long, toothed at the top. Perianth-tube  $\frac{1}{4}$  in. long; limb  $\frac{3}{4}$ -1 in. long, white with a yellow eye bordered with dark purple at the top; segments obovate, much imbricated. Stamens half as long as the segments.

Hab. Cape Colony; province of Tulbagh, *Dr. Thom!*

2. *S. CUPREA* Sweet, Brit. Flow. Gard. ser. ii. t. 122; Paxt. Mag. i. 8, with figure. *Sparaxis cuprea* Klatt.—Corm, habit, and leaves of *S. elegans*. Peduncle shorter than the leaves, simple; flowers 2-4 in a spike; spathes  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth an inch long, copper-yellow, with a purple throat bordered with black with a yellow spot in the centre.

Hab. Cape Colony; known only from the figures above cited. It flowered in Colville's nursery in 1838.

#### 44. IXIA Linn.

*Perianth* with a straight usually short cylindrical tube sometimes dilated into a funnel at the throat and subequal spreading

oblong segments. *Stamens* inserted at the throat of the perianth-tube; filaments short, filiform, rarely connate; anthers linear, basifixed. *Ovary* oblong, 3-celled; ovules many, superposed; style exerted from the perianth-tube, with 3 short falcate branches. *Capsule* small, oblong, membranous, loculicidally 3-valved. *Seeds* small, globose or angled by pressure.—*Rootstock* a small globose corm with fibrous tunics. *Leaves* linear. *Flowers* arranged in simple or paniced spikes; spathes of two short oblong membranous or chartaceous valves, the outer more or less distinctly tricuspidate. Many of the species are very variable and indefinite in limitation.

Subgenus IXIA PROPER. Perianth-tube short, cylindrical. *Stamens* free.

Flowers small (limb  $\frac{1}{4}$ – $\frac{1}{2}$  in. long) . . . . . Sp. 1–4.  
 Flowers larger, concolorous at the throat . . . . . Sp. 5–10.  
 Flowers larger, with a purple-black throat . . . . . Sp. 11–14.

Subgenus EURYDICE. Perianth-tube short, cylindrical. *Filaments* more or less connate . . . . . Sp. 15.

Subgenus MORPHIXIA. Perianth-tube short, dilated into a distinct funnel at the top . . . . . Sp. 16–20.

Subgenus HYALIS. Perianth-tube long, cylindrical, slightly dilated in the upper part. . . . . Sp. 21–24.

1. I. POLYSTACHYA Linn. Sp. Plant. 51; Andr. Bot. Rep. t. 155. *I. erecta* Berg; Ker in Bot. Mag. t. 623. *I. serotina*, Salisb. (Miller, Ic. tab. 155, fig. 2).—Corm globose,  $\frac{1}{4}$ – $\frac{1}{2}$  in. diam.; tunics of fine parallel fibres. Produced leaves about 4 at the base and 2 above it, linear, glabrous,  $\frac{1}{2}$ –1 ft. long. Stem slender, 1–2 ft. long, simple or branched; spikes dense, many-flowered; outer spathe-valve oblong, tricuspidate, pale green,  $\frac{1}{4}$  in. long. Perianth with a cylindrical tube as long as or a little longer than the spathe; segments oblong, white, concolorous,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Anthers  $\frac{1}{2}$  in. long; filaments short.

Hab. Cape Colony; south-western provinces. Var. *ornata* Baker has the segments tinged with red outside; *I. bicolorata* Klatt, a pale yellow flower, tinged violet outside; and *I. flavescens* Ecklon, a pale yellow flower, with less spreading segments than in the type.

2. I. FLEXUOSA Linn. Sp. Plant. 51; Ker in Bot. Mag. t. 624. *I. erecta* var. *violacea* Thunb. *I. capitata* var. *stellata* Andr. Bot. Rep. t. 232. *I. thyrsoiflora* Delar. *I. polystachya* Red. Lil. t. 186.—Differs from *I. polystachya* only in the colour of the flowers, which ranges through various shades of red and lilac, without a distinct basal blotch.

Hab. Cape Colony; south-western provinces. *I. tenella* Klatt (Miller, Ic. t. 156, fig. 2) is a variety with bluish flowers, with a pale yellow throat. *I. pallide-rosea* Eckl. is a form with pale red flowers tinged with lavender outside, with narrow segments.

3. I. HYBRIDA Ker in Konig et Sims, Ann. i. 227. *I. flexuosa* Ker in Bot. Mag. t. 128.—Intermediate between *polystachya* and

*maculata*. Flowers small, white with a tinge of pink, with a distinct blotch of black at the throat.

Hab. Cape Colony; southern provinces.

4. *I. MICRANDA* Baker in Journ. Bot. 1876, 237.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of very fine fibres. Leaves very narrow. Stem very slender, simple; flowers few, in a short erect spike; outer spathe-valve oblong, tinged with brown,  $\frac{1}{4}$  in. long. Perianth with a slender tube as long as the spathe, and a pure white limb  $\frac{1}{2}$  in. long, with a concolorous throat. Anthers linear-oblong,  $\frac{1}{2}$  in. long; filaments very short. Style not exerted from the perianth-tube.

Hab. Cape Colony; south-western provinces. First gathered by Thunberg, in whose herbarium it is placed as a doubtful variety of *aristata*.

5. *I. ARISTATA* Ker in Bot. Mag. t. 589, excl. syn.—Corm globose, with strong fibrous tunics. Basal leaves 3-4, linear, firm, strongly ribbed, the lower 4-6 in. long. Stems slender, 1-1 $\frac{1}{2}$  ft. long, simple or branched; spikes lax, many-flowered; spathe-valves green,  $\frac{1}{4}$  in. long. Perianth with a cylindrical tube  $\frac{1}{4}$  in. long, and a whitish limb of the same length, concolorous at the throat. Anthers  $\frac{1}{2}$  in. long, equalling the filaments. Style-branches  $\frac{1}{2}$  in. long.

Var. *ELEGANS* Baker. *Wuerthia elegans* Regel, Gartenfl. t. 46.—Leaves narrower and not so firm. Perianth-tube and limb each  $\frac{1}{3}$  in. long.

Hab. Cape Colony; south-western provinces. Thunberg's *aristata* is a variety of *leucantha*; the plant so called by Aiton and Willdenow is *Sparaxis grandiflora*.

6. *I. LEUCANTHA* Jacq. Ic. t. 278. *I. candida* DC. in Red. Lil. t. 426. *I. anemonaeflora* Jacq. Ic. t. 273?—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of parallel fibres. Leaves firm, linear, glabrous,  $\frac{1}{2}$ -1 ft. long. Stems 1-2 ft. long, simple or branched; flowers many, in dense erect spikes; outer spathe-valve green, tricuspidate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth with a cylindrical tube not much longer than the spathe, and a pure white limb  $\frac{1}{4}$  in. long. Anthers  $\frac{1}{4}$  in. long. Style-branches  $\frac{1}{2}$  in. long.

Var. *I. ARISTATA* Thunb. Diss. No. 15, non Ker.—Outer segments flushed with red outside.

Hab. Cape Colony; south-western provinces.

7. *I. LUTEA* Baker in Journ. Linn. Soc. xvi. 91. *I. erecta* Jacq. Hort. Schoen. t. 18 (large figure). *I. erecta* var. *lutea* Ker in Bot. Mag. t. 646. *I. dubia* and *aurantiaca* Klatt.—Habit and leaves of *I. leucantha*, from which it differs by its bright yellow flowers.

Hab. Cape Colony; south-western provinces.

8. *I. CAMPANULATA* Houtt. Handl. xii. 42, tab. 78, fig. 4. *I. latifolia* Klatt?—Corm globose,  $\frac{1}{2}$  in. diam.; tunics fibrous. Basal leaves about 4, linear, glabrous, 6-9 in. long. Stems simple, slender, terete, a foot long; flowers many, in a dense spike; outer spathe-valve oblong, tricuspidate,  $\frac{1}{4}$ - $\frac{1}{3}$  in. long. Perianth with a cylindrical tube as long as the spathe, and a campanulate con-

colorous dark lilac limb  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Anthers  $\frac{1}{8}$  in. long. Style-branches reaching to the top of the anthers.

Hab. Cape Colony; southern provinces.

9. I. PATENS Ait. Hort. Kew i. 59; Ker in Bot. Mag. t. 522; Red. Lil. t. 140. *I. filiformis* Vent. Hort. Cels. t. 43; Red. Lil. t. 30. *I. flaccida* Salisb. *I. coccinea* Thunb. ex parte. *I. densiflora* Klatt.—Corm globose,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam.; tunics of fine brown matted fibres. Basal leaves about 4, linear, glabrous, moderately firm,  $\frac{1}{2}$ –1 ft. long. Stems terete, 1–1 $\frac{1}{2}$  ft. long, often branched; flowers many, in moderately dense spikes; outer spathe-valve green, tricuspidate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth with a cylindrical tube not much longer than the spathe, and a campanulate pale red concolorous limb  $\frac{3}{4}$ –1 in. long. Anthers  $\frac{1}{4}$  in. long. Style-branches not reaching to the top of the anthers.

Hab. Cape Colony; south-western provinces.

10. I. SPECIOSA Andr. Bot. Rep. t. 186. *I. crateroides* Ker in Bot. Mag. t. 594. *I. coccinea*, Thunb. ex parte. *I. patens* var. *kermesina* Regel, Gartenfl. t. 356. *I. pulcherrima* Eckl.—Corm small, globose; tunics of matted fibres. Basal leaves 5–6, linear, glabrous, moderately firm. Stem slender, terete, usually simple; flowers few, in a short erect spike; outer spathe-valve oblong, tricuspidate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth with a cylindrical tube not much longer than the spathe, and a dark crimson concolorous limb  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Anthers  $\frac{1}{4}$  in. long, exceeding the filaments. Style-branches bright red.

Hab. Cape Colony; south-western provinces.

11. I. MACULATA Linn. Sp. Plant. 1664; Jacq. Hort. Schoen. t. 21. *I. conica* Salisb.; Ker in Bot. Mag. t. 539; Red. Lil. t. 138. *I. Milleri* Berg. (Miller, Ic. t. 156, fig. 1). *I. capitata* Andr. Bot. Rep. t. 50. *I. abbreviata* Houtt. *I. dubia* Vent. Choix. t. 10. *I. fusco-cilvina* Red. Lil. t. 86.—Corm globose,  $\frac{3}{4}$ –1 in. diam.; tunics of strong parallel fibres. Basal leaves about 4, linear, glabrous, strongly ribbed,  $\frac{1}{2}$ –1 ft. long. Stem slender, terete, simple or branched, 1–2 ft. long; flowers many, in dense erect spikes; outer spathe-valve oblong, tricuspidate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth with a cylindrical tube usually twice as long as the spathe, and a campanulate yellow limb  $\frac{3}{4}$ –1 in. long, with a black or dark purple blotch at the throat. Anthers yellow,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Style-branches  $\frac{1}{2}$  in. long.

Var. OCHROLEUCA Ker in Bot. Mag. t. 1285. *I. ochroleuca* G. Don.—Flowers sulphur-yellow, with a large brown blotch at the throat.

Var. I. NIGRO-ALBIDA Klatt, Erganz. 62. *I. capitata* var. Andr. Bot. Rep. t. 159.—Flowers pure white, with a large black blotch at the throat.

Hab. Cape Colony; south-western provinces.

12. I. COLUMELLARIS Ker. in Bot. Mag. t. 630. *I. maculata* Thunb. ex parte; Jacq. Hort. Schoen. t. 19. *Morphixia columellaris*

Klatt.—Habit and leaves of *I. maculata*, from which it only differs by its deeply-coloured flowers, which in the type are bright mauve-purple, with a blue spot at the throat.

Hab. Cape Colony; south-western provinces. *Watsonia campanulata* Klatt, *Erganz.* 20, founded on Andr. Bot. Rep. t. 196, and *W. racemosa* Klatt *loc. cit.*, founded on Andr. Bot. Rep. t. 256, drawn with style-branches slightly emarginate at the tip, are probably both forms of this species.

18. *I. OVATA* Klatt, *Erganz.* 62. *I. capitata* var. *ovata* Andr. Bot. Rep. t. 23.—Habit and leaves from *I. maculata*, from which it differs by its bright red flowers with a purple-black throat.

Var. *I. STELLATA* Klatt, *Erganz.* 62. *I. capitata* var. *stellata* Andr. Bot. Rep. t. 232.—Throat of perianth yellow.

Hab. Cape Colony; south-western provinces.

14. *I. VIRIDIFLORA* Lam. *Encyc.* iii. 340; *Red. Lil.* t. 476; *Lodd. Bot. Cab.* t. 1548. *I. viridis* Thunb. *I. spicata* var. *viridinigra* Andr. Bot. Rep. t. 29. *I. pulchra-spectabilis* Salisb. *I. maculata* var. *viridis* Jacq. *Hort. Schoen.* t. 23; *Ker in Bot. Mag.* t. 549.—Corm depresso-globose,  $\frac{1}{2}$  in. diam.; tunics fibrous. Leaves narrow, linear, firm, strongly ribbed, the lower a foot or more long. Stems long, slender, simple; flowers many, in a long spike; outer spathe-valve oblong, pale green,  $\frac{1}{2}$  in. long. Perianth with a cylindrical tube not much longer than the spathe; limb  $\frac{3}{4}$ –1 in. long, pale green with a black throat. Anthers linear, yellow,  $\frac{1}{3}$  in. long, exceeding the black filaments. Style-branches not reaching to the tip of the anthers.

Var. *I. CANA* Eckl. *Topog. Verz.* 36. *I. maculata* var. *amethystina* Ker in *Bot. Mag.* t. 579.—Limb pale blue with a black throat.

Var. *CÆSIA* Ker in *Bot. Reg.* t. 530.—Limb pale lilac, with a small greenish eye.

Hab. Cape Colony; south-western provinces.

## Subgenus II. EURYDICE.

15. *I. MONADELPHA* Delaroche, *Diss.* 22; *Ker in Bot. Mag.* t. 607. *I. columnaris* Salisb. *Morphixia monadelpha* Klatt.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics fibrous. Leaves linear, moderately firm,  $\frac{1}{2}$ –1 ft. long. Stem slender, a foot or more long, simple or branched; flowers few, in a short spike; outer spathe-valve oblong, tricuspidate, pale green,  $\frac{1}{2}$ – $\frac{1}{3}$  in. long. Perianth with a cylindrical tube as long as or twice as long as the spathe; limb  $\frac{1}{2}$ – $\frac{1}{3}$  in. long, very variable in colour, in the type lilac with a greenish or blue throat. Filaments dark blue,  $\frac{1}{2}$  in. long, united in a column. Anthers linear,  $\frac{1}{2}$  in. long. Style-branches much shorter than the anthers.

Hab. Cape Colony; south-western provinces. The following named forms differ from the type only in flower-colouring, viz., *M. purpurea* Klatt, *Erganz.* 49 (Andr. Bot. Rep. t. 203), limb concolorous claret-red with narrow segments; *M. latifolia* Klatt (Andr. Bot. Rep. t. 213), blue with a brown throat; *M. versicolor* Klatt (Andr. Bot. Rep. t. 211), pale yellow with a large black blotch, with radiating lines; *M. curta* Klatt (*Ixia curta* Andr. Bot. Rep. t. 264), a large fulvous limb with a reddish-green throat; and *M. grandiflora* Klatt (Andr. Bot. Rep. t. 250), a large lilac limb with an obscure blue throat.

## Subgenus III. MORPHIXIA.

16. *I. BREVIFOLIA* Baker.—Corm not seen. Stem very slender, hairy, 6-9 in long, bearing two sheathing leaves, the upper with a short, free, erect, hairy, narrow linear tip. Flowers 2-3, in a dense spike; spathe-valves oblong, turning brown,  $\frac{1}{4}$  in. long. Perianth-tube a little longer than the spathe, funnel-shaped in the upper half; segments oblanceolate-oblong, pale lilac, as long as the tube. Stamens half as long as the segments.

Hab. Cape Colony; East Griqualand, *Tyson* 1892!

17. *I. TRICHORHIZA* Baker. *Morphixia trichorhiza* Baker in Journ. Bot. 1876, 237.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of fine parallel fibres. Leaves 3-4, firm, narrow, linear, superposed, shorter than the stem. Stem slender, terete, usually simple,  $\frac{1}{2}$ -1 ft. long. Spikes short, dense, erect; outer spathe-valve membranous,  $\frac{3}{4}$ -1 in. long, dotted brown and white, lacerated at the tip. Perianth-tube funnel-shaped, not longer than the spathe; segments oblong, bright lilac, concolorous,  $\frac{1}{2}$  in. long. Stamens more than half as long as the segments. Style-branches short, spreading.

Hab. Natal, *Dr. Sutherland*! Eastern Griqualand, alt. 4000 ft., *Tyson* 1567!

18. *I. ODORATA* Ker Gen. Irid. 101. *I. erecta* var., Jacq. Hort. Schoen. t. 18; Ker in Bot. Mag. t. 1173. *Morphixia odorata* Baker.—Leaves linear. Stem slender, terete, distantly branched. Flowers fragrant, forming a short spike; spathe-valves oblong,  $\frac{1}{4}$  in. long. Perianth with a funnel-shaped tube  $\frac{1}{2}$  in. long, and oblong bright yellow concolorous segments of the same length. Anthers  $\frac{1}{8}$  in. long, equalling the free filaments.

Hab. Cape Colony; south-western provinces.

19. *I. SCARIOSA* Thunb. Fl. Cap. i. 245. *I. rapanculioides* Red. Lil. t. 431. *I. phlajiflora* Red. Lil. t. 432. *I. incarnata* Jacq. Ic. t. 282. *I. lancea* Jacq. Ic. t. 281. *I. striata* Vahl. *I. aulica* Ait. *Morphixia capillaris*, *aulica*, and *incarnata* Ker.—Corm globose,  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics of fine matted fibres. Basal leaves 2-3, short, rigid, ensiform. Stem very slender, branched, a foot long. Flowers 3-6, in a lax spike; spathe-valves oblong,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, pale green with a brown tip. Perianth with a funnel-shaped tube,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, and oblong reddish or lilac segments  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{8}$  in. long, shorter than the free filaments. Style-branches reaching the tip of the anthers.

VAR. *LONGIFOLIA* Baker.—Leaves thinner, linear, a foot or more long.

Hab. Cape Colony; south-western provinces. *I. fucata* Ker in Bot. Mag. t. 1379, is probably a garden hybrid, of which this is one of the parents.

20. *I. LINEARIS* Thunb. Diss. No. 11. *I. capillaris* var. *gracillima* Ker in Bot. Mag. t. 570. *I. tenuifolia* Vahl. *Morphixia linearis* Ker. *Hyalis gracilis* Salisb.—Corm globose,  $\frac{1}{2}$  in. diam. Basal leaves 2-3, slender, subterete, a foot or more long. Stem slender, terete, simple. Flowers 3-6, laxly spicate; spathe-valves green,

$\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth with a funnel-shaped tube  $\frac{1}{4}$  in. long. and concolorous oblong lilac segments  $\frac{1}{2}$  in. long. Anthers linear,  $\frac{1}{2}$  in. long, equalling the free filaments. Style-branches not reaching the top of the anthers.

Hab. Cape Colony; south-western provinces.

#### Subgenus IV. HYALIS.

21. I. COOPERI Baker. *Morphixia Cooperi* Baker in Journ. Bot. 1876, 237. *Tritonia Cooperi* Klatt.—Corm small, globose. Leaves firm, terete, the lower a foot or more long. Stems simple, slender, terete, a foot or more long. Flowers several, in a lax secund spike; spathe-valves oblong, pale green, tricuspidate,  $\frac{1}{2}$  in. long, brown at the tip. Perianth whitish, with a cylindrical tube 2 in. long, slightly dilated in the upper third, and oblanceolate obtuse spreading segments  $\frac{1}{2}$  in. long. Anthers linear,  $\frac{1}{2}$  in. long. Style-branches  $\frac{1}{2}$  in. long.

Hab. Cape Colony; province of Worcester, Cooper 1628! 1633!

22. I. ZEYHERI Baker.—Corm small, globose; tunics of parallel fibres. Leaves firm, slender, terete, erect, about as long as the stem. Stem simple, slender, terete, 1–1 $\frac{1}{2}$  ft. long. Flowers 4–6 in a lax spike; spathe-valves  $\frac{1}{2}$  in. long, brown at the tip. Perianth with a cylindrical tube,  $\frac{3}{4}$  in. long, slightly dilated in the upper third, and oblong bright purple segments  $\frac{1}{2}$  in. long. Stamens half as long as the segments.

Hab. Cape Colony; south-western district, Zeyher 1619!

23. I. PANICULATA Delaroché, Diss. 26, t. 1. *I. longiflora* Berg.; Bot. Mag. t. 256; Red. Lil. t. 34. *Gladiolus longiflorus* Thunb. *Tritonia longiflora* Ker Bot. Mag. t. 1502. *Hyalis longiflora* Salisb. *Morphixia paniculata* Baker.—Corm globose,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam.; tunics brown, membranous. Basal leaves 2–3, linear, glabrous, moderately firm,  $\frac{1}{2}$ –1 $\frac{1}{2}$  ft. long. Stem slender, terete, often branched. 1–3 ft. long. Flowers many, in lax erect spikes; outer spathe-valve oblong, tricuspidate, pale green,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Perianth with a straight cylindrical tube, 2 $\frac{1}{2}$ –3 in. long, slightly dilated in the upper third, and oblanceolate-oblong spreading cream-white segments,  $\frac{3}{4}$ –1 in. long, often tinged with red, with a concolorous or blackish base. Anthers exerted wholly or partially from the perianth-tube,  $\frac{1}{2}$  in. long. Style-branches short, falcate.

Var. I. TENUIFLORA Vahl. Enum. ii. 66. *Tritonia tenuiflora* Ker. *Gladiolus longiflorus* Jacq. Ic. t. 263.—Perianth-tube 1 $\frac{1}{2}$ –2 in. long; segments shorter, concolorous at the throat.

Var. ROCHENSIS Baker. *Tritonia rochensis* Ker in Bot. Mag. t. 1503.—Perianth-tube much shorter in the type, more dilated at the throat.

Hab. Cape Colony; south-western provinces.

24. I. NERVOSA Baker. *Morphixia nervosa* Baker in Journ. Bot. 1876, 237.—Corm small, globose. Basal leaves 4–5, rigid, linear, glabrous, 1–1 $\frac{1}{2}$  ft. long, strongly ribbed. Stem simple, terete, 2–3 ft. long, with several superposed reduced leaves. Flowers in a



lax erect spike,  $\frac{1}{2}$  ft. long; spathe-valves oblong, brown, rigid, reflexing,  $\frac{1}{3}$  in. long. Perianth white, with a cylindrical tube  $1\frac{1}{2}$  in. long, slightly dilated in the upper half, and oblanceolate-obtuse spreading segments  $\frac{1}{2}$  in. long. Anthers  $\frac{1}{2}$  in. long. Style-branches short, reaching to the tip of the anthers.

Hab. Cape Colony; south-western provinces.

#### 45. FREESIA Klatt.

*Perianth* with a long curved funnel-shaped tube; limb indistinctly bilabiate; segments oblong, subequal. *Stamens* inserted below the throat of the tube, close, arcuate; anthers linear. *Ovary* ovoid, 3-celled; ovules crowded in the cells; style filiform, arcuate; branches short, slender, bifid. *Capsule* small, oblong, loculicidally 3-valved. *Seeds* small, turgid—Habit of *Tritonia*, from which it only differs by its bifid style-branches.

*F. REFRACTA* Klatt in Linnæa xxxiv. 673. *Gladiolus refractus* Jacq. Ic. t. 241; Red. Lil. t. 419. *Tritonia refracta* Ker; Bot. Reg. t. 135. *Gladiolus resupinatus* Pers. *G. Sparmanni* Thunb.—Corm ovoid, with thick reticulated fibrous tunics. Basal leaves 5-6, firm, linear,  $\frac{1}{2}$  ft. long. Stem terete, flexuose, 1- $1\frac{1}{2}$  ft. long, distantly branched. Flowers very fragrant, arranged in lax secund spikes; spathe-valves small, oblong-lanceolate, scariose. Perianth greenish yellow or bright yellow, 1- $1\frac{1}{2}$  in. long; tube  $\frac{1}{2}$  in. diam. at the throat; limb distinctly bilabiate; segments  $\frac{1}{3}$ - $\frac{1}{2}$  in. long. Anthers lanceolate, just exserted from the perianth-tube.

Var. *F. ODORATA* Klatt *loc. cit.* *Tritonia odorata* Lodd. Bot. Cab. t. 1820.—Leaves broader and less rigid. Inflorescence less branched and flowers fewer, in a spike; spathe-valves broader and more obtuse. Flowers bright yellow, with a more equal limb.

Var. *F. ALBA* Hort.—Leaves, inflorescence, and spathe-valves of *F. odorata*. Flowers pure white, with the tube narrowed more gradually, and the limb very obscurely bilabiate.

Hab. Cape Colony; south, central, and eastern provinces, ascending to 4000 ft. on the Sneewbergen range. *F. xanthospila* Klatt (*Gladiolus xanthospilus* Red. Lil. t. 124) differs mainly from *alba* by its suddenly-constricted perianth-tube, and *F. Leichtlinii* Klatt, in Regel, Gartenfl. t. 808, by the same character, and its large pale yellowish flowers.

#### 46. LAPEYROUSIA Poir.

*Perianth* with a long or short subcylindrical tube slightly dilated towards the throat; segments oblong-lanceolate, subequal, spreading. *Stamens* inserted at the throat of the perianth-tube, unilateral, close, arcuate; filaments short; anthers lanceolate, basifixed. *Ovary* 3-celled; ovules many, superposed; style filiform, with bifid branches. *Capsule* small, oblong or globose, loculicidally 3-valved. *Seeds* small, globose or angled by pressure.—*Rootstock* an ovoid corm with matted tunics. *Leaves* distichous, subterete, linear or ensiform. *Inflorescence* various; spathe-valves small or large, usually herbaceous. *Flowers* usually small, various in colour.

Subgenus OVIEDA. Basal leaves usually 1-2, close or superposed.

Spathe-valves small . . . . . Sp. 1-14.  
Spathe-valves large . . . . . Sp. 15-26.

Subgenus ANOMATHECA. Leaves several, forming a distichous basal rosette. Stem elongated, branched. . . . . Sp. 27-29.

Subgenus SOPHRONIA. Leaves and flowers congested into a dense sessile rosette . . . . . Sp. 30-32.

#### Subgenus I. OVIEDA.

1. *L. ERYTHRANTHA* Baker in Journ. Linn. Soc. xvi. 155. *Ovieda erythrantha* Klotzsch in Peter's Mossamb. Bot. 516, t. 18.—Corm ovoid,  $\frac{3}{4}$ -1 in. diam.; tunics thick, fibrous. Produced basal leaves 1-2, linear, erect, a foot or more long. Stem, including inflorescence, 1-2 ft. long, ancipitous, branched from low down; flowers crowded at the tips of the branchlets; spathe-valves oblong,  $\frac{1}{2}$  in. long. Perianth bright red, with a cylindrical tube  $\frac{1}{4}$ - $\frac{1}{2}$  in. long and oblanceolate segments  $\frac{1}{2}$  in. long. Stamens nearly as long as the segments.

Hab. Mozambique; hills over the lower part of the Zambesi.

2. *L. ABYSSINICA* Baker in Journ. Linn. Soc. xvi. 155. *Geissorhiza abyssinica* R. Br. *Montbretia abyssinica* Hochst. *M. gallabatensis* Schwein.—Corm ovoid,  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics thick, reticulated. Produced basal leaves 3-4, linear, 3-6 in. long. Stem  $\frac{1}{2}$ -1 ft. long including the inflorescence, subterete at the base, branched from the middle or below it; flowers 2-6, laxly spicate; outer spathe-valve oblong-lanceolate,  $\frac{1}{4}$  in. long. Perianth lilac, with a cylindrical tube as long as the spathe and oblanceolate segments  $\frac{1}{2}$  in. long. Stamens more than half as long as the segments.

Hab. Mountains of Abyssinia. First gathered by Salt.

3. *L. CÆRULEA* Schinz in Verhand. Bot. Vereins. Branden, xxxi. 212.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics thick, cancellate. Basal leaves 1-2, narrow linear, erect, 6-9 in. long. Stem very slender, subterete, a foot long including the inflorescence, branched from halfway down; branches few, with 1-2 flowers at the top; outer spathe-valve oblong, green,  $\frac{1}{2}$  in. long. Perianth lilac, with a tube as long as the spathe and oblanceolate segments  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Stamens nearly as long as the segments.

Hab. Damaraland, Dr. Schinz! Very near the Angolan *L. Welwitschii* Baker.

4. *L. WELWITSCHII* Baker.—Corm ovoid,  $\frac{1}{2}$  in. diam., with thick reticulated brown tunics. Basal leaves 2, narrow linear,  $\frac{1}{2}$  ft. long. Stem slender, terete, 8-12 in. long including the inflorescence, branched from below the middle; flowers 1-3, placed near the tip of the branchlets; outer spathe-valve ovate,  $\frac{1}{2}$  in. long. Perianth pale purple, with a tube  $\frac{1}{2}$  in. long and oblanceolate segments of the same length. Stamens more than half as long as the segments.

Hab. Angola; province of Pungo Andongo, alt. 2400—3800 ft., *Welwitsch* 1531! Nearly allied to *L. abyssinica*.

5. *L. SANDERSONI* Baker.—Corm globose,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam.; tunics thick, brown, cancellate. Produced basal leaves 2, erect, linear, 1–1 $\frac{1}{2}$  ft. long. Stem, including inflorescence, 1–1 $\frac{1}{2}$  ft. long, copiously branched from low down; branches acutely angled; flowers 2–4 at the tip of the branchlets; outer spathe-valve ovate,  $\frac{1}{2}$ – $\frac{1}{4}$  in. long. Perianth lilac or whitish, with a slender tube  $\frac{1}{2}$ – $\frac{1}{4}$  in. and oblanceolate segments as long as the tube. Stamens as long as the segments.

Hab. Transvaal, Matabeleland and Zambesi highlands.

6. *L. FISTULOSA* Baker in Journ. Linn. Soc. xvi. 155. *Ovieda fistulosa* Klatt.—Corm globose,  $\frac{1}{3}$  in. diam., with thick tunics of brown reticulated fibres. Basal leaves 2, thin, oblong, spreading, 1–2 in. long. Stem slender, fragile, leafless, 4–12 in. long. Flowers 1 or few in a very lax raceme; spathe-valves oblong, green,  $\frac{1}{4}$  in. long. Perianth lilac, with a slender tube an inch long and spreading oblanceolate segments  $\frac{1}{2}$ – $\frac{1}{4}$  in. long. Stamens shorter than the segments.

Hab. Cape Colony; south-western provinces. First gathered by Burchell.

7. *L. CORYMBOSA* Ker in König & Sims, Ann. i. 237; Bot. Mag. t. 595. *Ixia corymbosa* Linn.; Jacq. Ic. t. 288. *Ovieda corymbosa* Spreng. *L. fastigiata* Ker. *Ixia fastigiata* Lam.—Corm ovoid,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam., with thick cancellate firm tunics lacerated at the base. Produced basal leaf 1, spreading, falcate, ensiform, 4–6 in. long. Stem short, ancipitous. Inflorescence a dense corymbose panicle, with a few flowers at the tip of the numerous branchlets; spathe-valves oblong,  $\frac{1}{2}$ – $\frac{1}{4}$  in. long, green with a brown tip. Perianth bright or pale violet, with a funnel-shaped tube  $\frac{1}{2}$ – $\frac{1}{4}$  in. long and oblong segments of the same length. Stamens sometimes as long as the perianth-segments.

Var. *L. AZUREA* Ecklon, Topog. Verz. 31.—Perianth-limb  $\frac{1}{2}$  in. long, pale lilac.

Hab. Cape Colony; south-western provinces.

8. *L. PURPUREO-LUTEA* Baker in Journ. Linn. Soc. xvi. 155. *Ovieda purpureo-lutea* Klatt.—Corm, leaves and inflorescence of *L. corymbosa*. Outer spathe-valves ovate, acute, herbaceous,  $\frac{1}{2}$ – $\frac{1}{4}$  in. long. Perianth with a tube  $\frac{1}{2}$  in. long, funnel-shaped at the tip and oblong pale yellow segments the same length, with a purple spot inside at the base. Stamens half as long as the segments.

Hab. Cape Colony; province of Tulbagh, *Dr. Thom!*

9. *L. MICRANTHA* Baker in Journ. Linn. Soc. xvi. 156. *L. manulæflora* Eckl. *Ovieda micrantha* E. Meyer.—Corm conic,  $\frac{1}{2}$  in. diam., with thick blackish cancellate tunics ending in bristles. Basal leaf 1, spreading, ensiform, 6–9 in. long. Peduncle short, strongly ancipitous. Inflorescence a broad panicle with flowers crowded at the tips of the branchlets; spathe-valves oblong, green or brown,  $\frac{1}{2}$ – $\frac{1}{4}$  in. long. Perianth dark lilac, with a cylindrical

tube  $\frac{1}{4}$  in. long and spreading oblanceolate segments  $\frac{1}{6}$  in. long. Stamens half as long as the segments.

Hab. Cape Colony; south-western provinces.

10. L. DIVARICATA Baker in Journ. Bot. 1876, 337. *Gladiolus setifolius* Linn. fil.—Corm globose,  $\frac{1}{2}$  in. diam., with thick brown tunics. Produced basal leaf single, firm, linear, 6-9 in. long. Stem subterete,  $\frac{1}{2}$ -1 ft. long including the panicle, branched low down; spikes short, dense, 6-10-flowered; outer spathe-valve  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, green, ovate, with a recurved tip. Perianth with a cylindrical tube  $\frac{1}{4}$  in. long and oblanceolate whitish segments  $\frac{1}{4}$ - $\frac{1}{2}$  long. Stamens half as long as the segments.

Hab. Cape Colony; south-western provinces and Namaqualand.

11. L. PAPPEI Baker.—Corm not seen. Produced basal leaf single, lorate, spreading, moderately firm, 2-3 in. long. Stem slender, subterete, 4-6 in. long including the panicle; branches few; spikes laxly 4-8-flowered; outer spathe-valve ovate, green,  $\frac{1}{2}$  in. long. Perianth lilac, with a slender tube  $\frac{1}{2}$ - $\frac{1}{4}$  in. long, slightly widened upwards; segments oblong,  $\frac{1}{4}$  in. long. Stamens half as long as the segments.

Hab. Cape Colony; province of Tulbagh, Pappé!

12. L. FABRICII Ker in Bot. Mag. sub t. 1246. *Gladiolus Fabricii* Thunb. *Oviola Fabricii* Spreng.—Corm globose, with a long neck and thick brown cancellate tunics ending in bristles. Basal leaves 2-3, spreading, linear, moderately firm, 2-6 in. long. Stems slightly ancipitous,  $\frac{1}{2}$ -1 ft. long including the panicle, copiously branched from low down; spikes laxly 2-4-flowered; outer spathe-valve oblong, green,  $\frac{1}{4}$  in. long. Perianth lilac or white, with a slender tube  $1\frac{1}{2}$ -2 in. long; segments oblanceolate, spreading,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Stamens half as long as the segments.

Hab. Cape Colony; south-western provinces.

13. L. LEPTOSTACHYA Baker.—Corm not seen. Produced leaves 3-4, linear, erect, 6-9 in. long. Stem  $1\frac{1}{2}$  ft. long including the inflorescence, slightly ancipitous; spikes 2-3, very lax, the end one 10-12-flowered; outer spathe-valve ovate or ovate-lanceolate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth pale lilac, with a cylindrical tube  $\frac{1}{4}$  in. long slightly widening upwards and lanceolate segments half as long as the tube. Stamens half as long as the segments.

Hab. Natal, C. Mudd!

14. L. BAINESI Baker in Journ. Bot. 1876, 338.—Corm not seen. Produced basal leaves 2, erect, linear, a foot or more long. Stems ancipitous, copiously branched low down, 1-2 ft. long including the inflorescence; branchlets 1-2-flowered; outer spathe-valve oblong-lanceolate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth whitish, with a slender tube  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long, slightly widening towards the top; segments oblanceolate,  $\frac{1}{2}$  in. long. Stamens more than half as long as the segments.

Hab. Mountains of the Transvaal and the Bechuana country. First gathered by Mr. T. Baines, the artist.

15. *L. FISSIFOLIA* Ker in König et Sims, Ann. i. 237; Bot. Mag. t. 1246. *Gladiolus fissifolius* Jacq. Ic. t. 268. *G. bracteatus* Thunb. *L. bracteata* Ker. *Moræa ovata* Thunb.—Corm small, ovoid, with thick blackish cancellate tunics, ending in short bristles. Produced basal leaf 1, firm, spreading, lanceolate, 1-4 in. long. Stem very short. Flowers forming a simple spike 2-3 in. long, lax except at the top; outer spathe-valve ovate-amplexicaul, green,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth with a slender tube 1-1 $\frac{1}{2}$  in. long; segments oblanceolate or oblong,  $\frac{1}{3}$  in. long, whitish or lilac. Stamens as long as the segments.

Hab. Cape Colony; western provinces northward to Namaqualand.

16. *L. MONTANA* Klatt, Erganz. 25.—Corm ovoid. Produced basal leaf 1, subterete, 4 in. long. Stem very short, simple, terete. Flowers in a simple spike; outer spathe-valve ovate amplexicaul, foliaceous, 1 $\frac{1}{2}$  in. long. Perianth with a cylindrical tube 1 $\frac{1}{2}$  in. long; segments elliptic, pale violet, blotched with yellow at the base,  $\frac{1}{3}$  in. long. Anthers as long as the filaments.

Hab. Cape Colony; province of Clanwilliam, Dr. Meyer! May be a variety of *L. fissifolia*.

17. *L. BARKLYI* Baker.—Corm not seen. Produced basal leaves 3-4, subterete or narrow linear,  $\frac{1}{2}$  ft. long. Stem  $\frac{1}{2}$  ft. long including the inflorescence, branched low down; branches several, ancipitous; flowers 3-5 in a lax spike; outer spathe-valve lanceolate, green,  $\frac{3}{4}$ -1 in. long. Perianth pale lilac, with a slender tube under an inch long, widening towards the top; segments oblanceolate-oblong, as long as the tube. Stamens half as long as the segments.

Hab. Namaqualand, Sir II Barkly! Bolus 6576!

18. *L. SILENOIDES* Ker in Bot. Mag. sub t. 1246. *Gladiolus silenoides* Jacq. Ic. t. 270. *Oviada silenoides* Spreng.—Corm ovoid,  $\frac{1}{2}$  in. diam., with thick dark brown tunics. Basal leaves linear, 1 $\frac{1}{2}$ -2 in. long. Stem  $\frac{1}{2}$  ft. long including the inflorescence, ancipitous, branched from the base, with many reduced leaves; outer spathe-valves lanceolate, green, an inch long. Perianth with a whitish subcylindrical tube 1-1 $\frac{1}{4}$  in. long; segments oblanceolate, bright red,  $\frac{1}{3}$  in. long. Stamens as long as the segments.

Hab. Cape Colony; south-western provinces.

19. *L. BURCHELLII* Baker.—Corm small, globose, with reticulated tunics. Basal leaves subterete or narrow linear, 6-9 in. long. Stems  $\frac{1}{2}$ -1 ft. long including the inflorescence, subterete, copiously branched from low down; spikes laxly 4-8-flowered; outer spathe-valves lanceolate, green, an inch long. Perianth pale lilac, with a slender tube 1-1 $\frac{1}{4}$  in. long; segments linear,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Stamens half as long as the segments.

Hab. Bechuanaland, Burchell 2341! 2350!

20. *L. DELAGOENSIS* Baker.—Corm not seen. Produced basal leaf single, spreading, linear, 1-2 ft. long. Stem branched from the base; branches 5-6, strongly ancipitous, 4-6 in. long; spikes

lax, few-flowered; outer spathe-valve lanceolate, green,  $1-1\frac{1}{4}$  in. long. Perianth with a slender tube  $1\frac{1}{2}-1\frac{3}{4}$  in. long; segments reddish, linear-lanceolate, half as long as the tube. Stamens half as long as the segments.

Hab. Delagoa Bay, *Bolus* 7618!

21. *L. ANCEPS* Ker in König et Sims, Ann. i. 238; Sweet, Brit. Flow. Gard. t. 143. *Gladiolus anceps* Linn. fil. ex parte; Jacq. Ic. t. 269. *G. denticulatus* Lam. *Ovieda anceps* Spreng. *Ixia pyramidalis* Lam. *Witsenia pyramidalis* Pers.—Corm ovoid, tunics thick, brown, cancellate. Produced basal leaf 1, linear,  $\frac{1}{2}$  ft. long. Stems  $\frac{1}{2}-1$  ft. long including the inflorescence, strongly ancipitous, branched low down; spikes laxly 2-5-flowered; outer spathe-valve ovate, pale green,  $\frac{1}{2}-\frac{1}{3}$  in. long. Perianth lilac or white, with a slender tube  $1-1\frac{1}{2}$  in. long and oblanceolate segments  $\frac{1}{4}-\frac{1}{2}$  in. long. Stamens half as long as the segments.

Var. *L. ACULEATA* Sweet (Flow. Gard. ser. ii. t. 99). *Ovieda aculeata* Klatt.—Outer spathe-valve denticulate on the keel. Perianth-tube shorter than in the type and segments broader.

Hab. Cape Colony; south-western provinces and Namaqualand.

22. *L. CAUDATA* Schinz in Verhand. Bot. Vereins, Branden. xxxi. 213.—Corm globose,  $\frac{1}{2}$  in. diam. Produced basal leaves 1-2, linear, firm, ascending, 6-9 in. long. Stem  $1-1\frac{1}{2}$  ft. long including the inflorescence, copiously branched from low down; branches obscurely ancipitous; flowers many, in long very lax spikes; outer spathe-valve lanceolate, green,  $\frac{1}{2}$  in. long. Perianth pale, with a very slender tube  $1\frac{1}{2}$  in. long; segments linear-subulate, spreading, flexuose, half as long as the tube. Stamens very short.

Hab. South-west Tropical Africa; Ambolana, *Dr. Schinz*!

23. *L. LITTORALIS* Baker in Trans. Linn. Soc. ser. 2, i. 272.—Stem much branched, 3 in. long including the inflorescence, bearing 2 firm linear leaves low down. Rachis of panicle angled, very flexuose; spathe-valves subequal, lanceolate, green,  $\frac{1}{2}$  in. long. Flower not seen. Capsule obovoid-oblong,  $\frac{1}{2}-1$  in. long.

Hab. Angola; province of Mossamedes, on the sandy sea-shore, *Welwitsch*!

24. *L. CYANESCENS* Baker in Trans. Linn. Soc. ser. 2, i. 272.—Corm globose, 1 in. diam.; tunics thick, coarsely fibrous. Stem 6-9 in. long, bearing 3-4 crowded, linear, firm, erect leaves a foot or more long. Flowers few, in a very lax panicle with acutely angled branches, all peduncled; spathe-valves lanceolate, firm, green,  $1\frac{1}{4}-1\frac{1}{2}$  in. long. Perianth white, with a slender tube 4-5 in. long; segments oblong, obtuse, an inch long. Anthers  $\frac{1}{3}$  in. long; filaments very short.

Hab. Angola; province of Huilla, subtemperate region, *Welwitsch* 1553! *Anomatheca angolensis* Baker in Journ. Bot. 1876, 3:7, described from a plant sent by Mr. Monteiro that flowered at Kew, July, 1862, is perhaps a form of the same species.

25. *L. FRAGRANS* Baker in Trans. Linn. Soc. ser. 2, i. 272.—Corm ovoid,  $\frac{1}{2}-\frac{3}{4}$  in. diam.; tunics coarsely fibrous. Produced

basal leaves 2, narrow linear, erect, 6-9 in. long. Stem, including inflorescence,  $\frac{1}{2}$  ft. long; branches few; flowers few, all pedicellate; outer spathe-valves lanceolate, green, an inch long. Perianth white, with a slender cylindrical tube 4-4 $\frac{1}{2}$  in. long; segments lanceolate, an inch long. Anthers  $\frac{1}{2}$  in. long; filaments very short.

Hab. Angola; province of Huilla, subtemperate region, *Welwitsch* 1552!

26. *L. ODORATISSIMA* Baker in Trans. Linn. Soc. Ser. 2, i. 273, tab. 36, figs. 2-3.—Corm ovoid,  $\frac{1}{2}$  in. diam., with rigid nearly black cancellate tunics. Basal leaves 2, linear, ascending,  $\frac{1}{2}$  ft. long. Spike dense, solitary, simple; outer spathe-valves linear, green, 4-5 in. long; inner much shorter. Perianth whitish, with a cylindrical tube 4-5 in. long, and spreading lanceolate acute segments 1 $\frac{1}{2}$  in. long. Anthers linear,  $\frac{1}{2}$  in. long; filaments very short.

Hab. Angola; subtemperate region of the province of Huilla, *Welwitsch* 1551!

#### Subgenus II.—ANOMATHECA.

27. *L. JUNCEA* Pourr. in Act. Tolos. iii. 15; Ker in Bot. Mag. t. 606. *Anomatheca juncea* Ker. *Gladiolus junceus* Linn. fil. *G. polystachyus* Andr. Bot. Rep. t. 66. *G. marmoratus* Lam. *G. paniculatus* Pers. *G. excisus* Jacq. Hort. Schoen. t. 491. *G. amabilis* Salisb. *Ixia spicata* Burm. *I. emarginata* Vahl.—Corm ovoid, with fibrous tunics. Produced basal leaves 4-6 in a tuft, lorate, 6-8 in. long. Stems 1-2 ft. long including the inflorescence, subterete, branched from below the middle; flowers 4-6 to a branch, laxly spicate; outer spathe-valve oblong, green,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth pale red, with a slender tube  $\frac{1}{2}$ - $\frac{1}{3}$  in. long, and oblanceolate-oblong segments  $\frac{1}{2}$ - $\frac{1}{3}$  in. long, the three lower spotted at the throat. Stamens half as long as the segments.

Hab. Cape Colony; south-western provinces.

28. *L. CRUENTA* Benth. Gen. Plant. iii. 705. *Anomatheca cruenta* Lindl. in Bot. Reg. t. 1369; Lodd. Bot. Cab. t. 1857; Paxt. Mag. i. 103. —Corm ovoid, with finely reticulated brown tunics. Produced leaves about 6 in a tuft, thin, linear,  $\frac{1}{2}$ -1 ft. long. Stems slender, simple, terete or branched, 1-2 ft. long. Flowers 6-12 in a lax secund spike; outer spathe-valves ovate or ovate-lanceolate, green,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth with a slender tube 1-1 $\frac{1}{2}$  in. long, and bright red oblong segments  $\frac{1}{2}$  in. long, the three lower with a black spot at the base. Stamens less than half as long as the segments.

Hab. Cape Colony; south-eastern provinces and Kaffraria.

29. *L. GRANDIFLORA* Baker in Bot. Mag. t. 6924. *Anomatheca grandiflora* Baker.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics brown, finely fibrous. Leaves 4-8 in a basal tuft, erect, linear, a foot or more long. Peduncle simple, terete, as long as the leaves. Flowers 5-6 in a lax spike; outer spathe-valve green, lanceolate,  $\frac{1}{2}$  in. long. Perianth with a subcylindrical tube an inch long, and bright red oblanceolate segments as long as the tube, the three lower with a dark blotch at the base. Stamens as long as the segments.

Hab. Delagoa Bay and highlands of the Zambesi.

## Subgenus III.—SOPHRONIA.

30. *L. GALAXIOIDES* Baker. — Corm globose,  $\frac{1}{2}$  in. diam., with reticulated tunics and a neck 1-1 $\frac{1}{2}$  in. long. Leaves and flowers congested into a dense sessile rosette. Leaves linear, 4-6 in. long, with an ovate base. Outer spathe-valves ovate-lanceolate, green,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth with a slender cylindrical tube 1-1 $\frac{1}{4}$  in. long, and spreading lanceolate whitish or violet segments  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Stamens half as long as the segments.

Hab. Dry hills of the Transvaal; first collected by Mr. Bowker.

31. *L. CÆSPITOSA* Baker. *Sophronia cæspitosa* Lichten. — Corm globose,  $\frac{1}{2}$  in. diam., with thick cancellate brown tunics and a neck an inch long. Flowers and leaves congested into a dense rosette. Leaves linear, 4-6 in. long, strongly ribbed, with an ovate base. Outer spathe-valve ovate, scariose,  $\frac{1}{2}$  in. long. Perianth whitish, with a slender cylindrical tube  $\frac{3}{4}$ -1 in. long, and spreading lanceolate segments  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Stamens shorter than the segments. Style-branches very short.

Hab. Cape Colony; arid regions of the central provinces. First gathered by Lichtenstein and Burchell.

32. *L. FASCICULATA* Ker in König et Sims, Ann. i. 237. *Galaxia plicata* Jacq. Ic. t. 292. *Ovieda fasciculata* Spreng. *Ixia heterophylla* Willd. — Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics cancellate, tipped with bristles. Leaves and flowers congested into a dense sessile rosette. Leaves linear, 3-4 in. long, with an ovate scariose base. Spathe-valves ovate, under an inch long. Perianth whitish, with a cylindrical tube an inch long, and spreading lanceolate segments  $\frac{1}{4}$  in. long. Stamens shorter than the perianth-segments.

Hab. Cape Colony; south-western provinces and Namaqualand.

47. *WATSONIA* Miller.

*Perianth* with a long curved tube dilated suddenly at the middle, narrowly or openly funnel-shaped above it; segments subequal, oblong, spreading. *Stamens* unilateral, arcuate, inserted at the middle of the perianth-tube; anthers linear-oblong, versatile. *Ovary* globose, 3-celled; ovules many, superposed; style filiform; style-branches short, subulate, bifid. *Capsule* oblong, dehiscing loculicidally. *Seeds* globose or angled by pressure. — *Rootstock* a tunicated corm. *Leaves* rigid, usually ensiform. *Flowers* large, usually bright red, spicate; spathe-valves oblong-lanceolate, entire, rigid, brown or green.

Subgenus *WATSONIA* PROPER.—Flowers large; upper half of the perianth-tube narrowly funnel-shaped . . . . Sp. 1-8.

Subgenus *NEUBERIA*.—Flowers large; upper half of the perianth-tube broadly funnel-shaped . . . . Sp. 9-11.

Subgenus *BEILIA*. — Flowers small; perianth-tube dilated only at the very throat . . . . Sp. 12-15.

1. *W. ALETROIDES* Ker in Bot. Mag. t. 533. *W. tubulosa* Pers. *Antholyza aletroides* Burm. *A. tubulosa* Andr. Bot. Rep. t. 174.



*Gladiolus atretoides* Vahl. *G. tubulosus* Jacq. Ic. t. 229. — Corm globose, 1 in. diam.; tunics of reticulated fibres, bristly at the top. Basal leaves 4-6, ensiform, rigid,  $\frac{1}{2}$ -1 ft. long. Stem 1-2 ft. long, simple or branched, bearing several reduced leaves. Flowers 6-12, laxly spicate; lower drooping; spathe-valves oblong-lanceolate,  $\frac{3}{4}$ -1 in. long. Perianth bright scarlet or pale pink, with a curved tube  $1\frac{1}{2}$  in. long, narrowly funnel-shaped above the middle; segments oblong,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Stamens reaching nearly to the tip of the segments.

Hab. Cape Colony; southern provinces and Kaffraria.

2. *W. ANGUSTA* Ker in König & Sims, Ann. i. 230. *W. fulgida* Salisb. *W. atrosanguinea* Klatt. *W. iridifolia* var. *fulgens* Ker in Bot. Mag. t. 600. *Antholyza fulgens* Andr. Bot. Rep. t. 192. *Gladiolus Merianus* var., Jacq. Ic. t. 231. — Corm globose, 1- $1\frac{1}{2}$  in. diam.; tunics fibrous. Basal leaves 4-6, ensiform, rigid, 1-2 ft. long. Stems usually branched, reaching a length of 3-4 ft., bearing a few reduced leaves. Spikes lax, 6-9 in. long; outer spathe-valve oblong-lanceolate, rigid, brown,  $\frac{3}{4}$ -1 in. long. Perianth bright scarlet, with a curved tube  $1\frac{1}{2}$  in. long, narrowly funnel-shaped in the upper half; segments oblanceolate-oblong, cuspidate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Stamens reaching to the tip of the perianth-segments.

Hab. Cape Colony; southern provinces and Kaffraria.

3. *W. MERIANA* Miller, Gard. Dict. edit. vi. No. 1 (Ic. ii. 184, t. 276). *W. latwra* Klatt. *Antholyza Meriana* Linn.; Bot. Mag. t. 418. *Gladiolus Merianus* Red. Lil. t. 11; Jacq. Ic. t. 230. — Corm globose, 1- $1\frac{1}{2}$  in. diam.; tunics of reticulated fibres, tipped with bristles. Basal leaves 3-4, ensiform, rigid, 1-2 ft. long. Stems 2-3 ft. long, usually branched, bearing a few reduced leaves. Spikes lax, 6-9 in. long; spathe-valves oblong-lanceolate, brown, rigid,  $\frac{3}{4}$ -1 in. long. Flowers bright rose-red, rarely scarlet or white. Perianth with a curved tube  $1\frac{1}{2}$ -2 in. long, narrowly funnel-shaped in the upper half, and oblong-cuspidate segments  $\frac{3}{4}$  in. long. Stamens falling short of the tip of the segments.

Var. *W. IRIDIFOLIA* Ker. *Gladiolus iridifolius* Jacq. Ic. t. 234. — Leaves broader. Flowers closer and more numerous, white or pink.

Var. *W. ROSEO-ALBA* Ker in Bot. Mag. t. 537. *W. Ludwigi* Eckl. *Gladiolus roseo-albus* Jacq. Hort. Schoen. i. 7, t. 13. — Perianth-tube more slender than in the type, and segments narrower.

Var. *W. DUBIA* Eckl. Top. Verz. 36. — Leaves linear. Spathe-valves  $1\frac{1}{2}$ -2 in. long. Perianth-tube 2 in. long,  $\frac{1}{8}$  in. diam. at the throat; segments oblong-spathulate, narrower than in the type.

Var. *PLATYPETALA* Baker. — Flowers bright rose-red, with shorter broader rather imbricated segments.

Hab. Cape Colony, Kaffraria, Natal, Transvaal.

4. *W. COCCINEA* Herb. *W. pellucida* Eckl. *W. Meriana* var., Ker in Bot. Mag. t. 1194. — Corm globose,  $1\frac{1}{2}$  in. diam.; tunics of reticulated fibres, bristly at the top. Basal leaves linear, rigid,  $\frac{1}{2}$ -1 ft. long. Stem simple, a foot long. Flowers 4-6 in a very lax spike; spathe-valves oblong-lanceolate, brown, rigid, the lower

1-1½ in. long. Perianth bright crimson, with a curved tube 1½-2 in. long; segments oblong-cuspidate, an inch long. Stamens reaching nearly to the tip of the segments.

Hab. Cape Colony; south-western provinces,

5. *W. DENSIFLORA* Baker in Journ. Bot. 1876, 336; Bot. Mag. t. 6400. — Corm globose, 1 in. diam.; tunics of matted parallel fibres. Basal leaves 4-6, ensiform, rigid, 2-3 ft. long. Stems simple, terete, 1½-2 ft. long, bearing a few reduced leaves. Flowers 40-50 in a dense spike a foot long; outer spathe-valve oblong-lanceolate, brown, rigid, an inch long. Perianth rose-red, rarely white; tube curved, 1¼-1½ in. long, narrowly funnel-shaped in the upper half; segments oblong, cuspidate, ¾ in. long. Anthers just protruded from the perianth-tube.

Hab. Kaffraria, Orange Free State, and Natal; first gathered by Drège.

6. *W. HUMILIS* Miller, Gard. Dict. edit. vi. No. 2 (Ic. ii. 198, t. 297, fig. 2); Ker in Bot. Mag. t. 63 & 1193. *W. laccata* Ker. *W. maculata* Klatt. *Gladiolus laccatus* Jacq. Ic. t. 232; Red. Lil. t. 243. — Corm globose, 1 in. diam.; tunics thick, reticulated, bristly at the top. Basal leaves linear, rigid, 6-9 in. long. Stem usually simple, a foot long. Spikes 4-6-flowered, very lax; spathe-valves oblong-lanceolate, rigid, the lower 1-2 in. long. Perianth rose-red, with a curved tube 1¼-1½ in. long, ⅓ in. diam. at the throat; segments oblong, ¾ in. long. Stamens reaching halfway up the segments.

Hab. Cape Colony; southern provinces, Kaffraria, and Natal.

7. *W. STRICTIFLORA* Ker in Bot. Mag. t. 1416. — Corm globose, 1 in. diam.; tunics thick, fibrous. Basal leaves linear, rigid, ½-1 ft. long. Stems simple, 1-1½ ft. long, with a few reduced leaves. Flowers few, in a lax spike; spathe-valves oblong-lanceolate, firm, brown, ¼-1 in. long. Perianth rose-red, with a slightly-curved tube 1½ in. long, subcylindrical in the upper half, ⅓ in. diam. at the throat; segments oblong-spathulate, ¾ in. long. Stamens reaching to the tip of the segments.

Hab. Cape Colony; south-western provinces.

8. *W. CYLINDRICA* Baker in Journ. Bot. 1876, 336. — Basal leaves 5-6, ensiform, ½ ft. long. Stem simple, a foot long, bearing about 3 reduced leaves. Spike lax, 4-6-flowered; outer spathe-valve oblong-lanceolate, ¾-1 in. long. Perianth pale red, with a narrow tube 1¼-1½ in. long, ⅓ in. diam. at the throat; segments obovate, acute, ½ in. long. Stamens reaching nearly to the tip of the segments.

Hab. Described from a plant flowered in 1871 by Mr. Wilson Saunders at Reigate. It was said to come from Madagascar, but has not been found by Mr. Baron or other collectors.

#### Subgenus II. NEUBERIA.

9. *W. BREVIFOLIA* Ker in Bot. Mag. t. 601. *W. hyacinthoides* Pers. *Antholyza spicata* Andr. Bot. Rep. t. 36. — Corm globose, 1 in.

diam. ; tunics of reticulated fibres, bristly at the top. Basal leaves about 4, linear, rigid, 6-9 in. long. Stems a foot or more long, usually simple. Spikes lax, 6-8-flowered; spathe-valves oblong-lanceolate, brown, rigid,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth bright rose-red, with a curved tube  $\frac{3}{4}$ -1 in. long, broadly funnel-shaped in the upper half; segments oblong,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Anthers just protruded from the perianth tube.

Hab. Cape Colony; south-western provinces.

10. *W. ROSEA* Ker in Konig et Sims, Ann. i. 230; Bot. Mag. t. 1072. *W. striata* Klatt. *Gladiolus iridifolius*, var., Jacq. Ic. t. 235. *G. pyramidatus* Andr. Bot. Rep. t. 335. *Neuberia rosea* Eckl. —Corm large, globose; tunics thick, fibrous. Basal leaves ensiform, rigid, 1-2 ft. long. Stems 4-5 ft. long, usually much branched. Spikes lax or subdense,  $\frac{1}{2}$ -1 ft. long; spathe-valves oblong-lanceolate, rigid, brown,  $\frac{3}{4}$  in. long. Perianth bright rose-red, with a tube 1-1 $\frac{1}{4}$  in. long, broadly funnel-shaped in the upper third; segments oblong-spathulate, cuspidate, as long as the tube. Stamens reaching halfway up the segments.

Hab. Cape Colony; southern provinces and the Transvaal.

11. *W. MARGINATA* Ker in Bot. Mag. t. 608. *Gladiolus marginatus* Linn. fil.; Thunb. ex parte. *G. glumaceus* Thunb. *Ixia curtilaginea* Lam. *I. marginata* Ait. *Neuberia marginata* Eckl. —Corm large, globose. Basal leaves ensiform, very rigid, 1-1 $\frac{1}{2}$  ft. long. Stems 4-5 ft. long, much branched. Spikes dense, the end one 6-9 in. long; outer spathe-valve oblong-lanceolate,  $\frac{3}{4}$  in. long, paler and less rigid than in the foregoing species. Perianth bright rose-red, with a slender tube  $\frac{3}{4}$  in. long, broadly dilated at the throat and oblong segments  $\frac{3}{4}$ -1 in. long. Stamens reaching halfway up the segments.

Var. *MINOR* Ker in Bot. Mag. t. 1530. — Flower smaller; expanded limb about 1 in. diam.

Hab. Cape Colony; south-western provinces.

### Subgenus III. BEILIA.

12. *W. PUNCTATA* Ker in Konig et Sims, Ann. i. 229. *W. rubens* Ker. *Gladiolus spicatus* Linn. *G. rubens* Vahl. *Beilia spicata* Eckl. —Corm globose,  $\frac{1}{2}$  in. diam.; tunics thick, cancellate, tipped with bristles. Leaves 3-4, superposed, narrow linear or subterete, the lower 6-9 in. long. Stem simple, slender, terete,  $\frac{1}{2}$ -1 ft. long. Spike dense, 2-3 in. long; spathe-valves oblong-lanceolate, brownish green,  $\frac{1}{3}$ - $\frac{1}{2}$  in. long. Perianth dark red or dark violet; tube sub-cylindrical,  $\frac{3}{4}$ -1 in. long, segments oblong,  $\frac{1}{2}$  in. long. Stamens and style reaching halfway up the segments.

Var. *TRITICEA* Baker. *Gladiolus triticeus* Thunb. *G. subulatus* Vahl. *Beilia triticea* Eckl. *W. subulatus* Klatt. —Leaves terete. Spikes shorter and denser. Flowers smaller.

Var. *LONGICOLLIS* Baker. —Perianth with a slender tube 1-1 $\frac{1}{2}$  in. long; segments  $\frac{1}{2}$  in. long.

Hab. Cape Colony; south-western provinces.

13. *W. MINUTA* Klatt, *Erganz.* 19.—Corm globose,  $\frac{1}{3}$  in. diam.; tunics thick, reticulated. Leaves 3-4, superposed, linear, rigid, the lowest 4-6 in. long. Stem slender, simple, under a foot long. Spike short, dense; spathe-valves oblong-lanceolate, brown, rigid,  $\frac{1}{4}$ - $\frac{1}{3}$  in. long. Perianth dark red, with a slender tube not exerted from the spathe; segments linear-oblong,  $\frac{1}{4}$  in. long. Stamens shorter than the segments.

Hab. Cape Colony, *Zeyher* 1609! Scarcely more than a variety of *W. punctata*.

14. *W. JUNCIFOLIA* Baker. *Morphixia juncifolia* Baker in *Journ. Bot.* 1876, 238. *Anomatheca calamifolia* Klatt.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of fine parallel fibres, prolonged above its neck. Basal leaves usually 2, terete, firm, above a foot long. Stem slender, terete, simple,  $1\frac{1}{2}$  ft. long. Spike lax, 4-5 in. long; spathe-valves oblong, rigid,  $\frac{1}{3}$  in. long, green tipped with brown. Perianth bright lilac, with a subcylindrical tube under an inch long; segments linear-oblong,  $\frac{1}{4}$ - $\frac{1}{3}$  in. long. Stamens reaching nearly to the tip of the segments.

Hab. Cape Colony; south-western district, *Zeyher* 1619!

15. *W. LAPEYROUSIODES* Baker. —Corm ovoid.  $\frac{1}{3}$  in. diam.; tunics with fibres reticulated upwards. Lower leaves 2, lanceolate, falcate, moderately firm, 1-3 in. long. Stem simple, 4-6 in. long, with 1-2 reduced sheathing leaves. Spikes very lax, 3-6-flowered; spathe-valves oblong,  $\frac{1}{4}$  in. long. Perianth dark red with a cylindrical tube an inch long; segments oblong,  $\frac{1}{4}$  in. long. Stamens reaching nearly to the tip of the segments.

Hab. Cape Colony; south-western provinces. First gathered by Drege and lately again by *Bolus* 5251!

#### *Doubtful species.*

16. *W. RETUSA* Klatt, *Erganz.* 20. *Ixia polystachya* Ker in *Bot. Mag.* t. 629.—Leaves like those of an *Ixia*. Stem slender, simple, terete. Flowers 6-8 in a lax spike; spathe-valves like those of an *Ixia*. Perianth with a cylindrical tube twice as long as the spathe; segments oblong, rose-red,  $\frac{1}{2}$  in. long. Style-branches bifid only at the top.

Hab. Cape Colony. Known to me only from the figure cited, which Ker in *Gen. Irid.* refers to *Tritonia scillaris*.

17. *LOMENIA BORBONICA* Pourret in *Act. Tolos.* iii. 13.—Radical leaves ensiform, strongly ribbed. Stem stout, branched, 3-4 ft. long. Spathe-valves oblong, subequal, rigid, 4-5 lines long. Perianth a beautiful violet-purple mixed with white, with a slightly curved funnel-shaped tube twice as long as the spathe; segments lanceolate, twice as long as the tube. Style-branches 5.

Hab. Bourbon, *Commerçon*. Known to me only from Pourret's full description, for a copy of which I am indebted to the courtesy of M. Timbal-Lagrave. Most likely there are really 6 style-branches. If so, it is probably a *Watsonia* near *marginata*.

## 48. MICRANTHUS Pers.

*Perianth* with a short curved subcylindrical tube and subequal spreading oblanceolate obtuse segments. *Stamens* inserted at the throat of the perianth-tube, arcuate, close, unilateral; filaments filiform; anthers lanceolate, versatile. *Ovary* 3-celled; ovules 2 in a cell, erect, collateral; style filiform; branches short, subulate, bifid. *Capsule* oblong, membranous, loculicidally 3-valved. *Seeds* 1-2 in a cell, narrow, erect.—*Rootstock* a corm with thick reticulated tunics. *Leaves* sheathing, superposed. *Flowers* small, red, forming dense distichous spikes; outer spathe-valve oblong-lanceolate, with a rigid centre and broad hyaline border.

1. *M. PLANTAGINEUS* Eckl. Topog. Verz. 43. *Watsonia plantaginea* Ker in Bot. Mag. t. 553. *Ixia plantaginea* Ait.; Red. Lil. t. 198. *I. triticea* Burm. *Gladiolus plantagineus* Pers. *G. alopecuroides* Linn. ex parte. *Phalangium spicatum* Houtt. *Watsonia compacta* Lodd. Bot. Cab. t. 1577. *W. triticea* Spreng.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics thick, reticulated, ending in bristles. Produced leaves about 3, linear, firm, strongly ribbed, the lower  $\frac{1}{2}$ -1 ft. long, the upper shorter, loosely sheathing. Stems  $\frac{1}{2}$ -1 ft. long, simple or branched. Spikes 3-6 in. long, the lower flowers often abortive or replaced by bulbillæ; spathe  $\frac{1}{4}$  in. long. Perianth-tube as long as the spathe; segments  $\frac{1}{8}$ - $\frac{1}{4}$  in. long. Stamens as long as the segments.

Var. *JUNCEA* Baker.—Leaves subterete.

Hab. Cape Colony; southern provinces.

2. *M. FISTULOSUS* Eckl. Topog. Verz. 44. *M. spicatus* Klatt. *Gladiolus alopecuroides* Linn. ex parte. *G. spicatus* Linn. *G. tubulosus* Burm. *G. fistulosus* Jacq. Hort. Schoen. t. 6. *Ixia cepacea* Red. Lil. t. 96. *I. fistulosa* Ker in Bot. Mag. t. 523.—Corm  $\frac{1}{2}$ -1 in. diam.; tunics tipped with bristles. Leaves 3-4, superposed, lorate, falcate, glabrous, the lower 3-6 in. long, the upper shorter. Stem simple,  $\frac{1}{2}$ -1 ft. long. Spike, spathe and perianth just like those of *M. plantagineus*.

Hab. Cape Colony; south-western provinces.

## 49. BABIANA Ker.

*Perianth* with a cylindrical tube dilated at the top; limb ringent or subrotate; segments oblong. *Stamens* unilateral, inserted near the top of the perianth-tube; filaments filiform; anthers linear-oblong. *Ovary* 3-celled; ovules many, superposed; style-branches short, simple, flattened at the tip. *Capsule* oblong, loculicidally 3-valved. *Seeds* small, globose or angled by pressure.—*Rootstock* a tunicated corm. *Leaves* usually lanceolate, plicate and hairy. *Spikes* simple or branched; spathe-valves various in texture, usually lanceolate, firm, pilose. *Flowers* usually reddish or lilac.

Subgenus *EUBABIANA*. Perianth ringent; segments oblong.

Perianth with a long tube . . . . . Sp. 1-9.

Perianth-tube not more than  $1\frac{1}{2}$  in. long . . . . . Sp. 10-22.

Subgenus *ACASTE*. Perianth-limb subrotate . Sp. 23-25.

Subgenus *ANTHOLYZOIDES*. Perianth ringent; upper segments  
lingulate-unguiculate, longer than the  
lower . . . . . Sp. 26-27.

1. *B. HYPOGŒA* Burch. Trav. ii. 589.—Corm large, globose; tunics of fine matted fibres. Leaves linear or subulate, pilose, above a foot long. Spathes 1-3, dense; peduncle very short; outer spathe-valve oblong-lanceolate, membranous, glabrous,  $1\frac{1}{2}$ -2 in. long. Perianth bright lilac; tube cylindrical, 2-2 $\frac{1}{2}$  in. long, dilated at the top; segments oblong-spathulate, acute,  $1\frac{1}{2}$  in. long. Stamens half as long as the segments.

Hab. Bechuanaland, Griqualand and Transvaal. First gathered by Burchell.

2. *B. BAINESI* Baker in Journ. Bot. 1876, 335.—Corm globose, 1 in. diam.; tunics of fine reticulated fibres. Leaves linear, plicate, finely pilose, a foot long. Spikes 1-2, erect, very dense; peduncle very short; outer spathe-valve brown, lanceolate, obscurely pilose,  $1\frac{1}{2}$ -2 in. long. Perianth dark lilac, slender, 2 in. long; segments oblong or oblong-lanceolate, as long as the tube. Stamens less than half as long as the segments.

Hab. Transvaal, Orange Free State and Griqualand.

3. *B. LINEOLATA* Klatt, Ergänz. 13.—Corm small, globose; tunics of matted fibres. Leaves long, narrow linear, subglabrous. Stem nearly a foot long including the spike; spathe-valves hairy at the base. Perianth-tube twice as long as the spathe; segments pale violet, lineolate,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; province of Clanwilliam, *Ecklon & Zeyher Irid.* 132.

4. *B. SPATHACEA* Ker in König & Sims, Ann. i. 234. *B. Eckloni* Klatt. *Gladiolus spathaceus* Linn. fil. Leaves linear, nearly a foot long, plicate, pilose, oblique at the base. Stem a foot long, including the 2-3 dense spikes; outer spathe-valve oblong-lanceolate, scarious, glabrous,  $\frac{3}{4}$ -1 in. long. Perianth pale lilac; tube slender,  $1\frac{1}{2}$ -2 in. long; segments oblanceolate,  $\frac{1}{2}$  in. long. Stamens nearly as long as the segments.

Hab. Cape Colony; south-western district. Described from Thunberg's specimens.

5. *B. TUBIFLORA* Ker in König & Sims, Ann. i. 233; Bot. Mag. t. 847 and 1019. *B. tubulosa* Ker. *Gladiolus tubiflorus* Linn. fil.; Jacq. Ic. t. 266. *G. angustifolius* Lam. *G. mucronatus* Red. Lil. t. 142. *Ixia tubulosa* Burm.—Corm small, globose; tunics membranous. Leaves linear, plicate, finely pilose,  $\frac{1}{2}$ -1 ft. long. Spikes 1-2, shorter than the leaves, moderately dense, secund, 2-3 in. long; spathe-valves lanceolate, firm, densely villose,  $1\frac{1}{2}$ -2 in. long. Perianth reddish; tube slender, an inch longer than the spathe; segments subequal, oblanceolate, under an inch long. Stamens shorter than the segments.

Var. *B. FILIFOLIA* Pappé.—Leaves very narrow. Spikes 1-2-flowered.

Hab. Cape Colony; south-western district.

6. *B. TUBATA* Sweet, Brit. Flow. Gard. edit. 2, 500. *B. tubiflora* var. *tubata* Ker in. Bot. Mag. t. 680. *Gladiolus tubatus* Jacq. Ic. t. 264. *G. longiflorus* Andr. Bot. Rept. t. 5.—Corm globose, 1 in. diam.; tunics membranous. Leaves linear, petioled, pilose, a foot or more long. Spikes often several, dense, secund, 2-4 in. long; outer spathe-valve oblong or oblong-lanceolate, firm, 1-1½ in. long, densely pilose, scariose at the tip. Perianth dull pink; tube slender, 1½ in. longer than the spathe; segments oblong-spathulate, 1-1½ in. long. Stamens shorter than the segments.

Hab. Cape Colony; south-western district.

7. *B. SAMBUCINA* Ker in König & Sims, Ann. i. 233; Bot. Mag. t. 1019. *Gladiolus sambucinus* Jacq. Hort. Schoen. t. 15.—Corm globose, tunicated. Basal leaves, 5-6, linear, petioled, plicate, overtopping the flowers. Peduncle, including the inflorescence, ½-1 ft. long; spikes dense, few or several; outer spathe-valve lanceolate, pubescent, 1½-2 in. long. Perianth deep lilac; tube 1½-2 in. long; segments oblong-spathulate, an inch long. Stamens half as long as the limb.

Hab. Cape Colony; south-western district.

8. *B. DENSIFLORA* Klatt, Ergänz. 14.—Corm ovoid; tunics of thick fibres. Leaves linear, hairy, plicate, ½ ft. long. Stems glabrous, terete, curved, 6-8 in. long; flowers 8-9 in a dense spike; outer spathe-valve oblong-lanceolate, membranous, 1½ in. long. Perianth whitish; tube slender, 2 in. long; segments oblong-spathulate, ¾ in. long, the three lower with two purple spots low down.

Hab. Cape Colony; province of Clanwilliam, *Dr. Meyer*.

9. *B. DREGEI* Baker in Journ. Bot. 1876, 336.—Corm not seen. Leaves very thick, linear, rigid, plicate, glabrous, 9-12 in. long. Flowers in 3-4 congested spikes on a short peduncle; spathe-valves oblong-lanceolate, glabrous, 1½-2 in. long. Perianth-tube slender, 2-2½ in. long; segments oblong-spathulate, an inch long. Stamens half as long as the limb.

Hab. Mountains of Namaqualand, alt. 2000-3000 ft., *Drege* 2328!

10. *B. NAMAQUENSIS* Baker.—Corm small, globose, with a long neck. Leaves linear, spirally curled, very hairy, 1-1½ in. long. Spikes 2, crowded, subsessile; spathe-valves oblong, acute, scariose, ¾ in. long. Perianth-tube as long as the spathe; segments obovate, dark purple, an inch long. Stamens shorter than the limb.

Hab. Lesser Namaqualand; in sandy ground near Port Nolloch *Bolus* 4343!

11. *B. PYGMÆA* Baker in Journ. Linn. Soc. xvi. 165. *B. nana* Ker. *Gladiolus nanus* Andr. Bot. Rep. t. 137. *Leia pygmæa* Burm.—Corm small, ovoid; tunics membranous, brown. Leaves 4-5, lanceolate, petioled, hairy, 2-3 in. long. Flowers 2-6 in an erect

spike; peduncle short, hairy; spathe-valves oblong-lanceolate,  $\frac{3}{4}$ -1 in. long. Perianth pale lilac; tube funnel-shaped, as long as the spathe; segments oblong, 1-1 $\frac{1}{4}$  in. long. Stamens half as long as the limb.

Hab. Cape Colony; south-western provinces.

12. *B. SPRENGELII* Baker in Journ. Linn. Soc. xvi. 165.—Corm small, globose; tunics membranous, brown. Leaves 4-5, petioled, oblique-oblong, acute, moderately firm, hairy, 1-1 $\frac{1}{2}$  in. long. Flowers 1-2 in an erect spike on a level with the top of the leaves; spathe-valves oblong-lanceolate, hairy,  $\frac{3}{4}$ -1 in. long. Perianth pale lilac; tube funnel-shaped, as long as the spathe; segments unequal, oblong-unguiculate, 1-1 $\frac{1}{4}$  in. long. Stamens half as long as the limb.

Hab. Cape Colony; Saldanha Bay, *Zeyher*!

13. *B. FLABELIFOLIA* HARV.; Klatt in Linnæa, xxxv. 380.—Corm not seen. Leaves 4-5, with a distinct petiole and a hairy deltoid blade about 2 in. long and broad with a truncate dentate apex. Flowers 2-3 in an erect spike with a short peduncle; spathe-valves oblong-lanceolate, hairy,  $\frac{3}{4}$ -1 in. long. Perianth lilac, with a slender tube as long as the spathe and unequal oblong segments an inch long. Stamens more than half as long as the limb.

Hab. Namaqualand, *Rev. H. Whitehead*!

14. *B. CUNEIFOLIA* Baker in Journ. Bot. 1876, 335.—Corm globose, 1 in. diam.; tunics of fine matted fibres.—Leaves 5-6, with a long petiole and an oblique deltoid hairy blade 1 $\frac{1}{2}$ -2 in. long. Flowers 2-3 in a dense shortly-peduncled spike; spathe-valves lanceolate-acuminate, 1 $\frac{1}{2}$  in. long. Perianth bright lilac; tube as the spathe; segments unequal, oblong-unguiculate, an inch long. Stamens half as long as the limb.

Hab. Cape Colony; eastern district, *Drège* 2627!

15. *B. MONONEURA* Baker.—Corm not seen. Leaves linear, glabrous, rigidly coriaceous, 8-9 in. long, with a strongly-raised midrib and revolute edges. Peduncle slender, glabrous, 1-flowered,  $\frac{1}{2}$  ft. long; outer spathe-valve lanceolate, green, glabrous, an inch long. Perianth with a tube as long as the spathe and oblong-unguiculate unequal segments 1-1 $\frac{1}{4}$  in. long. Stamens more than half as long as the limb.

Hab. Cape Colony; south-western district, *Thunberg*!

16. *B. FIMBRIATA* Baker in Journ. Linn. Soc. xvi. 166 *Antholyza fimbriata* Klatt.—Corm ovoid,  $\frac{3}{4}$ -1 in. diam.; tunics of fine brown matted fibres. Leaves about 6, with a long petiole and a slightly hairy linear blade 4-6 in. long. Stem a foot long, including the 1-2 lax spikes; spathe-valves oblong-lanceolate, subglabrous,  $\frac{1}{2}$  in. long, with a brown tip. Perianth pale lilac, with a tube as long as the spathe and unequal oblong segments under an inch long. Stamens nearly as long as the limb.

Hab. Little Namaqualand, *Drège* 2619!



17. *B. SPIRALIS* Baker.—Corm not seen. Leaves 6–8, petioled, linear, hairy, moderately firm, 6–9 in. long, spirally twisted towards the tip. Stem a foot long; spikes 2–3, lax, with a flexuose pubescent rachis; outer spathe-valve oblong-lanceolate,  $\frac{1}{2}$  in. long, green with a brown scarioso cusp, finely pubescent. Perianth pale lilac, with a tube as long as the spathe and unequal oblong segments  $\frac{1}{4}$  in. long. Stamens as long as the limb.

Hab. Cape Colony; south-western district. Described from specimens in the herbarium of Forsyth, once curator of Chelsea Garden.

18. *B. MUCRONATA* Ker in König & Sims, Ann. i. 233. *Gladiolus mucronatus* Jacq. Ic. t. 253. *B. scabrifolia* Brehm.—Corm globose, 1 in. diam.; tunics of fine matted fibres. Leaves 5–6, petioled, lanceolate, glabrous, 3–4 in. long. Flowers several in a dense spike; peduncle short; outer spathe-valve oblong-lanceolate, firm, green, glabrous or slightly hairy,  $\frac{3}{4}$ –1 in. long. Perianth lilac, with a tube as long as the spathe and unequal oblong segments an inch long. Stamens half as long as the limb.

Var. *LONGICOLLIS* Baker. *B. spathacea* Ker in Bot. Mag. t. 638. Perianth-tube about twice as long as the spathe.

Hab. Cape Colony; south-western provinces and Namaqualand.

19. *B. OCCIDENTALIS* Baker.—Corm not seen. Leaves 4–5, lanceolate, glabrous, a foot long. Flowers many in a panicle of 2–3 spikes with a moderately long peduncle; spathe-valves oblong-lanceolate, finely pilose, an inch long. Perianth bright lilac, with a tube as long as the spathe and unequal oblong segments 1–1 $\frac{1}{4}$  in. long. Stamens half as long as the limb.

Hab. Cape Colony; province of Clanwilliam (*Mader*) *Macowan* 2169! May be a variety of *B. mucronata*.

20. *B. SOCOTRANA* Hook. fl. in Bot. Mag. t. 6585. —Corm globose; tunics of matted fibres. Leaves 4–6, lanceolate, 3–4 in. long, plicate, subglabrous. Spike simple, 1–4-flowered; peduncle very short; outer spathe-valve firm, green, lanceolate-acuminate, above an inch long. Perianth lilac; tube slender, 1 $\frac{1}{2}$  in. long. Stamens half as long as the segments.

Hab. Island of Socotra. Discovered by Prof. Balfour, in the spring of 1880.

21. *B. PLICATA* Ker in Bot. Mag. t. 576. *B. caerulea* and *villosa* Eckl. *B. punctata* Klatt. *Gladiolus plicatus* Linn. ex parte. *G. ringens* Thunb. ex parte. *G. fragrans* Jacq. Hort. Schoen. t. 14. —Corm small, globose; tunics of fine matted fibres.—Leaves 5–6, petioled, lanceolate, hairy, 3–6 in. long. Flowers in a simple or forked spike mostly shorter than the leaves; outer spathe-valve oblong-lanceolate, hairy, an inch long. Perianth lilac or reddish, with a tube as long as the spathe and unequal oblong segments 1–1 $\frac{1}{4}$  in. long. Stamens half as long as the limb.

Var. *B. MACULATA* Klatt, Ergän. 15. *B. angustifolia* Eckl.—Dwarf. Leaves linear. Flowers not more than 2–3, crowded, erect.

Var. *FORSTERI* Baker.—Lower leaves with a broad half-deltoid blade developed only on the outer side of the midrib.

Hab. Cape Colony; southern provinces.

22. *B. DISTICHA* Ker in König & Sims, Ann. i. 233; Bot. Mag. t. 626. *Gladiolus plicatus* Jacq. Ic. t. 237.—Scarcely more than a variety of *B. plicata*, from which it differs by its perianth-tube distinctly exerted from the spathe.

Hab. Cape Colony; southern provinces and Namaqualand.

### Subgenus II. ACASTE.

23. *B. MACRANTHA* Macowan in Journ. Linn. Soc. xxv. 394.—Corm small, ovoid; tunics of matted fibres. Leaves 4-5, lanceolate, hairy, petioled, 2-3 in. long. Peduncle a span long, simple or forked; flowers 3-4 in a lax spike; outer spathe-valve oblong-lanceolate, 1-1½ in. long, brown at the tip, hairy. Perianth-tube ½ in. long; segments obovate, sulphur-yellow, tinged with purple at the base, 1½ in. long. Stamens half as long as the limb.

Hab. Cape Colony; province of Malmesbury, *Macowan!*

24. *B. STRICTA* Ker in König & Sims, Ann. i. 234; Bot. Mag. t. 621 and 637. *B. villosa* Ker; Bot. Mag. t. 583. *B. purpurea* Ker. *Gladiolus strictus* Ait.; Red. Lil. t. 90. *G. plicatus* Linn. ex parte. *G. nervosus* Lam. *G. puniceus* Vahl. *Ixia villosa* Ait. *I. punicea* Jacq. Ic. t. 287. *I. flabelliformis* Salisb. *I. purpurea* Jacq. Ic. t. 286.—Corm small, globose, with a long neck and tunics of fine matted fibres. Basal leaves ensiform, hairy, 4-6 in. long. Spikes 1-3, overtopping the leaves, moderately dense, many-flowered; spathe-valves oblong, firm, very hairy, ½-1 in. long. Perianth very variable in colour, usually lilac or red; tube as long as the spathe; segments oblanceolate-oblong, ¾-1 in. long. Stamens half as long as the limb.

Var. *B. RUBRO-CYANEA* Ker. *Ixia rubro-cyanea* Jacq. Ic. t. 285; Bot. Mag. t. 410. *B. rubro-carulea* Reich. Exot. t. 30.—Perianth-limb lilac, with a bright red throat.

Var. *B. OBTUSIFOLIA* Ker. *Ixia villosa* Jacq. Ic. t. 284.—Dwarfer than the type, with a few larger pale lilac flowers with a more funnel-shaped tube.

Var. *B. SULPHUREA* Ker; Bot. Mag. t. 1053. *Gladiolus sulphureus* Jacq. Ic. t. 239. *G. plicatus* Andr. Bot. Rep. t. 268.—Flowers milk-white or sulphur-yellow.

Var. *B. ANGUSTIFOLIA* Sweet (Bot. Mag. t. 637).—Leaves narrow linear.

Var. *B. REFLEXA* Eckl.—Flowers smaller than in the type, the lower deflexed.

Hab. Cape Colony; southern provinces. Besides the above I cannot separate definitely as species *B. undulato-venosa*, *parviflora*, *quadripartita* and *multiflora* Klatt, Erganz. 16-17.

25. *B. SECUNDA* Ker, Gen. Ind. 154. *Gladiolus secundus* Thunb. Act. Soc. Hafn. ii. t. 4.—Corm not seen. Leaves linear, petioled, densely hairy, 5-6 in. long. Stem forked, a foot long; spikes

many-flowered, dense, secund; spathe-valves oblong, brown, membranous, glabrous,  $\frac{1}{4}$  in. long, toothed at the tip as in *Ixia*. Perianth with a funnel-shaped tube  $\frac{1}{3}$  in. long; segments oblong, subequal,  $\frac{3}{4}$  in. long. Stamens nearly as long as the limb.

Hab. Cape Colony; south-western district. Seen only in Thunberg's herbarium.

### Subgenus III. ANTHOLYZOIDES.

26. *B. RINGENS* Ker in König & Sims, Ann. i. 233; Lodd. Bot. Cab. t. 1006; Bot. Mag. t. 6667. *Antholyza ringens* Linn. (Complan. Hort. t. 41).—Corm globose, 1 in. diam.; tunics membranous. Basal leaves many, thick, linear, glabrous,  $\frac{1}{2}$ –1 ft. long. Stem pilose, 1–1 $\frac{1}{2}$  ft. long, ending in a long sterile branch; flowers 8–12 in a dense secund spike on a short arcuate branch; outer spathe-valve lanceolate, 1 $\frac{1}{2}$ –2 in. long, firm, finely pilose. Perianth bright red, tube greenish, rather longer than the spathe; upper segments arcuate, oblong-unguiculate, 1 $\frac{1}{2}$ –2 in. long; lower much shorter, lanceolate. Stamens much longer than the upper segments.

Hab. Cape Colony; south-western provinces.

27. *B. THUNBERGII* Ker in König & Sims, Ann. i. 233. *Antholyza plicata* Linn. fil.—Corm large, globose, with a long neck. Leaves 6–10, linear, glabrous, very thick, 1–1 $\frac{1}{2}$  ft. long. Stems 2–3 ft. long, including the inflorescence, which is a lax panicle of 4–8 dense secund spikes; outer spathe-valve oblong, very hairy, 1–1 $\frac{1}{4}$  in. long. Perianth-tube broadly funnel-shaped, nearly an inch longer than the spathe; limb reddish; upper segment oblong-spathulate,  $\frac{3}{4}$  in. long, the others shorter. Stamens as long as the upper segment.

Hab. Cape Colony; western provinces up to Namaqualand.

### 50. ACIDANTHERA Hochst.

*Perianth* with a usually long cylindrical tube slightly dilated upwards; segments subequal, oblong or oblanceolate-oblong. *Stamens* unilateral, inserted at or a little below the throat of the perianth-tube; filaments filiform; anthers linear, with the connective sometimes produced beyond the cells. *Ovary* 3-celled; ovules many, superposed; style long, filiform; branches short, simple. *Capsule* oblong, membranous, loculicidally 3-valved. *Seeds* globose or discoid and winged.—*Rootstock* a tunicated corm. *Leaves* linear. *Flowers* few, laxly spicate; spathe-valves like those of *Gladiolus*, long, lanceolate, green.

Cape species.

Perianth-tube long . . . . .	Sp. 1–4.
Perianth-tube moderately long . . . . .	Sp. 5–10.
Perianth-tube short . . . . .	Sp. 11–12.
Tropical African species . . . . .	Sp. 13–17.

1. *A. BRACHYSTACHYS* Baker in Journ. Bot. 1876, 338. — Corm not seen. Basal leaves 4–8, crowded, erect, rigid, narrow linear, a

foot long. Stem very short. Spikes lax, 4-6-flowered; spathe-valves lanceolate, firm, green, pubescent,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long. Perianth whitish, with a slender tube about 3 in. long; segments oblanceolate, cuspidate,  $\frac{3}{4}$  in. long. Anthers  $\frac{1}{2}$  in. long, as long as the filaments.

Hab. Cape Colony; province of Clanwilliam, *Mader!*

2. A. GRAMINIFOLIA Baker in Journ. Bot. 1876, 338.—Corm globose, 1 in. diam.; tunics thick, fibrous, bristly at the top. Basal leaves 2, linear, thin, 8-9 in. long. Stem a foot long, bearing 1-2 reduced sheathing leaves. Flowers 2; spathe-valves lanceolate, green, 2 in. long. Perianth white tinged with purple; tube 3 in. long; segments oblanceolate-spathulate,  $\frac{3}{4}$ -1 in. long. Stamens reaching halfway up the limb.

Hab. Cape Colony; plains between Zwelendama and Gauritz, *Bowie!*

3. A. FORSYTHIANA Baker.—Corm not seen. Stem a foot long, bearing 3 superposed linear grass-like leaves. Flowers 3-4, laxly spicate; outer spathe-valve lanceolate, green,  $1\frac{1}{2}$ -2 in. long. Perianth whitish, with a slender tube  $\frac{1}{2}$ - $\frac{3}{4}$  in. longer than the spathe; segments of the limb oblong-cuneate, an inch long. Stamens reaching halfway up the limb.

Hab. Cape Colony; south-western district. First seen in the Forsyth herbarium.

4. A. PLATYPETALA Baker in Journ. Bot. 1876, 339. *Gladiolus longicollis* Baker.—Corm globose,  $\frac{3}{4}$ -1 in. diam.; tunics of matted wiry fibres. Leaves about 3, distantly superposed, firm, narrow linear, strongly ribbed, the lowest a foot long. Stem slender, terete, 1- $1\frac{1}{2}$  ft. long. Flowers 1-2; spathe-valves lanceolate, firm, green, 1- $1\frac{1}{2}$  in. long. Perianth with a curved tube 2- $3\frac{1}{2}$  in. long, slightly dilated in the upper third; segments oblong, cuspidate,  $\frac{3}{4}$ -1 in. long, yellowish white flushed with purple. Stamens reaching halfway up the segments.

Hab. Cape Colony; Uitenhage northward to Natal, and the Transvaal.

5. A. TUBULOSA Baker in Journ. Linn. Soc. xvi. 160. *A. exscapus* Baker. *Leia tubulosa* Houtt. Handl. xii. t. 78, fig. 2. *Gladiolus exscapus* Thunb. *Freesia costata* Eckl.—Corm globose,  $\frac{1}{2}$  in. diam. Leaves about 3, distantly superposed, linear, firm, with a thick midrib, the lowest a foot long. Stem simple, terete, a foot long. Flowers 2-5, in a very lax spike, with a flexuose rachis; outer spathe-valve lanceolate, green,  $1\frac{1}{2}$ -2 in. long. Perianth whitish or tinged with pink; tube slender, 2 in. long; segments oblanceolate-oblong, an inch long. Stamens more than half as long as the segments.

Hab. Cape Colony; south-western provinces.

6. A. FLEXUOSA Baker in Berlin Monat. xix. 15. *Gladiolus flexuosus* Thunb. *Spharospora flexuosa* Klatt.—Corm not seen. Leaves about 3, distant, superposed, narrow linear, the lower  $\frac{1}{2}$  ft. long. Stem slender, simple, terete, under a foot long. Flowers 3-4 in a short spike; outer spathe valve lanceolate, 1- $1\frac{1}{2}$  in. long.

Perianth whitish, with a slender tube  $1\frac{1}{2}$ -2 in. long; segments ob-lanceolate, an inch long. Stamens more than half as long as the segments.

Hab. Cape Colony; south-western district, *Thunberg*! Doubtfully distinct from *A. tubulosa*.

7. *A. PAUCIFLORA* Benth. Gen. Plant. iii. 706. *Montbretia pauciflora* Baker.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics membranous. Basal leaves 2-3, linear, grass-like,  $\frac{1}{2}$  ft. long. Stems simple, terete,  $\frac{1}{2}$ -1 ft. long, bearing 2-3 reduced sheathing leaves. Flowers 1-2; outer spathe-valve lanceolate, green,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long. Perianth white, faintly tinged with red; tube curved, a little longer than the spathe, funnel-shaped at the apex; segments oblong-spathulate,  $1$ - $1\frac{1}{2}$  in. long. Stamens more than half as long as the segments.

Hab. Cape Colony; province of Somerset, *Bowker*!

8. *A. HUTTONI* Baker in Journ. Bot. 1876, 339.—Corm not seen. Basal leaves 2-3, linear, grass-like, moderately firm, erect, a foot long. Stem simple, slender, a foot long, bearing 2-3 reduced long-sheathing leaves. Flowers 2-4, very laxly spicate; spathe-valves lanceolate, green,  $1$ - $1\frac{1}{2}$  in. long. Perianth whitish, with a slender tube  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long, funnel-shaped at the top; segments oblong,  $\frac{3}{4}$ -1 in. long. Stamens reaching more than halfway up the limb.

Hab. Cape Colony; eastern province, on the Katberg, *Hutton*!

9. *A. TYSONI* Baker.—Corm small, globose. Stem simple, slender,  $1$ - $1\frac{1}{2}$  ft. long, bearing 3 erect linear moderately firm leaves, the lowest a foot long. Flowers 2-3, laxly spicate; spathe-valves lanceolate, pale green,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long. Perianth pink; tube a little longer than the spathe, funnel-shaped at the top; segments oblong,  $1$ - $1\frac{1}{4}$  in. long. Stamens more than half as long as the segments. Style-branches subulate.

Hab. Mountains of East Griqualand, alt. 5300 ft., *Tyson* 1151!

10. *A. CAPENSIS* Benth. Gen. Plant. iii. 706. *Tritonia capensis* Ker; Bot. Mag. t. 618 and 1531. *Montbretia capensis* Baker. *Gladiolus roseus* Jacq. Ic. t. 261. *Tritonia rosea* Ait.—Corm globose, 1 in. diam.; tunics of fine fibres. Basal leaves 6-8, linear, erect, moderately firm, 6-9 in. long. Stem simple, slender, terete,  $\frac{1}{2}$ -1 ft. long. Flowers 3-6 in a lax erect spike; outer spathe-valve lanceolate, chartaceous, brownish,  $1$ - $1\frac{1}{4}$  in. long. Perianth whitish, with a slender tube  $1\frac{1}{2}$  in. long, funnel-shaped at the apex; segments oblong, an inch long. Stamens more than half as long as the segments.

Hab. Cape Colony; south-western provinces.

11. *A. BREVICOLLIS* Baker in Journ. Bot. 1876, 339. *Gladiolus Guinizii* Kunze.—Corm depresso-globose,  $\frac{1}{2}$  in. diam.; tunics brown, membranous. Basal leaves 4-5, linear, erect, thick, not rigid,  $1$ - $1\frac{1}{2}$  ft. long. Stems a foot long, bearing 2-3 reduced leaves. Flowers 3-4, in a lax spike with a flexuose axis; outer spathe-valve oblong, green,  $\frac{3}{4}$ -1 in. long. Perianth bright purple,

with a cylindrical tube as long as the spathe and oblong segments  $\frac{3}{4}$  in. long. Stamens half as long as the segments.

Hab. Cape Colony; eastern provinces, Kaffraria and Natal.

12. A. ? IXIODES Baker.—Corm not seen. Stem very slender, simple,  $\frac{1}{2}$  ft. long, bearing one narrow linear leaf nearly a foot long from the middle and one much smaller higher up. Spike lax, simple, few-flowered; outer spathe-valve lanceolate, green, an inch long. Perianth bright lilac, with a cylindrical tube  $\frac{1}{4}$  in. long, funnel-shaped at the throat and oblong segments  $\frac{1}{3}$  in. long. Stamens more than half as long as the segments. Style-branches short, not flattened.

Hab. Cape Colony; *Scott-Elliott* 1174!

13. A. ZANZIBARICA Baker.—Corm not seen. Stem simple, 6-9 in. long, bearing 2-3 erect narrow linear leaves at most 3-4 in. long. Flowers 1-2, erect; spathe-valves lanceolate, green,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long. Perianth white, with a slender tube 2 in. long, scarcely  $\frac{1}{8}$  in. diam. at throat; segments oblong, an inch long, not spotted at the throat. Stamens reaching halfway up the segments.

Hab. Zanzibar coast near Mombassa, *Hildebrandt* 2015!

14. A. LAXIFLORA Baker.—Corm globose,  $\frac{3}{4}$  in. diam.; tunics finely reticulated upwards. Stem simple, slightly ancipitous, under a foot long, bearing about 3 thin erect linear leaves 3-6 in. long. Spike very lax, 2-6-flowered; outer spathe-valves green, lanceolate,  $1\frac{1}{2}$ -3 in. long. Perianth white, with a slender tube 3-4 in. long,  $\frac{1}{8}$  in. diam. at the throat; segments oblong, white, an inch long, not spotted at the throat. Stamens reaching halfway up the limb. Capsule clavate, an inch long.

Hab. Slopes of Mount Kilimanjaro, alt. 2000 ft. Collected by Mr. H. H. Johnston in 1884.

15. A. ÆQUINOCTIALIS Baker in Journ. Linn. Soc. xvi. 160. *Gladiolus æquinoctialis* Herb.—Corm and leaves unknown. Spike lax,  $\frac{1}{2}$  ft. long; spathe-valves ligulate, obtuse,  $2\frac{1}{2}$ -3 in. long. Perianth white, with a slender tube 5-5 $\frac{1}{2}$  in. long; segments lanceolate  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long, spotted with red at the throat. Stamens not reaching to the tip of the segments.

Hab. Sierra Leone, *Herb. Lindley*. There is an unpublished figure amongst Herbert's drawings at the Lindley library, and a copy at Kew.

16. A. BICOLOR Hochst. in Regensb. Flora, 1844, 25; Bouché et Wittm. in Berlin Monat. xix. 12, t. 1. *Ixia Quartiniiana* A. Rich. *Sphaerospora gigantea* Klatt.—Corm globose,  $\frac{1}{2}$ -1 in. diam.; tunics of matted fibres. Stem simple, 1-1 $\frac{1}{2}$  ft. long near the base and two smaller higher up. Spike few-flowered, very lax; outer spathe-valve lanceolate, green, 2-3 in. long. Perianth white, with a slender tube 4-5 in. long,  $\frac{1}{8}$  in. diam. at the throat; segments oblong, acute,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long, the 3 lower conspicuously spotted with purple at the throat. Anthers linear,  $\frac{1}{3}$  in. long, with a long point.

Hab. Mountains of Abyssinia and the Zambesi country.

17. A. UNICOLOR Hochst. in Schimp. Pl. Abyss. No. 2304.

*Tritonia Schimper* Aschers.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics thickly reticulated. Stem a foot long, simple or branched, very ancipitous, bearing 3–4 superposed thin linear leaves, the lowest 6–9 in. long. Spikes very lax, few-flowered; spathe-valves lanceolate, green,  $\frac{1}{2}$  in. long. Perianth white, with a slender tube  $2\frac{1}{2}$ –3 in. long,  $\frac{1}{16}$  in. diam. at the throat; segments oblanceolate,  $\frac{1}{2}$  in. long. Stamens not reaching the top of the segments.

Hab. Mountains of Abyssinia, *Schimper* 2304!

### 51. CROCOSMA Planch.

*Perianth* with a cylindrical tube slightly dilated upwards and 6 subequal spreading oblong segments. *Stamens* inserted at the throat of the perianth-tube, unilateral, arcuate; filaments long, filiform; anthers versatile. *Ovary* 3-celled; ovules few in a cell, superposed; style filiform; branches entire, slightly flattened at the tip. *Fruit* an inflated globose 3-lobed capsule, deliscing loculicidally, the valves persistent and chartaceous. *Seeds* few, large, globose.

1. *C. AUREA* Planch. in *Flore des Serres*, t. 702. *Tritonia aurea* Pappé; Hook. in *Bot. Mag.* t. 4335; *Bot. Mag.* 1847, t. 61. *Crocanthus mossambicensis* Klotzsch in *Peters Reise*, t. 57.—Corm globose; tunics membranous. Basal leaves about 6, linear or ensiform, thin, 1–1 $\frac{1}{2}$  ft. long. Stems terete, branched, 2–4 ft. long, with a few small leaves. Spikes lax, few-flowered; axis very flexuose; spathe-valves ovate or oblong,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth bright fulvous yellow, with a tube  $\frac{3}{4}$ –1 and segments 1–1 $\frac{1}{2}$  in. long. Stamens and style reaching to the tip of the segments. Capsule  $\frac{1}{2}$  in. diam.

Hab. Kaffraria, Natal and the Transvaal northward to Mozambique and the Zambesi highlands. Var. *maculata* Baker has dark blotches above the base of the three inner segments.

### 52. MELASPHERULA Ker.

*Perianth* slit down nearly to the ovary; segments oblong-lanceolate, subequal, very acuminate. *Stamens* arcuate, inserted at the base of the segments; filaments short, filiform; anthers oblong, versatile. *Ovary* short, 3-celled, 3-lobed; ovules 2–3 in a cell; style short, filiform; branches simple. *Capsule* membranous, acutely 3-lobed. *Seeds* oblong.

1. *M. GRAMINEA* Ker in *Bot. Mag.* t. 615. *Gladiolus gramineus* Linn. fil.; Jacq.  *Ic.* t. 236; Andr. *Bot. Rep.* t. 62. *G. ramosus* Linn. *Diasia iridifolia* and *graminifolia* DC.; Red. *Lil.* t. 54 and 163. *M. intermedia*, *graminea*, *iridifolia* and *parviflora* Sweet.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics thin, brown. Leaves about 6 in a distichous basal rosette, thin, linear,  $\frac{1}{2}$ –1 ft. long. Stem very slender, a foot or more long. Spikes few-flowered, paniced; rachises slender, very flexuose; spathe-valves ovate, green,  $\frac{1}{8}$ – $\frac{1}{2}$  in. long. Perianth yellowish green, veined with purplish black,  $\frac{1}{3}$ – $\frac{1}{2}$

in. long. Stamens half as long as the segments. Capsule acutely 3-lobed,  $\frac{1}{3}$  in. diam.

Hab. Cape Colony; south-western provinces. *M. iridifolia* Don. differs from the type by its shorter firmer leaves, and *M. parviflora* Lodd. Bot. Cab. t. 1444 by its smaller flowers.

### 53. TRITONIA Ker.

*Perianth* with a short or longer subcylindrical tube dilated towards the top; segments obovate or oblong, subequal or rather unequal. *Stamens* unilateral, arcuate, parallel, inserted in the perianth-tube; filaments filiform; anthers usually versatile. *Ovary* 3-celled; ovules superposed; style filiform; branches simple, short, spreading. *Capsule* small, oblong, membranous, loculicidally 3-valved. *Seeds* small, globose or angled by pressure.—*Rootstock* a corm with fibrous or reticulated tunics. *Leaves* usually linear. *Spikes* simple or paniced; spathe-valves oblong, brown, emarginate, like those of *Ixia*.

Subgenus TRITONIXIA (Klatt). Flowers large; segments obovate, much imbricated, subequal . . . . . Sp. 1-4.

Subgenus DICHONE (Salisb.). Flowers small, segments equal, oblong . . . . . Sp. 5-7.

Subgenus TRITONIA PROPER. Segments rather unequal, the three lower without any callus at the throat.

Perianth-tube long . . . . . Sp. 8-12.

Perianth-tube short . . . . . Sp. 13-26.

Subgenus MONTBRETIA (DC.). Segments rather unequal, the three lower with a callus at the throat . . . . . Sp. 27-29.

Subgenus STENOBASIS. Segments unequal, all distinct  
Sp. 30-31.

#### Subgenus I. TRITONIXIA.

1. *T. CROCATA* Ker in König & Sims, Ann. i. 227. *Ixia crocata* Linn.; Bot. Mag. t. 184. *Gladiolus crocatus* Wendl. *Tritonixia crocata* Klatt. *Ixia iridifolia* Delar. (Miller, Ic. t. 239, fig. 2).—Corm globose,  $\frac{3}{4}$ -1 in. diam.; tunics of reticulated fibres. Basal leaves 4-6, linear, spreading, moderately firm, 4-8 in. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem slender, simple or branched low down, 1-1 $\frac{1}{2}$  ft. long. Flowers 4-10, in lax secund spikes; spathe-valves oblong,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long, brown and toothed at the tip. Perianth-tube rather longer than the spathe, funnel-shaped at the apex; segments obovate, much imbricated, bright fulvous yellow,  $\frac{3}{4}$ -1 in. long. Stamens  $\frac{1}{3}$  the length of the limb; anthers purple.

Var. *T. MINIATA* Ker; Bot. Mag. t. 609. *Ixia miniata* Jacq. Hort. Schoen. t. 24. *I. crocata* Red. Lil. t. 335. Flowers bright red.

Hab. Cape Colony; southern provinces. *T. purpurea*, *sanguinea*, *coccinea* and *aurantiaca* Ecklon are colour varieties.

2. *T. DEUSTA* Ker in König & Sims, Ann. i. 227; Bot. Mag. t.



622. *Iria deusta* Ait. *I. miniata* Red. Lil. t. 89. *I. gibba* Salisb. *I. crocata* var. Thunb.; Andr. Bot. Rep. t. 134.—Differs only from *T. crocata* in the three outer segments of the perianth being furnished with a purple-black blotch on the claw.

Hab. Cape Colony; southern provinces.

3. *T. HYALINA* Baker in Journ. Linn. Soc. xvi. 163. *Iria hyalina* Linn. fil. *I. fenestrata* Jacq. Ic. t. 289, non Thunb. *T. fenestrata* Ker; Bot. Mag. t. 704.—Differs only from *T. crocata* by the segments of the perianth being spathulately narrowed below the middle into a claw with an inflexed hyaline margin.

Hab. Cape Colony; south-western provinces.

4. *T. SQUALIDA* Ker in Bot. Mag. t. 581. *Iria squalida* Ait. *I. similis* Salisb.—Habit, leaves and inflorescence of *T. crocata*, from which it differs by its white flowers, more or less flushed with pink. The veins are often pink, and there is an obscure yellowish blotch at the base of the inner or all the segments.

Hab. Cape Colony; south-western provinces.

#### Subgenus II. DICHONE.

5. *T. SCILLARIS* Baker in Journ. Linn. Soc. xvi. 163. *Iria scillaris* Linn.; Red. Lil. t. 127. *I. pentandra* Linn. fil. *I. reflexa* Andr. Bot. Rep. t. 14. *I. rotata* Ker. *I. retusa* Salisb. *I. polystachya*, Jacq. Ic. t. 275; Bot. Mag. t. 629, non Linn.—Corm small, globose; tunics of thick parallel fibres. Basal leaves 4-6, linear, glabrous, 4-6 in. long, not crisped. Stem slender, a foot long, simple or branched. Spike lax, 3-4 in. long, with a flexuose rachis; spathe-valves oblong, moderately firm,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long, deeply 2-3-fid. Perianth pink; tube cylindrical, rather longer than the spathe; segments oblong, equal,  $\frac{1}{4}$ - $\frac{1}{3}$  in. long. Stamens  $\frac{1}{2}$  the length of the limb. Anthers  $\frac{1}{2}$  in. long. Style not longer than the tube.

Var. *T. STRICTA* Klatt, Erganz. 23. *Agretta stricta* Eckl.—Leaves rigid, with thickened yellow midrib and edges.

Hab. Cape Colony; south-western provinces.

6. *T. TRINERVATA* Baker.—Corm small, globose; tunics thick, fibrous. Leaves firm, lanceolate, glabrous, 2-3 in. long, with 3 stout pale yellow ribs. Stem simple, a foot long. Flowers 4-6 in a lax spike; spathe-valves ovate, scariose, cuspidate,  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth white, with a tinge of pink; tube cylindrical, curved,  $\frac{1}{4}$ - $\frac{1}{3}$  in. long; segments oblong,  $\frac{1}{2}$  in. long. Stamens half as long as the limb; anthers curved.

Hab. Cape Colony; River Zonder Einde, Ecklon 241!

7. *T. UNDULATA* Baker in Journ. Linn. Soc. xvi. 163. *Iria crispa* Linn. fil.; Bot. Mag. t. 599; Red. Lil. t. 433. *Dichone crispa* Salisb. *Agretta crispa* Eckl.—Corm small, ovoid; tunics of fine fibres. Basal leaves 3-5, linear, firm, glabrous, 2-4 in. long, much crisped. Stem slender, terete, usually simple,  $\frac{1}{2}$ -1 ft. long. Spike lax, finally 3-4 in. long; rachis very flexuose; spathe-valves

oblong,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, deeply 2-3-fid. Perianth pink; tube cylindrical, rather longer than the spathe; segments oblong, equal,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Stamens  $\frac{1}{3}$  the length of the limb. Style as long as the tube.

Hab. Cape Colony; south-western provinces.

#### Subgenus EUTRITONIA.

8. *T. VIRIDIS* Ker in Bot. Mag. t. 1275. *Gladiolus viridis* Ait. *Montbretia viridis* Baker.—Corm small, ovoid; tunics of fine matted parallel fibres. Basal leaves 4-6, linear, thin, glabrous,  $\frac{1}{2}$ -1 ft. long, plain or crisped. Stem a foot long, simple or branched. Spike many-flowered, secund, almost horizontal, with a very flexuose rachis; spathe-valves oblong-lanceolate, green,  $\frac{1}{4}$  in. long, the outer much the largest. Perianth green, with a tube 1-1 $\frac{1}{4}$  in. long, much curved at the tip; segments subequal, oblanceolate,  $\frac{1}{2}$  in. long. Anthers just exerted from the perianth-tube.

Hab. Cape Colony; south-western provinces.

9. *T. COOPERI* Baker.—Corm not seen. Leaves linear, a foot long, moderately firm, with 5 strong subequal ribs. Stem branched, 2-3 ft. long. Spikes very lax,  $\frac{1}{2}$  ft. long; spathe-valves oblong-lanceolate,  $\frac{1}{3}$  in. long, firm, greenish brown. Perianth bright pink; tube 1 $\frac{1}{2}$  in. long, funnel-shaped in the upper half; segments oblong-spathulate, subequal,  $\frac{1}{2}$  in. long. Stamens just exerted from the perianth-tube.

Hab. Cape Colony; province of Worcester, *Cooper* 3182!

10. *T. CRISPA* Ker in Konig & Sims, Ann. i. 228; Bot. Mag. t. 678. *T. lacerata* Klatt. *Gladiolus crispus* Thunb.; Jacq. Ic. t. 267; Andr. Bot. Rep. t. 142. *G. laceratus* Burm. *Montbretia lacerata* Baker. *Freesia crispa* Eckl.—Corm small, ovoid; tunics of fine reticulated fibres. Basal leaves 4-6, linear, much crisped, firm, 4-6 in. long. Stem slender, terete, simple or branched,  $\frac{1}{2}$ -1 ft. long. Spikes secund, 4-10-flowered; spathe-valves oblong, obtuse,  $\frac{1}{3}$ - $\frac{1}{2}$  in. long, brown upwards. Perianth whitish or pale pink; tube 1 $\frac{1}{2}$ -2 in. long, funnel-shaped at the apex; segments oblong, obtuse,  $\frac{1}{2}$  in. long. Stamens reaching halfway up the limb.

Var. *T. PECTINATA* Ker. *Ixia pectinata* Vahl. — Leaves not crisped.

Var. *GRANDIFLORA* Baker.—Flowers much larger, not more than 2-3 to a spike.

Var. *PARVIFLORA* Baker.—Flowers much smaller than in the type; tube an inch, segments  $\frac{1}{3}$  in. long.

Hab. Cape Colony; southern provinces.

11. *T. PALLIDA* Ker in Bot. Mag. sub t. 1275. *Montbretia pallida* Baker. *Gladiolus longiflorus* Jacq. Ic. t. 262, non Linn. fil.—Corm small, globose; tunics of fine matted fibres. Basal leaves 4-6, linear-ensiform, plane, a foot long. Stem slender, forked, 1 $\frac{1}{2}$ -2 ft. long. Spikes very lax, 4-6-flowered; spathe-valves oblong,  $\frac{1}{2}$  in. long. Perianth whitish; tube 2-2 $\frac{1}{2}$  in. long, cylindrical, with

a dilated throat; segments oblong,  $\frac{3}{4}$  in. long. Anthers just protruded from the perianth-tube.

Hab. Cape Colony; south-western provinces.

12. T. BAKERI Klatt, *Erganz.* 24. *Montbretia striata* Baker. *Gladiolus longiflorus* Thunb., ex parte. — Corm small, globose. Basal leaves 4-6, narrow linear, firm, erect, glabrous, a foot or more long. Stem slender, terete, a foot long, simple or branched. Spikes lax, 2-9-flowered; spathe-valves oblong,  $\frac{1}{2}$  in. long, brown at the tip. Perianth whitish; tube  $1\frac{1}{2}$ -2 in. long, cylindrical with a dilated apex; segments oblong,  $\frac{3}{4}$  in. long. Stamens reaching high up the limb.

Hab. Cape Colony; south-western provinces.

13. T. VENTRICOSA Baker. — Corm small, ovoid; tunics of fine reticulated fibres. Leaves about 3, superposed, the lowest produced into an erect narrow linear blade as long as the stem; two upper rudimentary. Stem slender, simple,  $\frac{1}{2}$ -1 ft. long. Flowers 2-4 in a spike; spathe-valves oblong, green, entire,  $\frac{1}{2}$  in. long. Perianth bright red; tube funnel-shaped,  $\frac{1}{2}$  in. long; segments oblong,  $\frac{3}{4}$  in. long. Stamens half as long as the segments.

Hab. Cape Colony; Genadendal, *Pappe!* River Zonder Einde, *Zeyher* 3793!

14. T. KAMISBERGENSIS Klatt in *Linnæa*, xxxii. 760. *Freesia kamisbergensis* Eckl. *Montbretia kamisbergensis* Baker. — Leaves rigid, linear-subulate, overtopping the stem. Stem terete, forked, 2 ft. long. Spikes distichous, few-flowered; spathe-valves oblong, the inner emarginate. Perianth purple,  $\frac{1}{2}$  in. long; segments oblong, twice as long as the tube. Anthers half as long as the filaments.

Hab. Namaqualand, *Ecklon & Zeyher* 109!

15. T. TEMPLEMANNI Baker. — Corm middle-sized. Basal leaves linear, rigid, erect, pale green, conspicuously nerved,  $1\frac{1}{2}$ -2 ft. long. Stem about as long as the leaves, copiously branched. Spikes few-flowered; spathe-valves ovate, subequal,  $\frac{1}{2}$  in. long, red-brown at the tip. Perianth bright red; tube funnel-shaped,  $\frac{1}{2}$  in. long; segments obovate,  $\frac{3}{4}$  in. long. Stamens reaching halfway up the limb.

Hab. Cape Colony; province of Zwarteberg. Discovered by Mr. Templeman in 1897, and introduced into cultivation through Prof. Macowan.

16. T. PAUCIFLORA Baker. — Corm not seen. Basal leaves 3-4, linear, moderately firm, glabrous, 3-4 in. long. Stems 1-3, slender, 4-6 in. long. Spikes 1-2-flowered; outer spathe-valve ovate, acute,  $\frac{1}{2}$  in. long. Perianth bright purple; tube cylindrical,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long; segments oblong,  $\frac{3}{4}$  in. long. Anthers as long as the filaments.

Hab. Lesser Namaqualand, alt. 3400 ft., *Bolus* 6622!

17. T. DISTICHA Baker. *Tritonia disticha* Klatt, *Erganz.* 22. — Leaves linear, firm, 18-21 in. long; midrib and edges thickened, stramineous. Stem branched, 3-4 ft. long, bearing several reduced

leaves. Spikes lax, distichous, many-flowered; spathe-valves oblong, unequal-toothed. Perianth rose-red; tube funnel-shaped,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long; segments subequal, obovate, twice as long as the tube. Anthers twice as long as the filaments.

Hab. Mountains of Kaffraria, *Drège* 4549.

18. *T. TERETIFOLIA* Baker.—Corm globose, 1 in. diam.; tunics of matted parallel fibres. Leaves rigid, subterete, a foot or more long. Stem simple, terete, a foot long, bearing 2–3 sheathing leaves. Spike distichous, very lax, simple, 6–8-flowered; spathe-valves oblong-lanceolate, green,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth pale pink,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long; segments oblong, subequal, as long as the tube. Stamens reaching halfway up the limb.

Hab. Natal, *Krauss* 430!

19. *T. DUBIA* Eckl.; Klatt in *Linnæa*, xxxii. 761. *T. Bolusii* Baker. *Tritonixia Bolusii* and *conferta* Klatt.—Corm small, ovoid; tunics of fine reticulated fibres. Basal leaves 4–6, linear, moderately firm, 4–6 in. long. Stems simple or branched,  $\frac{1}{2}$ –1 ft. long; spikes lax, 2–3 in. long; spathe-valves oblong,  $\frac{1}{4}$  in. long, brown at the tip and hooked. Perianth pale pink; tube equalling or exceeding the bracts, dilated into a funnel at the tip; segments oblong,  $\frac{1}{2}$  in. long. Stamens half as long as the segments.

Hab. Cape Colony; province of Uitenhage. First gathered by Ecklon & Zeyher.

20. *T. KRAUSII* Baker.—Corm globose; tunics of fine reticulated fibres. Basal leaves 4–6, linear, firm, 6–9 in. long. Stems slender, simple or branched,  $1\frac{1}{2}$ –2 ft. long; spikes 10–12-flowered; 4–5 in. long; spathe-valves  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, brown at the tip and toothed. Perianth pale pink,  $\frac{5}{8}$ – $\frac{3}{4}$  in. long; segments oblong, as long as the broadly funnel-shaped tube. Anthers protruded from the tube.

Hab. Natal. Closely allied to *T. lineata*.

21. *T. LINEATA* Ker in *König & Sims*, Ann. i. 228. *Montbretia lineata* Baker. *Gladiolus lineatus* Salisb.; *Bot. Mag.* t. 487; *Red. Lil.* t. 55 and 400. *Ixia reticulata* Thunb.—Corm small, globose; tunics of fine reticulated fibres. Leaves about 6, moderately firm,  $\frac{1}{2}$ –1 ft. long. Stems slender, simple or branched, 1– $1\frac{1}{2}$  ft. long; spathes lax, 4–6 in. long; spathe-valves oblong,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, brown and toothed at the tip. Perianth white or pale pink, 1– $1\frac{1}{4}$  in. long; segments oblong, half as long as the funnel-shaped tube. Anthers protruded from the perianth-tube.

Hab. Cape Colony; southern provinces to Griqualand and Natal.

22. *T. ROSEA* Klatt in *Linnæa*, xxxii. 760. *Montbretia rosea* Baker.—Corm globose, 1 in. diam.; tunics of fine reticulated fibres. Leaves linear, firm, a foot long. Stems branched,  $1\frac{1}{2}$ –2 ft. long; spikes lax, 4–12-flowered; spathe-valves oblong,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, brown and toothed at the tip. Perianth bright red; tube  $\frac{1}{4}$  in. long, broadly funnel-shaped; segments oblong, as long as the tube. Anthers just protruded from the perianth-tube.

Hab. Cape Colony; Uitenhage northward to Natal.

23. *T. GRAMINIFOLIA* Baker.—Corm not seen. Basal leaves about 6, linear, thin, 6–9 in. long. Stem slender, simple, 1-flowered; outer spathe-valve thin, green, oblong-lanceolate, an inch long. Perianth purplish red; tube an inch long, broadly funnel-shaped at the throat; segments lanceolate-unguiculate, acute, rather shorter than the tube. Stamens reaching nearly to the tip of the segments.

Hab. Transvaal, near Lydenburg, *Roe!* (*Bolus* 2651!)

24. *T. LAXIFOLIA* Benth. Gen. Plant. iii. 708. *Montbretia laxifolia* Klatt; Baker in Trans. Linn. Soc. xix. t. 101A.—Corm globose,  $\frac{3}{4}$ –1 in. diam.; tunics of matted reticulated fibres. Basal leaves 4–6, linear, thin,  $\frac{1}{2}$ –1 ft. long. Stems slender, simple or branched, 1–2 ft. long; spikes lax, 6–12-flowered; spathe-valves oblong,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, brown and toothed at the tip. Perianth bright red, 1–1 $\frac{1}{4}$  in. long; segments oblong, shorter than the broadly funnel-shaped tube. Stamens reaching halfway up the segments.

Var. *T. STRICTIFOLIA* Benth.—Leaves shorter, firmer.

Hab. Cape Colony; eastern provinces, and gathered also by Speke and Grant on mountains near the equator.

25. *T. WATSONIOIDES* Baker.—Corm not seen. Leaf single, narrow linear, 2–3 ft. long, rigid, with revolute edges and a thickened midrib. Stem 2 ft. long. Spikes simple or paniced, dense, the end one 4–6 in. long; spathe-valves rigid, brown, ovate,  $\frac{1}{4}$  in. long. Perianth cream-white, an inch long; tube funnel-shaped, much curved, twice as long as the ascending oblong lobes. Stamens reaching the tip of the lobes.

Hab. Mountains of Swaziland, *Thorncroft* (*Wood* 4113!), *Galpin* 1890!

26. *T. POTTSII* Benth. Gen. Plant. iii. 708; Baker in Bot. Mag. t. 6722. *Montbretia Pottsii* Baker.—Corm globose, 1 in. diam., connected by a slender rhizome. Leaves 4–6, linear, firm, 1–1 $\frac{1}{2}$  ft. long. Stems branched, 2–3 ft. long; spikes lax, 6–9 in. long; spathe-valves oblong, greenish brown,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Perianth bright yellow, with a tinge of red, 1–1 $\frac{1}{4}$  in. long; segments oblong, not more than half as long as the broadly funnel-shaped tube. Stamens reaching halfway up the segments.

Hab. Transvaal, Natal and Griqualand, where it ascends to 5000 ft. *Montbretia crocosmeflora* Floral Mag. n.s. t. 472, is a hybrid between this species and *Crocosma aurea*.

#### Subgenus IV. MONTBRETIA.

27. *T. NELSONI* Baker.—Corm not seen. Basal leaves 6–8, narrow linear, moderately firm, 6–9 in. long. Stem slender, simple, as long as the leaves. Flowers one or few in a dense spike; spathe-valves oblong-lanceolate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, brown in the upper half. Perianth bright red; tube  $\frac{1}{2}$  in. long, broadly funnel-shaped in the upper half; segments obovate, as long as the tube, the three lower with a spreading oblong callus on the claw. Stamens half as long as the limb.

Hab. Transvaal; Houtboschberg, near the tropic, *Nelson* 440!

28. *T. FLAVA* Ker in König & Sims, Ann. i. 228; Bot. Reg. t. 747; *Gladiolus flavus* Ait. *Montbretia flava* Klatt. *Ixia flabellaris* Vahl.—Corm small, globose; tunics of matted fibres. Basal leaves 4–6, linear, spreading, moderately firm, 3–4 in. long. Stem slender, simple or branched,  $\frac{1}{2}$ –1 ft. long. Flowers 3–6 in a lax spike; spathe-valves oblong,  $\frac{1}{3}$ – $\frac{1}{2}$  in. long, green with a scariose edge. Perianth bright yellow; tube  $\frac{3}{4}$ –1 in. long, broadly funnel-shaped in the upper half; segments oblong,  $\frac{1}{2}$  in. long; the three lower with a small callus at the throat. Stamens reaching half-way up the limb.

Hab. Cape Colony; south-western provinces.

29. *T. SECURIGERA* Ker in König & Sims, Ann. i. 228. *Gladiolus securiger* Ait.; Bot. Mag. t. 388. *Montbretia securigera* DC. in Red. Lil. t. 53. *Ixia gladiolaris* Lam.—Corm small, globose; tunics of fine matted fibres. Leaves 6–8 in a rosette, linear, moderately firm, 3–6 in. long. Stem slender, terete,  $\frac{1}{2}$ –1 ft. long, simple or branched. Flowers 4–8 in a lax spike; spathe-valves oblong,  $\frac{1}{3}$ – $\frac{1}{2}$  in. long, green with a brown edge. Perianth bright red; tube  $\frac{3}{4}$ –1 in. long, broadly funnel-shaped in the upper half; segments oblong,  $\frac{1}{2}$  in. long; the three lower with an oblong callus on the claw. Stamens reaching halfway up the limb.

Hab. Cape Colony; southern provinces. A plant collected in the interior by Burchell and Tyson, which ascends to 4000 ft. at Murraysburg, may be distinct.

#### Subgenus V. STENOBASIS.

30. *T. UNGUICULATA* Baker.—Corm small, globose; tunics of fine matted fibres. Leaves linear, moderately firm,  $\frac{1}{2}$  ft. long. Stems slender, simple or branched, 1–1 $\frac{1}{2}$  ft. long; spikes few-flowered, very lax; flowers erect; spathe-valves oblong,  $1\frac{1}{4}$  in. long. Perianth pale lilac; tube subcylindrical, twice as long as the spathe; segments oblanceolate-unguiculate, unequal,  $\frac{3}{4}$ –1 in. long. Stamens as long as the segments.

Hab. Cape Colony; south-western district. Gathered by Langley Kitching in 1880.

31. *T. BONGENSIS* Pax.—Corm globose, 1 in. diam.; tunics of matted parallel fibres. Produced leaves 2, suprabasal, linear, strongly ribbed,  $\frac{1}{2}$ –1 ft. long. Stem short, bearing 2–3 linear much reduced leaves. Spike simple, lax, 6–9 in. long; spathe-valves oblong,  $\frac{1}{3}$  in. long, brown in the upper half. Perianth red-violet; tube cylindrical,  $\frac{1}{4}$  in. long; segments oblong, all distinctly unguiculate; the upper  $\frac{1}{3}$  in. long, standing forward; the others shorter, spreading. Stamens nearly as long as the upper segment.

Hab. Central Africa; Bongoland, *Schweinfurth* 4025! Perianth of *Lapeyrouisia*, but style-branches simple.

#### 54. SPARAXIS Ker.

*Perianth* with a short straight cylindrical tube, funnel-shaped at the top; segments oblong, subequal. *Stamens* unilateral, inserted

at the throat of the perianth-tube; filaments short, filiform; anthers linear, basifixed. *Ovary* 3-celled; ovules many, superposed; style filiform, protruded from the tube; branches simple, subulate, falcate. *Capsule* turbinate, membranous, loculicidally 3-valved. *Seeds* globose or angled by pressure.—*Rootstock* a corm with finely netted tunics. *Leaves* in a basal rosette. *Flowers* few, showy, arranged in simple or paniced spikes; spathe-valves scariose, brown at the tip, deeply lacerated. The three species are very variable and connected by intermediates.

1. *S. BULBIFERA* Ker in König & Sims, Ann. i. 226. *Ixia bulbifera* Linn.; Bot. Mag. t. 545; Red. Lil. t. 128; Andr. Bot. Rep. t. 48.—Corm globose,  $\frac{1}{2}$ –1 in. diam. Basal leaves about 4, linear or lanceolate, moderately firm,  $\frac{1}{2}$ –1 ft. long. Stems erect, terete,  $\frac{1}{2}$ –1 ft. long, simple or branched, bearing low down 2–3 small leaves, often with bulbillæ in their axils. Flowers 1 or few to a spike, yellow; spathes  $\frac{1}{2}$  in. long, wrapped tightly round the ovary and perianth-tube. Perianth-tube  $\frac{1}{2}$  in. long, funnel-shaped in the upper half; segments  $\frac{1}{2}$ –1 in. long. Style-branches overtopping the anthers.

Hab. Cape Colony; south-western provinces. *S. albiflora* Eckl. has flowers whitish inside, and *S. violacea* Eckl. flowers dark violet.

2. *S. GRANDIFLORA* Ker in König & Sims, Ann. i. 225; Bot. Mag. t. 779; Bot. Reg. t. 258. *Ixia grandiflora* Delar.; Ker in Bot. Mag. t. 541; Red. Lil. t. 139, 362.—Habit, corm, leaves and spathe exactly as in *S. bulbifera*. Flowers usually yellow or purple, with segments an inch or more long and larger anthers.

Hab. Cape Colony; south-western provinces. Amongst the many varieties are *S. jimbriata* Ker, *S. lacera* Ker, *S. Liliago* Sweet (Red. Lil. t. 109), *S. stellaris* D. Don (Sweet, Brit. Flow. Gard. ser. 2, t. 383), *S. atropurpurea* and *miniata* Klatt, *Ixia uniflora* Linn., *I. monanthos* Delar., and *I. anemoniflora* Red. Lil. t. 85.

3. *S. TRICOLOR* Ker in König & Sims, Ann. i. 225; Bot. Mag. t. 1482. *Ixia tricolor* Curt. in Bot. Mag. t. 381; Red. Lil. t. 129. *Streptanthera tricolor* Klatt.—Differs only from *S. grandiflora* in the colour of the flowers, which are very variable in shade but have always a bright yellow throat, with a dark blotch at the base of each segment.

Hab. Cape Colony; south-western provinces. Amongst the many varieties are *S. versicolor* Sweet, Brit. Flow. Gard. t. 160; *S. lineata* Sweet, Brit. Flow. Gard. ser. 2, t. 131; *S. Griffini* and *S. blanda* Sweet, and *S. Meleagris* and *cana* Ecklon. A series of garden forms is figured Flore des Serres, vol. 2, July, 1846.

## 55. SYNNOTIA Sweet.

*Perianth* with a long tube, cylindrical in the lower part, funnel-shaped at the top; segments of the limb oblong, unequal, all but the uppermost reflexing. *Stamens* unilateral, contiguous, arcuate, inserted at the middle of the perianth-tube; filaments filiform; anthers linear-oblong, basifixed. *Ovary* 3-celled; ovules many, superposed; style filiform, its branches simple, subulate. *Capsule* membranous, loculicidally 3-valved. *Seeds* small, globose or angled

by pressure. — Habit, leaves, and spathe-valves of *Sparaxis*, from which it differs by its very irregular perianth-limb.

1. *S. BICOLOR* Sweet, Hort. Brit. edit. 2, 501. *S. galeata* Sweet. *Sparaxis bicolor* Ker. *Gladiolus bicolor* Thunb.; Jacq. Ic. t. 240. *G. galeatus* Jacq. Ic. t. 258.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics thick, pale, strongly honeycombed. Basal leaves 5–6 in a distichous rosette, thin, ensiform, 3–6 in. long. Stems 1–1 $\frac{1}{2}$  ft. long, simple or branched. Flowers 2–6, laxly spicate; spathe-valves ovate, membranous,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long, brown, deeply lacerated. Perianth with a cylindrical tube  $\frac{1}{2}$  in. long, dilated into a broad funnel at the top; limb  $\frac{3}{4}$ –1 in. long, yellow, more or less flushed with violet. Stamens half as long as the upper segment.

Var. *ROXBURGHII* Baker.—Bulb-tunics of fine threads. Flowers all lilac-purple.

Hab. Cape Colony; south-western district.

2. *S. VARIEGATA* Sweet, Brit. Flow. Gard. t. 150. *Sparaxis luteo-violacea* Eckl. *S. Wattii* Harv.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics coarsely honeycombed. Leaves, inflorescence, and spathe-valves just like those of *S. bicolor*. Perianth dark violet, with a cylindrical tube 1 $\frac{1}{4}$ –1 $\frac{1}{2}$  in. long, curved and broadly funnel-shaped at the top; limb an inch long; upper segment  $\frac{1}{2}$  in. broad; lower shorter and narrower, flushed with yellow.

Hab. Cape Colony; south-western provinces.

## 56. GLADIOLUS Linn.

*Perianth*-tube usually funnel-shaped; segments of the limb more or less unequal in shape and direction, oblong, spatulate or unguiculate, the upper of the outer row generally the largest. *Stamens* inserted at the throat of the perianth-tube, contiguous and arching; filaments short, free; anthers linear, basifixed. *Ovary* 3-celled; ovules many, superposed; style long, arcuate; stigmas cuneate, entire. *Capsule* oblong, loculicidally 3-celled. *Seeds* globose or discoid, sometimes distinctly winged.—*Rootstock* a tunicated corm. Produced *leaves* distichous, superposed on the stem, generally linear or ensiform. *Inflorescence* spicate; flowers 1 to a spathe, sessile; spathe-valves linear or lanceolate. *Flowers* very various in size and colour.

Subgenus *EUGLADIOLUS*. — *Perianth*-tube funnel-shaped; segments not distinctly unguiculate.

Species of Europe and Western Asia.

Seeds flat, winged . . . . .	Sp. 1–5.
Seeds globose . . . . .	Sp. 6–8.
Seeds unknown . . . . .	Sp. 9–15.

Species of the Cape and Tropical Africa.

Leaves subterete or linear.	
Perianth-segments acute . . . . .	Sp. 16–31.
Perianth-segments obtuse . . . . .	Sp. 32–72.
Leaves ensiform . . . . .	Sp. 73–109.



Subgenus II. *HEBEA*.—Perianth-tube short; segments distinctly unguiculate. Spathes large . . . Sp. 110-124

Subgenus III. *SCHWEIGGERA*.—Flowers small; segments distinctly unguiculate. Spathes small . . . Sp. 125-126.

Subgenus IV. *HOMOGLOSSUM*.—Perianth-tube like that of a *Watsonia*; segments subequal . . . Sp. 127-132.

1. *G. BYZANTINUS* (*Bankin*), Miller, Dict. ed. vii. No. 3; Ker in Bot. Mag. t. 874; Reich. Ic. Crit. t. 643. *G. elatus* Balb.—Corm globose,  $\frac{3}{4}$  in. diam.; tunics brown, membranous. Leaves generally 3, ensiform, about a foot long,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad, laxly ribbed. Stem  $1\frac{1}{2}$ -2 ft. long. Spike lax, many-flowered, 6-9 in. long; outer spathe-valve lanceolate,  $1-1\frac{1}{2}$  in. long. Perianth-tube slightly curved,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; segments dark purple,  $1-1\frac{1}{4}$  in. long, about equal in length; 3 upper slightly imbricated in fully expanded flower,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad; 3 lower with a claw as long as the blade, and a white line down the centre. Anthers  $\frac{1}{2}$  in. long, exceeding the filaments. Capsule turbinate,  $\frac{1}{2}$  in. long. Seeds turgid, with a distinct membranous wing.

Hab. Mediterranean region. Habit of *G. segetum*, from which it differs by its winged seeds and three upper perianth-segments contiguous when fully expanded. It is more tender, and does not seed in English gardens, which *G. segetum* does freely. It is figured both by Swertius and Parkinson.

2. *G. COMMUNIS* Linn. Sp. Plant. 52, ex parte; Curt. in Bot. Mag. t. 86; Ker in Bot. Mag. t. 1575; Red. Lil. t. 267; Reich. Ic. Crit. tab. 598; Fl. Germ. tab. 349, fig. 777.—Corm  $\frac{3}{4}$  in. diam.; tunics of matted parallel fibres, reticulated upwards. Leaves 3-4, ensiform,  $\frac{1}{2}$ -1 ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, laxly nerved. Spike lax, secund, 4-8-flowered; outer spathe-valve green, an inch long. Perianth-tube curved, funnel-shaped,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; segments bright purple, an inch long, about equal in length, all connivent when fully expanded; 3 lower with a long claw and white central line. Anthers  $\frac{1}{2}$  in. long, equalling the filaments. Capsule turbinate,  $\frac{1}{2}$  in. long. Seeds broadly winged.

Hab. France, Switzerland, and Germany. I cannot from the description distinguish the Ligurian *G. Notarisii* Parl.

3. *G. IMBRICATUS* Linn. Sp. Plant. i. 52; M. B. Cent. Ross. t. 60; Reich. Ic. Crit. tab. 599; Fl. Germ. tab. 350, fig. 778. *G. rossicus* Pers. *G. tenuis* M. B. *G. galiciensis* Besser. *G. neglectus* Schult. *G. Raddeanus* Trantv. *G. subbiflorus* and *hygrophilus* Boiss.—Corm globose,  $\frac{3}{4}$  in. diam.; tunics of densely matted, fine, parallel fibres, breaking up into an irregular fringe towards the base. Leaves 2-3, linear, laxly veined,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem slender,  $1-1\frac{1}{2}$  ft. long. Flowers 4-10 in a second spike; spathe-valves green, lanceolate,  $\frac{3}{4}$ -1 in. long. Perianth-tube curved,  $\frac{1}{4}$  in. long; segments dark purple, obovate, obtuse, an inch long; the upper  $\frac{1}{4}$  in. broad; the lower narrower, with a claw as long as the blade. Capsule turbinate,  $\frac{1}{2}$  in. long. Seeds broadly winged.

Var. *LIBANOTICUS* Boiss.—Spathe-valves more rigid, conspicuously ribbed vertically.—Lebanon, alt. 5500 ft.

Var. *G. CRISPIFLORUS* Herb. in Bot. Reg. xxviii. Misc. 65.—Flowers smaller than in the type. Perianth-segments crisped towards the edge.

Hab. Eastern Europe and Western Asia, ascending to 6000 ft. in the mountains of Armenia. Is, in the Linnean herbarium, named *G. spicatus*.

4. *G. ILLYRICUS* Koch, Syn. edit. ii. 806; Sturm, Fl. Germ. xix. t. 83; Reich. Ic. Fl. Germ. tab. 352, fig. 780; Syme in Journ. Bot. i. t. 4; Engl. Bot. edit. iii. t. 1493. *G. tenuiflorus* K. Koch. —Corm globose,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam.; tunics of strong, matted, parallel fibres, reticulated upwards. Leaves 2–3, linear, laxly nerved,  $\frac{1}{2}$  in. broad. Stem slender, 1–1 $\frac{1}{2}$  ft. long. Flowers 3–6 in a lax secund spike; outer spathe-valve green, lanceolate,  $\frac{3}{4}$ –1 in. long. Perianth-tube curved,  $\frac{1}{4}$  in. long; limb bright purple, an inch long; segments obovate, obtuse; upper  $\frac{1}{2}$  in. broad; lateral rather shorter; 3 lower with a small limb and long claw. Anther and filament each  $\frac{1}{3}$  in. long. Capsule turbinate,  $\frac{1}{2}$  in. long. Seeds turgid, with a distinct membranous wing.

Var. *G. REUTERI* Boiss. Pugill. 113. *G. serotinus*, Welw.—Stem more slender and leaves narrower than in the type.—Spain and Portugal.

Hab. Through Central and Southern Europe from England to Asia Minor and Syria. *G. dubius* Guss. differs by its more robust habit, and is probably a distinct species.

5. *G. PALUSTRIS* Gaud. Helv. i. 97; Sturm. Fl. Germ. ix. t. 351; Reich. Ic. Fl. Germ. tab. 351, fig. 779. *G. Boucheanus* Schlecht. *G. pratensis* Dietr. —Corm ovoid,  $\frac{3}{4}$  in. diam.; tunics of coarse unmatted fibres, reticulated upwards. Leaves 2–3, linear, laxly ribbed,  $\frac{1}{2}$ – $\frac{1}{2}$  in. broad. Stem slender, 1–1 $\frac{1}{2}$  ft. long. Spike lax, secund, 3–6-flowered; spathe-valves green, lanceolate,  $\frac{3}{4}$  in. long. Perianth-tube curved,  $\frac{1}{4}$  in. long; segments obovate, obtuse, contiguous, dark purple, an inch long; upper  $\frac{1}{2}$  in. broad; 3 lower longer, with a claw as long as the blade. Anther as long as the filament. Capsule turbinate,  $\frac{1}{2}$  in. long. Seeds broadly winged.

Hab. Germany, Switzerland, Austria, and North Italy. Best distinguished from *G. illyricus* and *imbricatus* by its coarsely fibrous corm-tunics.

6. *G. SEGETUM* Ker in Bot. Mag. t. 719; Reich. Ic. Crit. t. 600; Fl. Germ. tab. 353, fig. 781. *G. communis* Linn. ex parte; Sibth. & Sm. Fl. Græc. t. 37. *G. infestus* Bianea. *G. italicus* Gaud. *G. inarimensis* Guss. *G. Ludovicæ* Jan. *G. caucasicus* Herb. *Sphaerospora imbricata* Sweet. —Corm globose,  $\frac{3}{4}$ –1 in. diam.; tunics of matted parallel fibres, reticulated upwards. Produced leaves 3–4, ensiform, 1–1 $\frac{1}{2}$  ft. long,  $\frac{1}{2}$ – $\frac{3}{4}$  in. broad, laxly unequally nerved. Stem 1–1 $\frac{1}{2}$  ft. long. Spike lax, 6–10-flowered; outer spathe-valve green, lanceolate, 1–1 $\frac{1}{2}$  in. long. Perianth-tube curved,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long; segments 1–1 $\frac{1}{2}$  in. long, bright purple, obovate, obtuse; the upper  $\frac{1}{2}$  in. broad, with a short claw; the lateral shorter; the 3 lower as long, with a long narrow claw and white line down the keel. Anthers  $\frac{1}{2}$  in. long, exceeding the filaments. Capsule turbinate,  $\frac{1}{2}$  in. long, torulose when mature. Seeds brown, globose.

Hab. From Madeira and the Canaries through the Mediterranean region to Persia and Turkestan. *G. Guelpini* K. Koch is a sterile form with small

perianth-segments; *G. commutatus* Bouché, a white-flowered variety; *G. spathaceus* Parl. and *G. Borneti* Arduino are imperfectly-known near allies or forms. *G. inarimensis* Guss. Fl. Inar. 326, t. 14, is intermediate between *segetum* and *communis*.

7. *G. ATROVIOLACEUS* Boiss. Diagn. xiii. 14. *G. aleppicus* and *petraeus* Boiss.—Corm ovoid,  $\frac{1}{2}$ – $\frac{1}{4}$  in. diam.; tunics of matted fibres, reticulated upwards. Leaves 3, firm, linear, closely ribbed,  $\frac{1}{2}$ –1 ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem slender, 1–1 $\frac{1}{2}$  ft. long. Flowers 4–8 in a lax secund spike; outer spathe-valve lanceolate, green,  $\frac{3}{4}$ –1 in. long. Perianth-tube curved, narrowly funnel-shaped,  $\frac{1}{3}$  in. long; limb dark purple, about an inch long; segments obovate, obtuse; upper  $\frac{1}{2}$  in. broad; lateral shorter; 3 lower as long as the upper, with a claw as long as the blade. Anthers as long as the filaments, mucronate. Capsule oblong, torulose,  $\frac{1}{2}$  in. long. Seeds globose, not winged.

Hab. Palestine, Syria, Armenia, and Persia. Differs from *G. Kotschyanus* mainly in its firmer closely-ribbed leaves.

8. *G. KOTSCHYANUS* Boiss. Diagn. xiii. 15; Baker in Bot. Mag. t. 6897.—Corm ovoid,  $\frac{3}{4}$ –1 in. diam.; tunics of fine, matted, parallel fibres, reticulated upwards. Leaves 3, linear, laxly nerved,  $\frac{1}{2}$ –1 ft. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem slender, 1–2 ft. long. Flowers 4–12 in a lax secund spike; spathe-valves green, lanceolate, 1–1 $\frac{1}{2}$  in. long. Perianth-tube curved, narrowly funnel-shaped,  $\frac{1}{2}$  in. long; limb dark violet-purple, the upper segment an inch long,  $\frac{1}{3}$  in. broad, the lateral shorter, the three lower as long as the upper, with a long claw and darker purple line down the centre. Anthers as long as the filaments. Mature capsule turbinate, torulose,  $\frac{1}{2}$  in. long. Seeds globose or angled by pressure, not winged.

Hab. Persia and Afghanistan. Flowered at Kew in 1886 from corms brought home by Dr. Aitchison.

9. *G. TRIPHYLLUS* Sibth. (Fl. Græc. t. 38). *Sphaerospora triphylla* Sweet.—Corm ovoid,  $\frac{1}{4}$ – $\frac{1}{2}$  in. diam.; tunics of copious, fine, unmatted fibres. Leaves 2–3, linear,  $\frac{1}{2}$ –1 ft. long,  $\frac{1}{6}$  in. broad, laxly 3-nerved. Stem very slender, flexuose, 6–9 in. long. Flowers 2–3 in a lax spike; spathe-valves green, lanceolate,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Perianth-tube erect, nearly straight,  $\frac{1}{4}$  in. long; segments obovate, obtuse, erect,  $\frac{3}{4}$  in. long; 3 lower with a claw as long as the blade. Anthers shorter than the filaments. Capsule and seeds unknown.

Hab. Cyprus. First gathered by Bauer, and lately by Kotschy and Sintenis and Rigo.

10. *G. PERSICUS* Boiss. Diagn. vii. 102.—Corm ovoid,  $\frac{1}{2}$  in. diam.; tunics of coarse, unmatted, parallel fibres, reticulated upwards. Produced leaves 2–3, narrow linear, firm, 6–9 in. long,  $\frac{1}{2}$  in. broad, strongly, closely ribbed. Stem slender, 6–9 in. long. Flowers 4–9 in a lax flexuose spike; spathe-valves green, lanceolate,  $\frac{1}{2}$ – $\frac{1}{4}$  in. long. Perianth-tube narrowly funnel-shaped, straight, suberect,  $\frac{1}{4}$  in. long; limb  $\frac{3}{4}$  in. long, pale purple; segments oblanceolate, the upper only  $\frac{1}{4}$  in. broad. Anthers as long as the filaments. Capsule and seeds unknown.

Hab. Persia, near Petropolis, *Kotschy* 260! An allied plant, found in the province of Aderbeischan by Szorits, has similar leaves and corm-coats, but a curved perianth-tube and broader segments.

11. *G. SINTENESI* Baker.—Corm small, ovoid; tunics of coarse rather reticulated fibres. Leaves 2-3, linear, strongly, equally ribbed, overtopping the spike, the lowest 6-8 in. long. Spike lax, secund, few-flowered; outer spathe-valves lanceolate,  $\frac{1}{2}$  in. long. Perianth dark violet, an inch long; tube short, curved; segments obovate. Seeds not seen.

Hab. Turkish Armenia, near Kharput, *Sintenisi* 269! Near *G. halophilus* Boiss.

12. *G. HALOPHILUS* Boiss. et Held. Diagn. xiii. 14.—Corm ovoid,  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; fibres very coarse, slightly reticulated. Leaves 2-3, very rigid, narrow linear, the lower 6-9 in. long,  $\frac{1}{4}$  in. broad, strongly, closely ribbed. Stem very slender, 6-9 in. long. Flowers 2-5 in a lax spike; spathe-valves green, lanceolate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth-tube narrowly funnel-shaped, curved,  $\frac{1}{2}$ - $\frac{1}{2}$  in. long; segments obovate, obtuse,  $\frac{3}{4}$ -1 in. long, the upper  $\frac{1}{2}$  in. broad; the 3 lower with a claw as long as the blade. Anthers as long as the filaments. Capsule and seeds unknown.

Hab. Asia Minor, in salt-marshes near Koniah. Gathered by Prof. von Heldreich in 1845.

13. *G. MICRANTHUS* Stapf. Beitr. Lyc. 10.—Corm-tunics areolated at the top. Stem 6-7 in. long, bearing 3 narrow linear leaves, with one strong rib, and 3-4 much fainter. Spike laxly 3-flowered; outer spathe-valve lanceolate, an inch long. Perianth-tube  $\frac{1}{3}$ - $\frac{1}{2}$  in. long; upper segments  $\frac{1}{2}$  in. long; lower shorter. Anthers  $\frac{1}{4}$  in. long. Capsule and seeds unknown.

Hab. Asia Minor; Lycia, on the Nif Dag, *Dr. Luschan*.

14. *G. HUMILIS* Stapf. Beitr. Lyc. 9.—Fibres of corm-tunics slender, anastomosing upwards in very narrow areolæ. Stem 6-8 in. long, bearing 3 linear leaves; the lower 4-6 in. long,  $\frac{1}{4}$  in. broad, with about 4 strong ribs; the upper shorter. Spike laxly 3-flowered; outer spathe-valve lanceolate, under an inch long. Perianth-tube slightly curved,  $\frac{1}{2}$  in. long; upper segments obovate-cuneate, an inch long; lower shorter. Stamens nearly as long as the upper segment. Capsule and seeds unknown.

Hab. Upper Mesopotamia, *Dr. Luschan*.

15. *G. TRICOLOR* Stapf. Beitr. Lyc. 10.—Corm not seen. Stem 6-7 in. long, bearing 5 linear unequal-nerved leaves; the lower 9-10 in. long,  $\frac{1}{4}$  in. broad. Spike laxly 3-flowered; outer spathe-valve  $1\frac{1}{2}$  in. long, much exceeding the flower. Perianth-tube straight, above  $\frac{1}{2}$  in. long; upper segments oblong, nearly an inch long; lower much shorter. Anthers  $\frac{1}{2}$  in. long. Capsule and seeds unknown.

Hab. Asia Minor; Caria at Loryma, *Dr. Luschan*.

16. *G. GRANDIS* Thunb. Fl. Cap. i. 186. *G. tristis* Linn. herb. *G. versicolor* Andr. Bot. Rep. t. 19; Ker in Bot. Mag. t. 1042.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of rigid, parallel strands. Leaves

3, subterete, firm, strongly ribbed, 1-1½ ft. long. Stem slender, terete, 1-2 ft. long. Flowers 2-6 in a very lax secund spike; spathe-valves green, lanceolate; outer 2-3 in. long. Perianth 2½-3 in. long; tube curved; segments subequal, oblong-cuspidate, very falcate, as long as the tube, ½-¾ in. long, tinged with purplish brown, especially at the keel. Stamens half as long as the segments. Capsule oblong, 1½ in. long. Seeds broadly winged.

Hab. Cape Colony; common in the south-western provinces. Mr. G. Maw found a quantity, looking as if wild, near Gijon in the Asturias. Scarcely more than a subspecies of *G. tristis*.

17. *G. TRISTIS* Linn. Sp. Plant. i. 53; Bot. Mag. t. 272; Red. Lil. t. 35; Jacq. Ic. t. 243. *G. spiralis* Pers. — Corm globose, ¼-½ in. diam.; tunics of strong, parallel fibres. Leaves 3, subterete, strongly 3-5-ribbed, 1-1½ ft. long. Stem slender, terete, 1-2 ft. long. Flowers 3-4 in a very lax secund spike, fragrant; spathe-valves green, lanceolate; outer 1½-2 in. long. Perianth 2-2½ in. long; tube curved, longer than the oblong, acute, yellowish white, nearly equal, falcate segments. Stamens more than half as long as the segments. Capsule oblong, an inch long. Seeds broadly winged.

Hab. Cape Colony; south-western provinces. *G. concolor* Salisb. Parad. t. 8 (Jacq. Ic. t. 245; Bot. Mag. t. 1098), is a variety with almost concolorous white or pale yellow flowers.

18. *G. RECURVUS* Linn. Mant. 28; Bot. Mag. t. 578. *G. punctatus* Jacq. Ic. t. 247. *G. carinatus* Ait. *G. ringens* Andr. Bot. Rep. t. 27 and 227; Red. Lil. t. 123. *G. odoratus* Salisb. *G. violaceus* Pers. *G. Breynianus* Ker. *G. maculatus* Sweet. — Corm globose, ¾-1 in. diam.; tunics of wiry, parallel fibres. Leaves 3, firm, subterete, strongly ribbed, ½-1 ft. long. Stem slender, terete, 1-2 ft. long. Flowers 2-6 in a very lax secund spike, very fragrant; spathe-valves green, lanceolate, 1½-2 in. long. Perianth with a curved tube 1½-2 in. long; segments oblong, about an inch long, acute, subequal, falcate, much flushed and minutely spotted with blackish lilac. Stamens more than half as long as the segments. Capsule oblong, 1-1¼ in. long. Seeds broadly winged.

Hab. Cape Colony; southern provinces, ascending to 4800 ft. on the Boschberg.

19. *G. HASTATUS* Thunb. Fl. Cap. ii. 185. *G. Thunbergii* Eckl. *G. spilanthus* Klatt. — Corm globose, ¼-½ in. diam.; tunics of matted, parallel fibres, reticulated upwards. Leaves 3, superposed, subterete, firm, strongly ribbed, the lower ½-1 ft. long. Stem slender, 1-1½ ft. long. Flowers 2-4 in a very lax secund spike; spathe-valves green, lanceolate, the outer 1-1½ in. long. Perianth pink, with a curved tube 1-1½ in. long, and oblong-cuneate segments of about the same length; the upper ¼ in. broad; the other rather smaller. Stamens half as long as the segments.

Hab. Cape Colony; southern provinces.

20. *G. GRACILIS* Jacq. Ic. t. 246; Ker in Bot. Mag. t. 562; Red. Lil. t. 425. *G. levis* and *elongatus* Thunb. *G. pterophyllus* Pers. *G. setifolius* Eckl. *G. spilanthus* Spreng. — Corm globose, ½ in.

diam. ; tunics of rigid, linear, parallel strands. Leaves about 3, subterete, rigid, the lower  $\frac{1}{2}$ -1 ft. long. Stems very slender, terete 1-2 ft. long. Flowers 2-6 in a lax secund spike, scentless ; outer spathe-valve green, lanceolate,  $\frac{3}{4}$ -1 in. long. Perianth pale blue-lilac, with a curved tube an inch long, and an oblong, shortly cuspidate segment 1-1 $\frac{1}{2}$  in. long ; the 3 lower narrower and distinctly unguiculate. Stamens half as long as the segments.

Hab. Cape Colony ; southern provinces.

21. *G. TENELLUS* Jacq. Ic. t. 248. *G. tristis*, vars. *humilis* and *luteus* Thunb.—Corm globose,  $\frac{1}{2}$  in. diam. ; tunics of rigid, parallel strands. Leaves about 3, long-sheathing, subterete, rigid, the lowest  $\frac{1}{2}$ -1 ft. long. Stem slender, terete, 1-1 $\frac{1}{2}$  ft. long. Leaves 2-5 in a very lax secund spike ; outer spathe-valves green, lanceolate, 1-1 $\frac{1}{2}$  in. long. Perianth yellowish or greenish white, tinged with lilac ; tube curved, an inch long ; segments oblong, subacute, an inch long,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad, often much spotted with black towards the throat. Stamens more than half as long as the segments.

Hab. Cape Colony ; southern provinces.

22. *G. LAMBDA* Klatt in Linn. xxxii. 708. — Corm globose ; tunics thick, obscurely reticulated. Leaves long-sheathing, terete, the lower much overtopping the stem. Stem slender, a foot long. Flowers 2, secund ; outer spathe-valves under an inch long. Perianth white, an inch long, with a curved tube ; upper segments ovate-lanceolate ; lower narrower, with two purple blotches at the base.

Hab. Cape Colony, *Reynaud* (Herb. Berol).

23. *G. TRICHONEMIFOLIUS* Ker in Bot. Mag. t. 1483. *G. citrinus* Klatt. — Corm globose,  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam. ; tunics of rigid, parallel strands. Leaves 3, subterete, rigid, the lowest often overtopping the flower. Stem very slender,  $\frac{1}{2}$ -1 $\frac{1}{2}$  ft. long. Flowers 1-3, erect, laxly spicate ; spathe-valves firm, green, lanceolate, the outer 1-2 in. long. Perianth yellow, with a nearly straight tube an inch long, and oblong, acute segments as long as the tube ; the 3 lower blotched with purple at the throat. Stamens half as long as the segments.

Hab. Cape Colony ; southern provinces. A very distinct species, with perianth so little unequal that it was classed by Solander as an *Ixia*.

24. *G. PUBESCENS* Baker in Journ. Bot. 1876, 333. — Corm not seen. Leaves 3, with long, hairy, strongly-ribbed sheaths and scarcely any free points. Stems slender, terete, 1-1 $\frac{1}{2}$  ft. long. Flowers 3-6 in a lax secund spike ; outer spathe-valves green, oblong-lanceolate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth pale pink, an inch long ; the oblong, acute segments as long as the tube,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad at the middle. Stamens half as long as the segments.

Hab. British Kaffraria, *Cooper* 458 !

25. *G. ANGUSTUS* Linn. Sp. Plant. 55 ; Hort. Cliff. t. 6 ; Jacq. Ic. t. 252 ; Bot. Mag. t. 602 ; Andr. Bot. Rep. t. 589 ; Red. Lil. t. 344. *G. trimaculatus* Lam. *G. cordatus* Thunb. *G. Macowanianus*

Klatt.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of parallel fibres. Leaves 3-4, linear, flat, moderately firm,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, the lower a foot or more long. Stem slender, 1-1 $\frac{1}{2}$  ft. long. Flowers 2-6 in a very lax equilateral spike; spathe-valves lanceolate, green, the outer lower 2-3 in. long. Flowers white; tube narrowly funnel-shaped, suberect, nearly straight, 1 $\frac{1}{2}$ -2 in. long; segments oblong, acute, shorter than the tube; the 3 lower smaller, with a spade-shaped purple mark in the centre. Stamens half as long as the segments.

Hab. Cape Colony; south-western provinces.

26. *G. CUSPIDATUS* Jacq. Ic. t. 257; Bot. Mag. t. 582. *G. undulatus* Linn. *G. affinis* Pers.—Corm globose,  $\frac{1}{2}$ - $\frac{3}{4}$  in. diam.; tunics of fine, matted, parallel fibres. Produced leaves 3-4, flat, linear, rigid,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, the lowest 1-2 ft. long. Stems 1-2 ft. long. Flowers 4-8 in a very lax, equilateral, or subsecund spike; spathe-valves lanceolate, green, the outer lower 2-3 in. long. Perianth white or pale pink; tube narrowly funnel-shaped, suberect, slightly curved, 2-3 in. long; segments 1 $\frac{1}{2}$ -2 in. long, oblong-lanceolate, wavy; the 3 lower with a spade-shaped blotch in the centre. Stamens half as long as the segments.

Var. *G. VENTRICOSUS* Lam. Ency. lii. 727. *G. cuspidatus* Andr. Bot. Rep. t. 147; Red. Lil. t. 36. *G. carneus* Jacq. Ic. t. 255; Bot. Mag. t. 591, non Delar.—Flowers pink; point of the segments shorter and less wavy.

Var. *ENSIFOLIUS* Baker.—Stem much shorter. Leaves much shorter, ensiform, rigid, strongly veined.

Hab. Cape Colony; southern provinces.

27. *G. VOMERCULUS* Ker, Gen. Irid. 142. *G. hastatus* Ker in Bot. Mag. t. 1564, non Thunb. *G. tigrinus* Eckl.—Corm globose; tunics of parallel fibres. Lower sheath-leaves mottled with purple; produced leaves 3-4, linear, flat, strongly ribbed,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, the lowest a foot long. Stem 1-1 $\frac{1}{2}$  ft. long. Flowers 2-3 in a lax spike; outer spathe-valves green, lanceolate, 1 $\frac{1}{2}$ -2 in. long. Perianth lilac, with a curved tube  $\frac{3}{4}$ -1 in. long, and oblong, acute segments a little longer than the tube; the 3 lower with a spade-shaped yellow blotch at the throat. Stamens half as long as the segments.

Hab. Cape Colony; Table Mountain and Caledon.

28. *G. STRICTUS* Jacq. Ic. t. 260.—Corm globose,  $\frac{1}{2}$  in. diam., with thick tunics of parallel, rigid strands. Leaves 3, long-sheathing, with free linear points not more than 2-3 in. long. Stem about a foot long. Flowers 2-3, erect; outer spathe-valves green, lanceolate, 1-1 $\frac{1}{2}$  in. long. Perianth yellowish, with a nearly straight tube an inch long, and oblong, acute segments as long as the tube; the upper one  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad; the others narrower. Stamens half as long as the segments.

Hab. Cape Colony. Known to me only from Jacquin's figure and description.

29. *G. RACHIDIFLORUS* Klatt, Ergänz. 5.—Leaves narrow linear,  $\frac{1}{4}$  in. broad, the lowest nearly 2 ft. long. Stem forked, 2 ft. long.

Flowers in a dense spike more than  $\frac{1}{2}$  ft. long; outer spathe-valve ovate, acute; inner toothed at the top. Perianth reddish, with a tube  $\frac{1}{4}$  in. long, and ovate, acute, subequal segments  $\frac{1}{2}$  in. long. Filaments as long as the anthers.

Hab. Port Natal, *Drège* 4537. I have not seen, but from the description should suppose it to be a *Tritonia*, not a *Gladiolus*.

30. *G. PAUCIFLORUS* Baker in Trans. Linn. Soc. Bot. ser. 2, ii. 350.—Corm not seen. Produced leaves 4-5, thin, linear,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, the lower a foot long. Stem slender, 2-3 ft. long. Flowers 5-6 in a very lax equilateral spike; outer spathe-valves green, lanceolate, 1-1 $\frac{1}{2}$  in. long. Perianth white; tube curved, narrowly funnel-shaped, 1 $\frac{1}{4}$  in. long; segments oblong-cuneate, acute, as long as the tube; the 3 lower not blotched in the centre. Stamens half as long as the segments.

Hab. Slopes of Mount Kilimanjaro, alt. 2000-3000 ft., *H. H. Johnston*! Near *G. angustus*.

31. *G. GRANTII* Baker.—Corm globose, 1 in. diam.; tunics of unmatted, parallel fibres. Produced leaves 3-4, linear, graminoid,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, the lower under a foot long. Stem slender, 2 ft. long. Flowers 6-8 in a lax secund spike; spathe-valves green, lanceolate, the lower outer 1 $\frac{1}{2}$ -2 in. long. Perianth white; tube narrowly funnel-shaped, curved, an inch long; segments obovate, acute, pure white, 1 $\frac{1}{2}$  in. long; the 3 lower not blotched in the centre. Stamens an inch long; anthers shorter than the filaments.

Hab. Mountains east of Lake Tanyanika, alt. 4000 ft., *Speke & Grant*! Near *G. angustus*.

32. *G. MICROPHYLLUS* Baker. — Corm small, globose, crowned with copious fine bristles. Root-leaves narrow, linear, rigid, 4-5 in. long. Stem slender, glabrous, 6-8 in. long, with about 3 small sheathing-leaves with small, free, linear tips. Spike secund, lax, 2-4 in. long; outer spathe-valve oblong,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth-tube shorter than the spathe; segments obovate, pale red,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Stamens reaching nearly to the tip of the segments.

Hab. East Griqualand, on Mount Zuurberg, *Tyson* 1852!

33. *G. BREVIFOLIUS* Jacq. Ic. t. 249. *G. aphyllus* Ker. *G. carneus* Andr. Bot. Rep. t. 240, non Delar. *G. Orobanche* Red. Lil. t. 125. *G. festivus* Herb. *G. spilanthus*, *brevicollis*, and *Andrewsii* Klatt.—Corm globose, 1-1 $\frac{1}{2}$  in. diam.; tunics of matted, parallel fibres, produced in a ring of bristles above its neck. Leaves about 3, distantly superposed, with glabrous sheaths, very short, erect, linear, rigid, free points. Stem very slender, 1-1 $\frac{1}{2}$  ft. long. Flowers 4-12 in a lax secund spike; spathe-valves lanceolate, upper outer  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth pink or lilac, with a curved tube  $\frac{3}{4}$  in. long; segments about as long as the tube, obtuse, upper obovate-cuneate,  $\frac{1}{3}$  in. broad; 3 lower narrower, distinctly unguiculate. Stamens more than half as long as the segments. Capsule oblong,  $\frac{1}{2}$  in. long.

Hab. Cape Colony; southern provinces.



84. *G. WOODII* Baker.—Corm depresso-globose, 1 in. diam.; tunics of wiry fibres, produced as a ring of bristles above its neck. Leaves about 4, distantly superposed, with hairy sheaths and short linear rigid free points. Stems slender 1-1½ ft. long. Flowers 4-6 in a lax secund spike; spathe-valves lanceolate, lower outer  $\frac{3}{4}$  in. long. Perianth dark red, with a curved broadly funnel-shaped tube  $\frac{1}{2}$  in. long; segments obtuse,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long; upper obovate-cuneate; 3 lower narrower, unguiculate. Stamens half as long as segments. Capsule turbinate,  $\frac{1}{2}$  in. long.

Hab. Natal, Buchanan! Wood 618! Near *G. brevifolius*.

85. *G. TABULARIS* Eckl. Topog. Verz. 88.—Corm globose, 1 in. diam.; tunics of fine matted, parallel fibres, produced above its neck into long scariose strands. Leaves 3-4, distantly superposed, with glabrous sheaths and very short linear points. Stem slender, a foot long. Flowers 5-6 in a lax secund spike; spathe-valves lanceolate, green, lower outer  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth pinkish, with a curved tube; upper segments oblong, obscurely cuspidate,  $\frac{3}{4}$  in. long,  $\frac{1}{3}$  in. broad; 3 lower unguiculate. Stamens half as long as the segments.

Hab. Cape Colony; summit of Table Mountain, Pappe! Bolus 7057! Very near *G. brevifolius*.

86. *G. INANDENSIS* Baker.—Corm globose,  $\frac{3}{4}$ -1 in. diam.; tunics of fine matted parallel fibres. Leaves 3-4, distantly superposed, with glabrous sheaths and short free linear tips. Stem slender, 1-1½ ft. long. Flowers 6-8 in a lax secund spike; spathe-valves green, oblong-lanceolate, lower outer  $\frac{1}{2}$  in. long. Perianth whitish, with a curved tube  $\frac{1}{2}$  in. long; segments keeled with red,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long; upper oblong or obovate, obscurely cuspidate; 3 lower narrower, oblong-unguiculate. Stamens half as long as the limb.

Hab. Natal, Sanderson! Wood 177! 237! C. Mudd! Near *G. brevifolius*.

87. *G. DEBILIS* Ker in Bot. Mag. t. 2585. *Geissorhiza albens* E. Mayer.—Corm depresso-globose,  $\frac{3}{4}$ -1 in. diam.; tunics of parallel wiry strands. Leaves 3, with long sheaths and long linear rigid tips. Stem very slender, 1-1½ ft. long. Flowers 1-3, laxly spicate, suberect; outer spathe-valves green, lanceolate,  $\frac{3}{4}$ -1 in. long. Perianth whitish, with a straight narrowly funnel-shaped tube  $\frac{3}{4}$  in. long; segments oblong, obtuse, as long as the tube; 3 lower with a spade-shaped red-brown blotch at the base. Stamens half as long as the segments.

Hab. Cape Colony; south-western provinces.

88. *G. BIFLORUS* Klatt in Trans. South Afric. Phil. Soc. iii. 2, 197.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics rigid, lacerated from the base. Produced leaf single, with a subterete blade 5-6 in. long. Stem slender, terete, 6-8 in. long. Flowers 2-3, laxly spicate, suberect; spathe-valves oblong-lanceolate, lower outer 1-1½ in. long. Perianth bright lilac, with a nearly straight tube  $\frac{1}{2}$ - $\frac{3}{4}$  in. long; segments oblong, obtuse, twice as long as the tube. Stamens half as long as the limb.

Hab. Cape flats, Macowan 2279! Near *G. debilis*.

39. *G. COCHLEATUS* Sweet, Brit. Flow. Gard. ser. ii, t. 140.—Corm small, globose. Leaves 3-4, with glabrous sheaths, the lowest with a rigid terete blade overtopping the flowers. Stem very slender,  $\frac{1}{4}$ - $1\frac{1}{2}$  ft. long. Flowers 1-2; outer spathe-valves oblong,  $\frac{3}{4}$ -1 in. long. Perianth white, with a curved tube  $\frac{1}{2}$ - $\frac{3}{4}$  in. long; upper segments oblong-spathulate, obtuse,  $\frac{3}{4}$ -1 in. long; 3 lower oblong-unguiculate, with a purple spade-shaped mark at the base. Stamens half as long as the segments.

Hab. Cape Colony; south-western district, *Drège* 1568! 8447 b!

40. *G. BOLUSII* Baker.—Corm small, globose. Leaves 3, with glabrous sheaths and long linear free points. Stem slender,  $1\frac{1}{2}$ -2 ft. long. Flowers 2-4 in a lax spike, ascending; spathe-valves green, oblong, lower outer  $\frac{3}{4}$ -1 in. long. Perianth bright pink, with a slightly curved tube  $\frac{3}{4}$  in. long; upper segments obovate, obtuse, an inch long; 3 lower oblong. Stamens half as long as the limb.

Hab. Cape Colony; Tulbagh, alt. 3000 ft., *Bolus* 5244! Very near *G. inflatus*.

41. *G. TENUIS* Baker in Journ. Bot. 1876, 335.—Corm not seen. Leaves 3, with glabrous sheaths and long linear free tips,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad; the lower  $1-1\frac{1}{2}$  ft. long. Stem very slender,  $1\frac{1}{2}$ -2 ft. long. Flowers 4-6 in a lax spike, ascending; outer spathe-valve green, oblong-lanceolate,  $\frac{3}{4}$ -1 in. long. Perianth pale pink with a nearly straight tube an inch long; segments  $\frac{3}{4}$  in. long, obtuse, obscurely cuspidate; the upper obovate or oblong; the 3 lower oblong-unguiculate. Stamens more than half as long as the segments.

Hab. Cape Colony; Zwelendam, *Burchell* 7303! 7421!

42. *G. ROGERSII* Baker.—Corm small, globose. Leaves 3, distantly superposed, with glabrous sheaths and long, very slender, subterete, free tips. Stem very slender, a foot long. Flowers 3-4 in a lax secund spike; spathe-valves green, oblong-lanceolate, lower outer  $\frac{1}{2}$  in. long. Perianth bright pink, with a slender curved tube  $\frac{1}{2}$  in. long; limb ventricose,  $\frac{3}{4}$  in. long; upper segments oblong, obtuse,  $\frac{1}{2}$  in. broad; 3 lower longer, oblong, distinctly unguiculate. Stamens more than half as long as the limb.

Hab. Cape Colony; *Rev. W. M. Rogers*! Near *G. inflatus*.

43. *G. SPATHACEUS* Papp. *G. ringens* Eckl. non Red.—Corm globose, small; tunics of thick wiry strands. Leaves 3, with glabrous sheaths and short slender subterete tips. Stem very slender,  $1-1\frac{1}{2}$  ft. long. Flower generally solitary, horizontal; spathe-valves green, lanceolate-acuminate,  $1\frac{1}{2}$ -2 in. long. Perianth pink, with a curved tube  $\frac{1}{2}$  in. long; limb ventricose, above an inch long; segments obtuse; upper obovate,  $\frac{3}{4}$  in. broad; 3 lower longer, oblong. Stamens more than half as long as the upper segments.

Hab. Cape Colony; Zwarteberg mountains, *Zeyher* 3985; *Macowan* 2167!

44. *G. PAPPEI* Baker.—Corm small, globose. Leaves 3, with glabrous sheaths and rigid linear free tips, the lower  $\frac{1}{2}$  ft. long. Flowers 2-3 in a lax spike; spathe-valves green, lanceolate; lower outer  $1\frac{1}{2}$  in. long. Perianth pink, with a slender slightly curved

ascending tube as long as the spathe; limb as long as the tube; segments oblong, subacute,  $\frac{1}{2}$  in. broad at the middle. Stamens less than half as long as the segments.

Hab. Summit of Table Mountain, *Pappe!* Between *G. inflatus* and *gracilis*.

45. *G. INVOLUTUS* Delaroché, Diss. 28, t. 3. *G. bimaculatus* Lam. (Miller, Ic. 158, tab. 286, fig. 1). *G. suaveolens* Zeyher.—Corm globose,  $\frac{3}{4}$  in. diam.; tunics of linear parallel strands. Leaves 3, with glabrous sheaths and long linear rigid free tips. Stem  $1-1\frac{1}{2}$  ft. long. Flowers 4-8 in a lax secund spike; outer spathe-valves oblong or lanceolate,  $1-1\frac{1}{2}$  in. long. Perianth bright pink, with a much curved tube  $\frac{1}{2}$  in. long; limb an inch long; upper segments oblong, obtuse,  $\frac{1}{2}$  in. broad; 3 lower oblong-unguiculate. Stamens half as long as the limb.

Hab. Cape Colony; south-western provinces. *Burchell* 5631! 5683! *Zeyher* 1628!

46. *G. PALUDOSUS* Baker.—Corm not seen. Produced basal leaves 4, linear, rigid, erect, a foot long. Stem about a foot long, bearing 2-3 linear reduced leaves. Spike subsecund, moderately dense, 4-10-flowered; outer spathe-valves lanceolate, green,  $\frac{3}{4}-1$  in. long. Perianth bright red-purple; tube  $\frac{1}{2}$  in. long; segments obovate, subequal,  $\frac{3}{4}$  in. long. Stamens rather shorter than the segments.

Hab. Transvaal; marshy ground near Lake Chrissie, *Scott-Elliot* 1588!

47. *G. HYALINUS* Jacq. Ic. t. 242. *G. strictus* Jacq.—Corm globose,  $\frac{1}{2}$  in. diam. Leaves 3, with glabrous sheaths and short linear free tips. Stem a foot long. Flowers 2, ascending; spathe-valves lanceolate,  $1-1\frac{1}{2}$  in. long. Perianth yellow, dotted inside with red, with a broadly funnel-shaped tube  $1\frac{1}{2}$  in. long; upper segments oblong, obscurely cuspidate,  $\frac{1}{2}$  in. broad; 3 lower narrower. Stamens half as long as the segments.

Hab. Cape Colony. Known to me only from Jacquin's figure and description.

48. *G. STRIATUS* Jacq. Ic. t. 260.—Corm globose, small; tunics with thick wiry strands. Leaves 3, with glabrous sheaths and short free linear tips. Stem a foot long. Flowers 2-3 in a lax spike; spathe-valves lanceolate,  $\frac{1}{2}-\frac{3}{4}$  in. long. Perianth whitish, streaked with red and yellow; tube  $\frac{3}{4}$  in. long; upper segment oblong-spathulate,  $\frac{1}{2}$  in. broad; 3 lower narrower. Stamens short.

Hab. Cape Colony. Known to me only from Jacquin's figure and description.

49. *G. PUNCTATUS* Thunb. Fl. Cap. edit. 2, 44, non Jacq.—Corm not seen. Leaves 3-4, with glabrous sheaths and free linear points  $\frac{1}{2}-1$  ft. long. Stem  $1\frac{1}{2}$  ft. long. Flowers 6-10 in a lax secund spike; outer spathe-valves lanceolate,  $1-1\frac{1}{2}$  in. long. Perianth with a curved funnel-shaped tube  $\frac{1}{2}$  in. long; limb an inch long; upper segment obovate, obtuse,  $\frac{1}{2}$  in. broad; 3 lower narrower, oblong-unguiculate. Stamens less than half as long as the segments.

Hab. Cape Colony; south-western provinces, *Thunberg!*

50. *G. BRACHYSCYPHUS* Baker. — Corm not seen. Produced leaves about 4, linear, glabrous, moderately firm,  $\frac{1}{2}$  ft. long,  $\frac{1}{4}$  in. broad. Stem  $1\frac{1}{2}$ –2 ft. long, with 2–3 small reduced leaves. Flowers 2–6 in a lax spike with a flexuose rachis; outer spathe-valve lanceolate-navicular, an inch long. Perianth bright lilac; tube much curved,  $\frac{1}{2}$  in. long; segments oblong, obtuse, 1– $1\frac{1}{4}$  in. long, the 3 lower shorter. Stamens as long as the lower segments.

Hab. East Griqualand, alt. 5000 ft., Tyson 1427!

51. *G. VILLOSUS* Ker, Gen. Irid. 133. *G. hirsutus* var., Ker in Bot. Mag. t. 823. *G. laccatus* Thunb. *G. pilosus* Eckl. *G. puniceus* Lam.? *G. Lamarckii* R. & S. — Corm globose,  $\frac{3}{4}$  in. diam.; tunics of wiry parallel fibres. Produced leaves 2–3, with a long hairy sheath and a rigid linear blade  $\frac{1}{2}$ –1 ft. long. Stems slender, 1–2 ft. long. Flowers 2–4 in a lax secund spike; spathe-valves oblong or lanceolate, lower outer  $\frac{3}{4}$ –1 in. long. Perianth bright red or lilac, with a curved broadly funnel-shaped tube  $\frac{3}{4}$ –1 in. long; segments obtuse, as long as the tube; upper obovate-cuneate; 3 lower oblong-unguiculate. Stamens half as long as the limb.

Hab. Cape Colony; south-western provinces.

52. *G. VITTATUS* Hornem. Hort. Hafn. ii. 950. *G. fasciatus* R. & S. *G. undulatus* Schneev. Ic. t. 19. *G. undulatus* var., Ker in Bot. Mag. t. 538. *G. vinulus* Klatt. — Corm globose. Leaves 3–4, linear, glabrous, the lower 6–9 in. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stem about a foot long. Flowers 3–6 in a lax spike, suberect; spathe-valves lanceolate, lower outer  $1\frac{1}{2}$ –2 in. long. Perianth whitish, with a slightly curved tube an inch long; limb rather longer than the tube; upper segments oblong, obtuse,  $\frac{1}{2}$  in. broad; the 3 lower with a red or lilac central blotch. Stamens half as long as the segments.

Hab. Cape Colony; south-western provinces.

53. *G. NIVENI* Baker. *G. ringens*, var. *undulatus* Andr. Bot. Rep. t. 275. — Corm small, globose. Produced leaves 2, narrow linear, glabrous, the lower  $\frac{1}{2}$  ft. long. Stem slender, a foot long. Flowers 3–4 in a lax spike with a flexuose rachis; outer spathe-valves green, lanceolate, the lower an inch long. Perianth bright lilac, with a curved tube  $\frac{1}{2}$  in. long; segments an inch long; the 5 lower undulated and reflexed; upper obovate, obtuse; lateral oblong, acute; 3 lower oblong-lanceolate, tinged yellow below the tip. Stamens short.

Hab. Cape Colony. Introduced into cultivation by Niven in 1800.

54. *G. GREGARIUS* Welw.; Baker in Trans. Linn. Soc. ser. 2, i. 268. — Corm globose,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam.; tunics of fine fibres. Leaves linear, moderately firm,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad, the lower 6–9 in. long. Stem 1– $1\frac{1}{2}$  ft. long. Flower 10–12 in a moderately dense secund spike, with rigid spathe-valves adpressed to the rachis; the outer lanceolate; the lower above an inch long. Perianth yellow, with a curved tube  $\frac{1}{2}$  in. long; upper segment obovate-cuneate, obtuse,  $\frac{3}{4}$  in. long; lateral similar; 3 lower oblanceolate-unguiculate. Stamens half as long as the segments.

Hab. Angola; Mountains of Pungo Andango, *Welwitsch* 1528! Habit of growth caespitose, with 4–10 tufts in a group.

55. *G. LAXIFLORUS* Baker in Trans. Linn. Soc. ser. 2, i. 268.—Corm globose,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam.; tunics membranous, brown. Leaves 3, linear, rigid,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad, the lower a foot or more long. Stem a foot long, sometimes forked. Flowers 4–6 in a very lax spike with a flexuose rachis; spathe-valves oblong, green, the lower outer  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth rose-purple, with a curved tube  $\frac{1}{2}$  in. long; upper segment oblong, obtuse, an inch long; lateral similar; 3 lower unguiculate, deflexed. Stamens nearly as long as the segments. Capsule turbinate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long.

Hab. Angola; grassy swamps of the mountains of Huilla, *Welwitsch* 1536

56. *G. BREVICAULIS* Baker in Trans. Linn. Soc. ser. 2, i. 267.—Corm globose, 1 in. diam.; tunics of fine matted parallel fibres, produced above its neck. Basal leaves narrow linear, rigid, longer than the stem. Stem slender, 6–8 in. long, with 2–3 linear leaves with scarcely any free tips. Flowers 6–15 in a lax secund spike with a flexuose rachis; spathe-valves green, oblong or lanceolate, the lower outer  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth dark purple, with a curved tube  $\frac{1}{2}$  in. long; upper segment oblong-cuneate, rather longer than the tube; lateral shorter; 3 lower unguiculate. Stamens more than half as long as the segments.

Hab. Angola; temperate region of the province of Huilla, *Welwitsch* 1534!

57. *G. LURIDUS* Welw.; Baker in Trans. Linn. Soc. Bot. ser. 2, i. 267.—Corm globose, 1 in. diam.; tunics of parallel fibres, reticulated upwards. Leaves rigid, linear, those of the flowerless tufts a foot long,  $\frac{1}{8}$  in. broad. Stem slender, a foot long. Flowers 10–12 in a very lax secund spike with a flexuose rachis; spathe-valves oblong-lanceolate, green, the lower outer  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Perianth dull purple, with a curved tube  $\frac{1}{2}$  in. long; limb as long as the tube; upper segments oblong-cuneate, obtuse,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad; 3 lower unguiculate. Stamens nearly as long as the limb.

Hab. Angola; in the temperate region of the province of Huilla, in maize-fields, *Welwitsch* 1533!

58. *G. CÆRULESCENS* Baker in Trans. Linn. Soc. Bot. ser. 2, i. 267.—Corm globose,  $\frac{1}{2}$ – $\frac{3}{4}$  in. diam.; tunics of rigid laterally-flattened plates. Produced leaves 1–2, rigid, linear, the lowest with a blade 3–4 in. long,  $\frac{1}{12}$  in. broad. Stem very slender, 1–1 $\frac{1}{2}$  ft. long. Flowers 2–3 in a lax secund spike; spathe-valves oblong, green, the lower outer  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Perianth dull purple, with a curved tube  $\frac{1}{4}$ – $\frac{1}{2}$  in. long; limb not longer than the tube; upper segments oblong, obtuse,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad; 3 lower narrower. Stamens nearly as long as the segments.

Hab. Angola; temperate region of Huilla, *Welwitsch* 1537!

59. *G. ATROPURPUREUS* Baker in Journ. Bot. 1876, 335.—Corm globose,  $\frac{3}{4}$  in. diam.; tunics of parallel fibres, reticulated upwards. Leaves about 3, distantly superposed, with very short rigid linear tips adpressed to the slender stem, which is a foot long. Flowers 6–9 in a lax secund spike with a flexuose rachis; spathe-valves

green, curved, lanceolate, the lower outer  $\frac{3}{4}$  in. long. Perianth bright dark purple, an inch long, with a curved narrowly funnel-shaped tube scarcely  $\frac{1}{2}$  in. long; 3 upper segments oblong-cuneate,  $\frac{1}{2}$ - $\frac{1}{3}$  in. broad; 3 lower narrower, with a claw as long as the blade. Capsule oblong or turbinate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Seeds broadly winged.

Hab. Zambesi highlands, alt. 1800—3000 ft., *Sir John Kirk*!

60. *G. ZAMBESIACUS* Baker.—Corm globose,  $\frac{1}{2}$  in. diam.; tunics of fine parallel fibres. Produced leaves 3, narrow linear,  $\frac{1}{2}$  in. broad, moderately firm, the lower above a foot long. Stem very slender, 1-1 $\frac{1}{2}$  ft. long. Flowers about 4 in a very lax secund spike; outer spathe-valves brownish, lanceolate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth pale purple, with a curved tube  $\frac{1}{3}$  in. long; upper segment oblong-cuneate, obtuse,  $\frac{3}{4}$  in. long,  $\frac{1}{2}$  in. broad; lower narrower, unguiculate. Stamens  $\frac{1}{2}$  in. long.

Hab. Zambesi highlands, *Last!* Mountains east of Lake Nyassa, *Rev. W. P. Johnson!*

61. *G. MICRANTHUS* Baker.—Corm not seen. Leaves 2-3, narrow linear, rigid,  $\frac{1}{3}$  in. broad, the lowest a foot long. Stem simple or branched at the base, under a foot long. Flowers 12-20 in a dense spike; spathe-valves oblong-lanceolate, brown, the lower outer  $\frac{1}{2}$ - $\frac{1}{3}$  in. long. Perianth bright purple; tube  $\frac{1}{3}$  in. long; limb  $\frac{1}{2}$  in. long; upper segment oblong-cuneate, obtuse,  $\frac{1}{3}$  in. broad; 3 lower oblanceolate-unguiculate,  $\frac{1}{2}$  in. broad. Stamens little shorter than the upper segment.

Hab. Bechuana country, *Dr. Holub!*

62. *G. MELLERI* Baker in *Journ. Bot.* 1876, 334. — Corm not seen. Stem 1-1 $\frac{1}{2}$  ft. long, bearing several distantly-superposed leaves with short erect linear rigid blades. Flowers 6-12 in a very lax spike; spathe-valves brownish, lanceolate, the lower outer 1-1 $\frac{1}{2}$  in. long. Perianth bright red, with a curved narrowly funnel-shaped tube  $\frac{3}{4}$  in. long; segments oblong-cuneate, obtuse, 3 upper an inch long, 3 lower shorter. Stamens half as long as the upper segments. Capsule small, turbinate. Seeds broadly winged.

Hab. Zambesi highlands; collected by Dr. Meller and Sir John Kirk, and more recently in the Namuli Makua country by Mr. J. T. Last.

63. *G. HANNINGTONI* Baker. — Corm not seen. Leaves linear, moderately firm,  $\frac{1}{3}$  in. broad, the lower a foot long. Flowers 12-20 in a dense secund spike, with rigid lanceolate brown erect imbricated spathe-valves, the lower outer 1 $\frac{1}{2}$  in. long. Perianth with a curved tube  $\frac{1}{2}$ - $\frac{1}{3}$  in. long, and a horizontal dark purple limb  $\frac{3}{4}$ -1 in. long; upper segment oblong, obtuse,  $\frac{1}{3}$  in. broad; lateral similar; 3 lower as long, oblanceolate, distinctly unguiculate. Stamens half as long as the segments.

Hab. Mountains of East Tropical Africa, 2-7° S. lat.; collected by the late Bishop Hannington. Near *G. spicatus* and *gregarius*.

64. *G. BUCHANANI* Baker.—Corm small, globose. Leaves linear, moderately firm,  $\frac{1}{2}$ - $\frac{1}{3}$  in. broad, the lower 1 $\frac{1}{2}$  ft. flower. Stem 1-1 $\frac{1}{2}$  ft. long. Flowers 6-8, erecto-patent, in a lax equilateral spike; outer spathe-valves brownish, lanceolate,  $\frac{3}{4}$ -1 in. long.

Perianth pale reddish, under an inch long; segments oblong-cuneate, obtuse, twice as long as the tube. Stamens reaching nearly to the top of the segments.

Hab. Zambesi highlands; summit of Direndi, alt. 5000 ft., *Buchanan!*

65. *G. QUARTINIANUS* A. Rich. Fl. Abyss. ii. 307; Baker in Bot. Mag. t. 6739. — Corm globose, 1-1½ in. diam.; tunics of matted parallel fibres. Produced leaves 3-4, rigid, linear or ensiform, the lower sometimes 1-1½ ft. long. Flowers 6-9 in a very lax secund spike ½-1 ft. long; spathe-valves green, lanceolate, the lower outer 1½-2 in. long. Flowers bright yellow or bright red, with a curved narrowly funnel-shaped tube 1¼ in. long; upper segments cucullate, oblong, acute, 1¼ inch long, an inch broad; side segments smaller; 3 lower shorter and narrower, reflexing. Stamens an inch long; filaments as long as the anthers. Capsule linear-oblong, above an inch long. Seeds broadly winged.

Hab. Mountains of Tropical Africa from Abyssinia to Zambesi-land, Matabele-land and Angola, ascending to 8000 ft. in Masai-land. Introduced into cultivation by Sir John Kirk in 1884. *G. saltatorum* Baker, collected by Speke and Grant near the equator, is probably a variety.

66. *G. ANGOLENSIS* Welw.; Baker in Trans. Linn. Soc. Bot. ser. 2, i. 269. — Corm globose, 1 in. diam.; tunics of fine matted parallel fibres reticulated upwards. Leaves 3-4, rigid, linear or ensiform, the lowest 1-1½ ft. long. Stem 1-2 ft. long. Flowers few, in a lax secund spike; outer spathe-valves lanceolate, 1½-2 in. long. Perianth with a curved tube 1½ in. long; limb yellow, with copious minute dots of red; upper segment obovate, obtuse, cucullate, 1¼ in. long, an inch broad; lateral similar, shorter; 3 lower much smaller, decurved. Stamens an inch long. Capsule oblong-clavate, 1½ in. long. Seeds broadly winged.

Hab. Mountains of Angola; collected by Welwitsch and Monteiro. Near *G. Quartinianus*.

67. *G. WELWITSCHII* Baker in Trans. Linn. Soc. Bot. ser. 2, i. 208. — Corm globose, 1 in. diam.; tunics produced above in a long ring of bristles. Basal leaves linear, very rigid, ¼-½ in. broad, 1-1½ ft. long. Stem ½ ft. long, its leaves short and entirely adpressed. Spike lax, secund, 6-10 in. long; outer spathe-valves lanceolate, 1½-2 in. long. Perianth bright reddish yellow, with a curved tube 1½ in. long; limb 1½-2 in. long; upper segment ovate, acute, ¾-1 in. broad; lower shorter, obovate, deflexed. Stamens an inch long. Capsule clavate-oblong, an inch long. Seeds broadly winged.

Hab. Angola; temperate region of the province of Huilla, *Welwitsch* 1541!

68. *G. SULPHUREUS* Baker in Trans. Linn. Soc. Bot. ser. 2, i. 350. — Corm globose, ¾ in. diam. Produced leaves 3-4, crowded, with a very short rigid ensiform blade. Stem robust, under a foot long. Flowers 7-8 in a very lax equilateral spike; spathe-valves rigid, lanceolate, brownish, the lower outer 1½-2 in. long. Perianth bright yellow, 2½-3 in. long, with a curved tube 1¼ in. long; segments obovate, upper cucullate, as long as the tube; side seg-

ments rather smaller; 3 lower much smaller. Stamens more than half as long as the segments; filaments  $\frac{1}{2}$  in. long.

Hab. Mount Kilimanjaro, alt. 5000 ft., *H. H. Johnston!* Near *G. Quartinianus*.

69. *G. GARNIERII* Klatt in *Linnæa*, xxxvii. 511. *G. ignescens* Bojer.—Corm globose, 1 in. diam.; tunics of flattened firm parallel strands. Leaves 4-5, rigid, linear,  $\frac{1}{4}$  in. broad, the lower a foot or more long. Stem  $1\frac{1}{2}$ -3 ft. long. Flowers 4-6 in a very lax sub-second spike; spathe-valves lanceolate, brownish, the lower outer 2-3 in. long. Flowers bright red, with a narrowly funnel-shaped curved tube  $1\frac{1}{2}$  in. long; upper segment oblong, very cucullate, as long as the tube,  $\frac{3}{4}$  in. broad; side ones similar; lower much narrower and shorter, reflexing. Stamens half as long as the upper segment. Capsule clavate-oblong, an inch long. Seeds broadly winged.

Hab. Highlands of Central Madagascar; first gathered by Bojer and Lyall. Near *G. Quartinianus*.

70. *G. NEWII* Baker in *Journ. Bot.* 1876, 334. — Corm globose, 1 in. diam. Leaves 3, linear, rigid,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, the lowest a foot long. Stem a foot long. Flowers 2-3 in a lax spike; spathe-valves lanceolate, brownish, the lower outer 2 in. long. Perianth red-yellow, with a curved narrowly funnel-shaped tube  $1\frac{1}{2}$  in. long; upper segments obovate-cuneate, obtuse, cucullate, as long as the tube,  $\frac{3}{4}$  in. broad; side ones similar; 3 lowest shorter,  $\frac{1}{2}$  in. broad. Stamens more than half as long as the segments.

Hab. Temperate zone of Mt. Kilimanjaro; gathered by the Rev. Mr. New in 1871. May be an alpine variety of *G. Quartinianus*.

71. *G. KILIMANDSCHARICUS* Pax in *Engl. Hochgeb. Fl. Trop. Afric.* 175. — Corm globose, 1 in. diam.; tunics fibrous, finely reticulated upwards. Leaves 3, linear, rigid, glabrous; midrib and margin thickened, stramineous. Spike lax, 5-7-flowered; spathe-valves lanceolate, 3 in. long. Perianth  $3\frac{1}{2}$  in. long; tube curved, narrowly funnel-shaped, 2 in. long; segments horizontal; upper obovate, obtuse; lower 3 much smaller.

Hab. Mount Kilimanjaro, *Dr. Hans Meyer.*

72. *G. BRACHYANDRUS* Baker in *Bot. Mag.* t. 6463. — Corm depresso-globose, very large. Produced leaves 4-5, crowded, ensiform, with free points not more than 2-3 in. long. Stem about a foot long. Flowers 8-10, suberect, in a very lax equilateral spike; spathe-valves brown, lanceolate, lower outer an inch long. Perianth reddish white, with a broadly funnel-shaped nearly straight tube  $\frac{1}{2}$  in. long; segments oblong, acute,  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long, the upper the longest. Stamens half as long as the segments.

Hab. Zambesi highlands; sent by Mr. John Buchanan to the Edinburgh botanic garden, where it flowered in 1879.

73. *G. LEICHTLINI* Baker in *Gard. Chron.* 1889, ii. — Leaty stem terete, 2 ft. long. Produced leaves 4, ensiform, bright green, moderately firm, a foot long, under an inch broad. Flowers 6-8, in a moderately dense second spike  $\frac{1}{2}$  ft. long; spathe-valves



lanceolate, erect, 1-1½ in. long. Perianth bright red; tube arcuate, 1¼ in. long; upper segments obovate, permanently connivent, as long as the tube; 3 lower much smaller, acute, spreading, red at the tip, below it yellow, grained with minute spots of red. Stamens shorter than the upper segments.

Hab. Transvaal; gathered in 1887 by Mr. R. W. Adlam. Described from plants flowered by Max Leichtlin in 1889.

74. *G. ELLIOTH* Baker.—Corm not seen. Basal leaves 4, rigid, ensiform, erect, strongly ribbed, 6-9 in. long, ½ in. broad. Stem about a foot long, bearing 1-2 reduced leaves. Spike dense, distichous, 4-5 in. long; outer spathe-valves oblong, ¾-1 in. long. Perianth claret-red; tube ¾ in. long; segments oblong, acute, subequal, an inch long. Stamens shorter than the segments.

Hab. Transvaal; marshy places near Middleburg, *Scott-Elliot* 1557!

75. *G. CRASSIFOLIUS* Baker in Journ. Bot. 1876, 334. — Corm middle-sized, globose; tunics of wiry parallel fibres. Leaves 5-6, crowded, ensiform, very rigid, with thick stramineous ribs, ½-¾ in. broad, sometimes 1½-2 ft. long. Stem 1-2 ft. long. Flowers very numerous, forming a second spike, often a foot or more long; spathe-valves lanceolate, lower outer ¾-1 in. long. Perianth red, with a curved tube ½ in. long; limb twice as long as the tube; upper segments obovate, 3 lower oblong-unguiculate. Stamens reaching nearly to the tip of the segments.

Hab. Natal, Transvaal, Orange Free State, and Bechuanaland.

76. *G. SERICEO-VILLOSUS* Hook. in Bot. Mag. t. 5427. — Corm large, globose; tunics of parallel fibres. Produced leaves 5-6, crowded, ensiform, glabrous, strongly ribbed, sometimes 1½-2 ft. long. Stem 2-3 ft. long, clothed throughout with crisped spreading white hairs. Flowers 20-30 in a long spike; outer spathe-valves oblong-lanceolate, villose, scariose in the upper half. Perianth bright yellow, with a curved tube ½-¾ in. long; limb rather longer than the tube; upper segments oblong-spathulate, ¼-½ in. broad; lower narrower, oblong-unguiculate. Stamens half as long as the segments.

Hab. Cape Colony; east central region, *Cooper*! Introduced into cultivation in 1864.

77. *G. LUDWIGH* Pappe. *Antholyza hirsuta* Klatt.—Corm large, globose; tunics of matted parallel fibres. Produced leaves 5-6, crowded, ensiform, rigid, finely pilose, sometimes 2-3 ft. long. Flowers 20-30 in a long spike; spathe-valves oblong-lanceolate, pubescent, scariose towards the edge and tip, the lower outer 1-1½ in. long. Perianth pale yellow, with a curved tube ¾ in. long; upper segments as long as the tube, oblong-spathulate, ¼-½ in. broad; 3 lower oblong-unguiculate. Stamens half as long as the limb.

Var. *CALVATUS* Baker. *G. ochroleucus* Bot. Mag. t. 6921.—Leaves and spathe-valves glabrous.

Hab. Natal, Orange Free State, and Kaffraria. Scarcely more than a variety of *G. sericeo-villosus*.

78. *G. OCHROLEUCUS* Baker in Journ. Bot. 1876, 182, non Bot. Mag. t. 6291. — Corm middle-sized. Produced leaves very rigid, linear-ensiform, the longest 9–12 in. long,  $\frac{1}{2}$  in. broad. Stem 2 ft. or more long. Flowers 8–12 in a lax secund spike; outer spathe-valves lanceolate, green, lower outer 1–2 in. long. Flowers plain creamy yellow, with a curved tube  $\frac{3}{4}$  in. long; limb an inch long; 3 upper segments oblong-spathulate,  $\frac{1}{2}$  in. broad; 3 lower oblong-unguiculate. Stamens half as long as the segments.

Hab. Transkeian Kaffraria, alt. 2000 ft., *Rev. R. Baur* 941

79. *G. ECKLONI* Lehm.; Klatt in *Linnæa* xxxii. 712; Baker in Bot. Mag. t. 6335. *Neuberia longifolia* Ecklon. — Corm globose,  $1\frac{1}{2}$  in. diam.; tunics of parallel wiry fibres, produced above its neck as long bristles. Produced leaves 4–5, crowded, ensiform, very rigid, with thick stramineous ribs, the lower not more than a foot long, an inch or more broad at the middle, very oblique at the base. Stem 1–2 ft. long. Flowers 6–12 in a lax subsecund spike; spathe-valves green, lanceolate, the lower outer  $1\frac{1}{2}$ –2 in. long. Perianth with a curved tube  $\frac{3}{4}$  in. long; limb an inch long, copiously spotted inside with minute red dots on a whitish ground; upper segments oblong-spathulate, obtuse,  $\frac{1}{2}$  in. broad; 3 lower oblong-unguiculate. Stamens half as long as the limb.

Hab. Cape Colony; eastern provinces from Uitenhage northward to Natal and the Transvaal.

80. *G. PURPUREO-AURATUS* Hook. fl. in Bot. Mag. t. 5944. — Corm large, globose; tunics of matted parallel fibres. Produced leaves 3–4, ensiform, rigid, the lowest about a foot long. Stem  $1\frac{1}{2}$ –2 ft. long. Flowers 10–15 in a lax secund spike a foot long; outer spathe-valves green, oblong-lanceolate,  $1-1\frac{1}{2}$  in. long. Perianth primrose-yellow, with a curved tube under an inch long; 3 upper segments obovate-spathulate,  $1\frac{1}{4}-1\frac{1}{2}$  in. long,  $\frac{3}{4}$  in. broad; 3 lower obovate-unguiculate, the two inner with a red-brown blotch at the throat. Stamens half as long as the limb.

Hab. Natal. Introduced into cultivation by Mr. Wm. Bull in 1872.

81. *G. PAPILIO* Hook. in Bot. Mag. t. 5565. — Corm middle-sized, globose; tunics of matted parallel fibres. Produced leaves about 4, ensiform, rigid, very oblique at the base, the lowest about a foot long. Stem  $1\frac{1}{2}$ –2 ft. long. Flowers 6–12 in a lax spike; spathe-valves oblong-lanceolate, the lower outer  $1-1\frac{1}{2}$  in. long. Perianth pale purple, with a curved tube  $\frac{3}{4}$  in. long, broadly funnel-shaped at the top; 3 upper segments obovate-spathulate,  $1\frac{1}{4}-1\frac{1}{2}$  in. long; 3 lower oblong-unguiculate, the two inner with a large spade-shaped reddish-brown blotch with a yellow border at the throat. Stamens half as long as the segments.

Hab. Cape Colony; Colesberg, Orange Free State, Natal, and the Transvaal. Introduced into cultivation in 1864.

82. *G. REHMANNI* Baker. — Corm not seen. Produced leaves about 4, linear, very rigid,  $1\frac{1}{2}$ –2 ft. long,  $\frac{1}{4}-\frac{1}{3}$  in. broad. Stem  $1\frac{1}{2}$ –2 ft. long. Flowers 6–9 in a secund spike; spathe-valves lanceolate, green, rigid,  $1\frac{1}{2}$ –2 in. long. Perianth bright red, with

a curved tube an inch long; limb a little longer than the tube; 3 upper segments obovate-spathulate,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad; 3 lower oblong,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad. Stamens not half as long as the segments.

Hab. Transvaal, *Rehmann* 5096!

83. *G. HIRsutus* Jacq. Ic. t. 250; Red. Lil. t. 278. *G. roseus* Andr. Bot. Rep. t. 11. *G. hirsutus* var. *roseus* Ker in Bot. Mag. t. 574.—Corm middle-sized, globose, crowned with a ring of bristles. Leaves 4–5, superposed, ensiform, strongly ribbed, both the sheath and short blade finely hairy. Stem 1– $1\frac{1}{2}$  ft. long. Flowers 3–6 in a very lax second spike; spathe-valves lanceolate, green, lower outer  $1\frac{1}{2}$ –2 in. long. Perianth bright red, with a curved tube  $1\frac{1}{2}$  in. long; segments obovate, cuspidate, as long as the tube, the upper  $\frac{3}{4}$  in., the lower  $\frac{1}{2}$  in. broad. Stamens more than half as long as the segments.

Hab. Cape Colony; south-western provinces. *G. similis* Eckl. is said to differ by its smaller paler flowers.

84. *G. BLANDUS* Ait. Hort. Kew. i. 64; Ker in Bot. Mag. t. 625.—Corm middle-sized; tunics of matted parallel fibres. Produced leaves about 4, crowded, ensiform, glabrous,  $\frac{1}{2}$ –1 ft. long,  $\frac{1}{2}$ – $\frac{3}{4}$  in. broad. Stem 1– $1\frac{1}{2}$  in. long. Flowers 4–8 in a lax spike; spathe-valves lanceolate, green, lower outer,  $1\frac{1}{2}$ –2 in. long. Perianth white, tinged with red, with a curved tube  $1\frac{1}{4}$ – $1\frac{1}{2}$  in. long; limb rather longer than the tube; upper segments oblong,  $\frac{1}{2}$ – $\frac{3}{4}$  in. broad, 3 lower narrower, oblong-unguiculate, with a reddish blotch at the throat. Stamens more than half as long as the segments.

Var. *G. ALBIDUS* Jacq. Ic. t. 256. *G. blandus* Andr. Bot. Rep. t. 99. *G. blandus* var. *niveus* Ker in Bot. Mag. t. 648.—Flower pure white.

Var. *G. MORTONIUS* Herb. in Bot. Mag. t. 3680.—Flowers sub-erect, the segments white, with copious faint vertical pink streaks.

Var. *G. EXCELSUS* Sweet.—Taller than the type, with longer leaves, and a perianth-tube 2 in. long.

Var. *G. CARNEUS* Delaroché, Diss. 30, t. 4. *G. campanulatus* Andr. Bot. Rep. t. 188. *G. blandus* var., Ker in Bot. Mag. t. 645.—More robust than the type, with more numerous more spreading pink or lilac flowers, with broader more obtuse segments.

Var. *G. HIBBERTII* Hort.—Flowers pink, with very distinct red spade-shaped blotches on the three lower segments.

Hab. Cape Colony, from Capetown eastward to Kaffraria. Introduced into cultivation in 1774.

85. *G. SALMONEUS* Baker.—Corm not seen. Stem-leaves 6–8, rigid, linear, acuminate, 1– $1\frac{1}{2}$  in. long,  $\frac{1}{2}$  in. broad, finely pubescent, with very strong raised ribs. Stem a foot long. Spike moderately dense, distichous, a foot long; outer spathe-valves lanceolate, green,  $1\frac{1}{2}$ –3 in. long. Perianth salmon-red; tube slender, curved, 2 in. long; segments obovate, obtuse, 18–21 lin. long. Stamens half as long as the segments.

Hab. Cape Colony; Griqualand east, *Tyson*!

86. *G. SCAPHOCHLAMYS* Baker.—Produced leaves 3–4, crowded, ensiform, rigid, glabrous, the lower about a foot long. Stem

1-1½ ft. long. Flowers 6-8 in a lax spike; spathe-valves oblong-lanceolate, firm, lower outer 1½-2 in. long. Perianth pinkish white, with a curved tube 1-1¼ in. long; segments as long as the tube, obovate- or oblong-spathulate, ½-⅔ in. broad. Stamens half as long as the segments.

Hab. Cape Colony; south-western provinces, *Drège* 8427! *Pappe!* *Macowan* 2553! Nearly allied to *G. blandus*.

87. *G. FLORIBUNDUS* Jacq. Ic. t. 254; Ker in Bot. Mag. t. 610. *G. grandiflorus* Andr. Bot. Rep. t. 118. — Corm globose, middle-sized; tunics of fine matted parallel fibres. Produced leaves about 4, ensiform, glabrous, lower 1-2 ft. long. Flowers 4-12 in a lax spike; spathe-valves green, lanceolate, lower outer 1½-2 in. long. Perianth white, tinged with pink, with a slightly curved tube 1½-2 in. long; segments about as long as the tube, obovate-spathulate, obtuse, the upper ¾-1 in. broad. Stamens half as long as the segments.

Hab. Cape Colony; southern provinces. Nearly allied to *G. blandus*. The name *floribundus* is often applied in gardens to hybrid forms.

88. *G. OPPOSITIFLORUS* Herb. in Bot. Reg. 1842, Misc. 98. — Corm large, globose; tunics of fine matted parallel fibres. Produced leaves 3-4, crowded, ensiform, glabrous, the lowest 1-1½ ft. long. Stem 2-3 ft. long. Flowers up to 30-40 in a dense distichous spike; spathe-valves lanceolate, green, lower outer 1-1½ in. long. Perianth white, with a curved slender tube 1-1½ in. long; segments oblong-spathulate, subacute, 1½ in. long, ¼-½ in. broad. Stamens half as long as the limb.

Hab. Transkeian Kaffraria, not certainly indigenous, *Macowan* 2254! Said by Herbert to be a native of Madagascar, but none of the recent collectors have found it. Its nearest affinity is with *G. floribundus*.

89. *G. MILLERI* Ker in Bot. Mag. t. 632. *Antholyza spicata* Miller, Gard. Dict. edit. vi. No. 2 (Ic. 27, t. 40). — Corm middle-sized; tunics of fine matted parallel fibres. Produced leaves 3-4, crowded, ensiform, glabrous, shorter than the stem. Stem 1-1½ ft. long. Flowers 4-5, suberect, laxly spicate; spathe-valves oblong-lanceolate, green, lower outer 1½ in. long. Perianth milk-white, with a nearly straight tube 1½-2 in. long; segments oblong, subacute, the upper one ¼-½ in. broad at the middle. Stamens half as long as the limb.

Hab. Cape Colony. The only wild specimen I have seen was received from Port Elizabeth by the late Rev. H. Harpur-Crewe. Allied to *G. undulatus*.

90. *G. UNDULATUS* Jacq. Ic. t. 254; Red. Lil. t. 122; Ker in Bot. Mag. t. 647. *G. striatus* Andr. Bot. Rep. t. 111. *G. vittatus* Zuccag. — Corm middle-sized; tunics of fine matted parallel fibres. Produced leaves 4-5, crowded, ensiform, glabrous, ½-1 ft. long. Stem 1 ft. long. Flowers 4-6, suberect, in a lax spike with a flexuose rachis; outer spathes oblong-lanceolate, green, lower 1-1½ in. long. Perianth with a nearly straight tube 1½ in. long; segments milk-white, with a red keel, oblong-spathulate, subacute, about as long as the tube. Stamens half as long as the limb.

Hab. Cape Colony; southern provinces.

91. *G. ADLAMI* Baker in Gard. Chron. 1889, i. 233. — Leaves ensiform, rigid, strongly ribbed, 1-1½ ft. long, an inch broad at the middle. Stem 1-1½ ft. long. Flowers 5-6 in a moderately dense secund spike; outer spathe-valves oblong-lanceolate, lower 1½-2 in. long. Perianth greenish yellow, with a nearly straight tube an inch long; upper segment not cucullate, oblong, acute, as long as the tube, granulated all over the face with minute red spots; 5 others smaller, minutely cuspidate, the inner plain greenish yellow, the two others granulated with red towards the tip. Stamens as long as the segments.

Hab. Transvaal; discovered lately by Mr. R. W. Adlam.

92. *G. MACOWANI* Baker. — Corm not seen. Produced leaves ensiform, more rigid than in *G. cardinalis*, the lower 1-1½ ft. long. Stem 2-3 ft. long. Flowers 6-10 in a lax spike, suberect; outer spathe-valves green, lanceolate, lower 1½-2 in. long. Perianth bright scarlet, with a nearly straight tube 2 in. long; segments oblong, acute, rather shorter than the tube, all about 1½ in. broad. Stamens half as long as the segments.

Hab. South-eastern provinces; originally gathered by Masson. Differs from the other *Cardinales* by the segments being subequal and shorter than the tube.

93. *G. SPLENDENS* Baker in Journ. Bot. 1876, 333. — Corm not seen. Produced leaves ensiform, not rigid, the lower 1-1½ ft. long. Stem about 2 ft. long. Flowers 4-6 in a lax spike, suberect; outer spathe-valves green, lanceolate, 1½-2 in. long. Perianth bright scarlet, with a nearly straight tube 1½ in. long; upper segments obovate, minutely cuspidate, 2 in. long, about an inch broad; 3 lower rather narrower and shorter, with a pale keel. Stamens more than half as long as the limb.

Hab. Cape Colony; mountains near Oakhurst, in the province of George; gathered by Mr. W. D. Dumbleton in 1870.

94. *G. CARDINALIS* Curt. in Bot. Mag. t. 135; Red. Lil. t. 122. — Corm large, globose. Produced leaves ensiform, glaucous green, not rigid, the outer 1½-2 ft. long. Stem 2-3 ft. long. Flowers 12-20 in a lax spike, suberect; spathe-valves lanceolate, green, the lower outer 2-3 in. long. Perianth bright scarlet, with a nearly straight tube 1½ in. long; upper segments oblong-spathulate, sub-acute, 2 in. long, ¾-1 in. broad; 3 lower rather shorter and narrower, blotched with white at the throat. Stamens more than half as long as the segments.

Hab. Cape Colony; south-eastern provinces. Introduced into cultivation by Masson in 1789.

95. *G. CRUENTUS* Moore in Gard. Chron. 1868, 1139; Hook. fil. in Bot. Mag. t. 5810. — Corm large, globose. Produced leaves about 4, ensiform, dark glaucous green, 1½-2 ft. long. Stem 2-3 ft. long. Flowers 6-10 in a rather dense spike; spathe-valves green, lanceolate, the lower sometimes 3-6 in. long. Perianth bright scarlet, with a nearly straight tube 1½-2 in. long; upper segments obovate-spathulate, 2-2½ in. long; 3 lower smaller, with a large

white blotch with red spots at the throat. Stamens half as long as the limb.

Hab. Natal. Introduced into cultivation by Mr. Wm. Bull.

96. *G. BUETTNERI* Pax.—Stem 3 ft. long. Leaves rigid, ensiform, glabrous, the lowest  $1\frac{1}{2}$  ft. long, above an inch broad. Spike very lax, a foot long; spathe-valves lanceolate,  $2\frac{1}{2}$ –3 in. long. Perianth-tube  $1\frac{1}{2}$  in. long; upper segment oblong, very convex,  $1\frac{1}{2}$ –2 in. long; lateral broad, oblong; 3 lower much smaller.

Hab. Tugoland, West Tropical Africa, *Dr. Buettner!*

97. *G. DRACOCEPHALUS* Hook. fil. in Bot. Mag. t. 5884.—Corm large, depresso-globose. Produced leaves 3–4, ensiform,  $1$ – $1\frac{1}{2}$  ft. long, moderately firm. Stem 2 ft. long. Flowers 3–6 in a very lax secund spike; outer spathe-valves green, lanceolate, 2–3 in. long. Perianth yellowish green, minutely grained with claret-purple, with a curved greenish tube  $1\frac{1}{2}$ –2 in. long; upper segments obovate, cucullate,  $1\frac{1}{2}$  in. long,  $\frac{3}{4}$ –1 in. broad; lower much smaller, acute, reflexing. Stamens nearly as long as the segments.

Hab. Natal. Introduced into cultivation by Mr. Thos. Cooper in 1870.

98. *G. PSITTACINUS* Hook. in Bot. Mag. t. 3032; Bot. Reg. t. 1442; Reich. Exot. t. 116. *G. natalensis* Reinw.; Sweet, Brit. Flow. Gard. ser. 2, t. 281; Lodd. Bot. Cab. t. 1756.—Corm large, depresso-globose; tunics of matted parallel fibres. Produced leaves about 4, ensiform, rigid, 1–2 ft. long. Stem, 2–3 ft. long. Flowers many, in a very lax secund spike; outer spathe-valves green, oblong-lanceolate, 2–3 in. long. Perianth with a curved tube  $1\frac{1}{2}$ –2 in. long; limb about as long as the tube, copiously grained with red on a yellowish ground; upper obovate, very cucullate,  $\frac{3}{4}$ –1 in. broad; 3 lower much smaller, reflexing. Stamens more than half as long as the segments.

Var. *G. COOPERI* Baker in Bot. Mag. t. 6002.—Perianth-tube  $2\frac{1}{2}$ –3 in. long; segments more acute.

Hab. Cape Colony; eastern provinces from Somerset, Albert and Kaffraria to Natal and the Transvaal. Introduced into cultivation in 1830.

99. *G. TYSONI* Baker.—Corm, small, globose. Produced leaves about 4, crowded, ensiform, rigidly coriaceous, strongly ribbed, the lower 6–9 in. long,  $1\frac{1}{2}$  in. broad at the middle. Stem about a foot long. Flowers 4–6 in a very lax spike; outer spathe-valves lanceolate, lower 2 in. long. Perianth bright red, 4 in. long, with a limb about as long as the curved tube; upper segments oblong, cucullate,  $\frac{1}{2}$  in. broad; 3 lower much smaller.

Hab. Cape Colony; Griqualand East, alt. 5000 ft., *Tyson* 1653!

100. *G. SAUNDERSII* Hook. fil. in Bot. Mag. t. 5878.—Corm large, depresso-globose. Produced leaves 4–6, ensiform, rigid, strongly ribbed, 1–2 ft. long. Stem  $1\frac{1}{2}$ –2 ft. long. Flowers 6–8 in a very lax spike; outer spathe-valves green, lanceolate,  $1\frac{1}{2}$ –2 in. long. Perianth bright scarlet, with a curved tube  $1$ – $1\frac{1}{2}$  in. long; 3 upper segments concolorous, oblong-spathulate, subacute, connivent, 2 in. long, an inch broad; 3 lower narrower and shorter, with a great

blotch of white at the throat, with scarlet spots. Stamens more than half as long as the segments

Hab. Cape Colony; eastern provinces, from Zwellendam to Natal.

101. *G. AURANTIACUS* Klatt in Linn. xxxv. 378.—Corm large, globose. Produced leaves 4-6, ensiform, moderately rigid, 1-1½ ft. long. Stem about 2 ft. long. Flowers a dozen or more in a lax secund spike; outer spathe-valves lanceolate, green, 1-2 in. long. Perianth bright orange-yellow, sometimes tinged with red, with a curved tube 2 in. long, dilated suddenly at the middle and cylindrical in the upper half; upper segments obovate, 1½ in. long, ¾-1 in. broad; lower shorter. Stamens half as long the segments.

Hab. Natal. First collected by Krauss. Received alive from Messrs. Damman of Naples, in 1886.

102. *G. BENGUELLENSIS* Baker in. Trans. Linn. Soc. ser. 2, Bot. i. 268.—Corm globose, forming a long rhizome like that of *Lilium canadense*; tunics of fine fibres. Leaves rigid, linear-ensiform, ½-¾ in. broad, the lower 6-9 in. long. Stem a foot or more long. Flowers 6-12, a lax secund spike; spathe-valves green, lanceolate, the lower outer 1½ in. long. Perianth bright red, mottled at the throat with purple on a yellow ground; tube curved, ¾ in. long; upper segments ovate, acute, ¾-1 in. long; lower narrower, also acute, unguiculate. Stamens nearly as long as the limb.

Hab. Angola; temperate regions of the province of Huilla, *Welwitsch* 1540!

103. *G. SPICATUS* Klatt in Linn. xxxv. 377.—Corm not seen. Produced leaves 4-5, ensiform, moderately rigid, ½-¾ in. broad, the lower 1½ ft. or more long. Stem 2 ft. long. Flowers about 20, with imbricated brown lanceolate spathe-valves adpressed to the axis, the lower an inch long. Perianth with a slender tube ½ in. long; limb bright purple, horizontal, an inch long; upper segments oblong, obtuse, ½-¾ in. broad; 3 lower obovate-unguiculate. Stamens more than half as long as the segments.

Hab. Guinea, near Jeba, on the Kworra. Gathered by Barter in 1858.

104. *G. MULTIFLORUS* Baker in Trans. Linn. Soc. ser. 2, Bot. i. 269.—Corm globose, 1-1½ in. diam.; tunics of fine crisped matted fibres. Leaves 4-5, not rigid, finely veined, ensiform, ½-¾ in. broad, the lower 9-12 in. long. Stem a foot long. Flowers about 20, forming a dense secund spike a foot long, the spathes erect and adpressed to the rachis, the lower outer an inch long. Perianth bright purple, with a curved tube ½ in. long and a horizontal limb ¾ in. long, with oblong obtuse segments. Stamens nearly as long as the segments.

Hab. Angola; temperate region of the province of Huilla, *Welwitsch* 1538!

105. *G. ANDONGENSIS* Welw.; Baker in Trans. Linn. Soc. ser. 2, Bot. i. 269.—Corm globose, 1 in. diam.; tunics of matted parallel fibres. Leaves 3-4, rigid, ensiform, ¾-1 in. broad, the lower a foot long. Stem a foot long. Spike lax, 6-8 in. long; outer spathe-valves lanceolate, brown, 1-1½ in. long. Perianth yellow, with a curved tube 1-1½ in. long; upper segment oblong-cuneate,

cucullate,  $1\frac{1}{2}$  in. long, an inch broad; lateral rather shorter; 3 lower much shorter, decurved. Stamens half as long as the segments.

Hab. Angola; Pongo Andongo temperate region, *Welwitsch* 1529! Near *G. Quartinianus*.

106. *G. DECORATUS* Baker in Journ. Bot. 1876, 333.—Corm globose, 1 in. diam.; tunics of fine fibres, copiously reticulated in the upper half. Produced leaves 3-4, ensiform, moderately firm,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, very oblique at the base, the lower a foot long. Stem 2-3 ft. long. Flowers 6-12 in a very lax secund spike; spathe-valves green, lanceolate, the lower outer  $1\frac{1}{2}$  in. long. Perianth bright purple; tube slender, curved, an inch long; limb horizontal, twice as long as the tube; upper segments oblong-cuneate, obtuse,  $\frac{3}{4}$ -1 in. broad; 3 lower obovate, with a long claw and pale spade-shaped blotch filling up nearly the whole blade. Stamens  $\frac{1}{2}$  in. shorter than the upper segment. Capsule oblong, above an inch long. Seeds broadly winged.

Hab. Moramballa, from the foot up to 2000 ft. Discovered by Sir John Kirk in 1863.

107. *G. PRIMULINUS* Baker in Gard. Chron. 1890, ii. 122.—Corm large, globose. Basal leaves 3, ensiform, subcoriaceous, strongly ribbed, the lowest a foot long,  $\frac{3}{4}$  in. broad. Stem  $1\frac{1}{2}$  ft. long, the upper short and adpressed. Spike lax, secund, 4-5-flowered; spathe-valves lanceolate, green,  $1-1\frac{1}{2}$  in. long. Perianth uniform primrose-yellow; tube much curved, an inch long; upper segments obtuse, much imbricated,  $1\frac{1}{2}$  in. long; 3 lower smaller. Stamens reaching halfway up the segments.

Hab. South-east Tropical Africa; Usagara Mountains. Flowered in Kew Gardens in 1890, from corms sent by Mr. J. T. Last.

108. *G. CORNEUS* Oliv. in Trans. Linn. Soc. xxix. 155, tab. 100.—Corm globose, 1 in. diam.; tunics membranous. Produced leaves 3, linear, rigid, 6-9 in. long. Stem 2 ft. long. Flowers 4, in a very lax spike, with a very flexuose rachis; spathe-valves green, lanceolate; lower outer 3-4 in. long. Perianth with a narrowly funnel-shaped curved tube  $1\frac{1}{2}$  in. long; upper segment obovate-cuneate, as long as the tube; 2 side rather, 3 lower much smaller. Stamens half as long as the upper segments.

Hab. Mountains east of Lake Tanyanika, alt. 4000 ft., *Speke & Grant*! Allied to *G. Quartinianus*.

109. *G. KIRKII* Baker.—Corm not seen. Leaves 3, linear, graminoid,  $\frac{1}{2}$  in. broad, lower 6-9 in. long. Stem slender, terete, a foot long. Flowers 5-6 in a very lax subsecund spike with a flexuose rachis; spathe-valves lanceolate, green, the lower outer an inch long. Perianth bright pink, with a slender curved tube  $\frac{3}{4}$  in. long; three upper segments oblong-cuneate, obtuse,  $1\frac{1}{2}$  in. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad; 3 lower narrower, distinctly unguiculate. Stamens more than half as long as the segments.

Hab. Hills inland from Zanzibar. Received from Sir John Kirk in 1881.



## Subgenus II. HEBEA.

110. *G. THOMSONI* Baker. — Leaves and lower part of the very slender stem not seen. Flowers 6–12 in a secund spike, which is dense in the upper half; spathe-valves brownish, cuspidate or acuminate, lower  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Perianth bright purple, with a curved tube  $\frac{1}{2}$  in. long; upper segment oblong-cuneate, obtuse,  $\frac{1}{2}$  in. broad; side ones similar; 3 lower oblanceolate-unguiculate. Stamens little shorter than the upper segments.

Hab. Mountains north of Lake Nyassa; gathered by Mr. Joseph Thomson in 1880.

111. *G. UNGUICULATUS* Baker in Journ. Linn. Soc. xvi. 178. *G. cochleatus* Baker, non Sweet. — Corm globose,  $\frac{1}{2}$  in. diam.; tunics of fine parallel fibres. Leaves about 4, distantly superposed, with a short free erect rigid linear blade. Stem very slender, 1–1 $\frac{1}{2}$  ft. long. Flowers 6–10 in a very lax subsecund spike; outer spathe-valves green, lanceolate,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Perianth purple, with a curved narrowly funnel-shaped tube  $\frac{1}{2}$  in. long; upper segment oblong-cuneate,  $\frac{3}{4}$  in. long,  $\frac{1}{2}$  in. broad; side ones shorter; 3 lower oblanceolate-unguiculate. Stamens  $\frac{1}{2}$  in. long. Capsule oblong-clavate,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Seeds broadly winged.

Hab. Sierra Leone, Morson! Bongo and Djur, Schweinfurth!

112. *G. LUTEUS* Lam. Encyc. ii. 725. — Leaves linear-setaceous, graminoid, glabrous, overtopping the flowers. Stem scarcely a foot long, simple or shortly forked. Flowers moderately numerous, yellow; tube curved; limb irregular, about an inch long.

Hab. Central Madagascar; gathered by Commerson. Not re-found by any of the recent collectors.

113. *G. SPATHULATUS* Baker. — Corm not seen. Leaves firm, linear, 1–1 $\frac{1}{2}$  ft. long. Stem a foot long. Flowers 4–5 in a very lax spike with a flexuose rachis; outer spathe-valves green, oblong, an inch long. Perianth red, with a slender curved tube  $\frac{1}{2}$  in. long; upper segment obovate-spathulate, 1 $\frac{1}{2}$  in. long,  $\frac{1}{2}$ – $\frac{3}{4}$  in. broad; lateral rather shorter, obovate-cuneate; 3 lower oblong-unguiculate, purplish brown. Stamens much shorter than the upper segment.

Hab. Cape Colony; south-eastern district, on the banks of the Nylstrome river, Nelson 295!

114. *G. ALATUS* Linn. Sp. Plant. 53; Andr. Bot. Rep. t. 8; Ker in Bot. Mag. t. 586. *G. speciosus* Thunb. *G. papilionaceus* Licht. *Hebea galeata* Eckl. — Corm small, globose; tunics membranous. Produced leaves 3–4, crowded, linear, rigid,  $\frac{1}{2}$ –1 ft. long. Stem 4–6 in. long. Flowers few, in a lax usually simple spike with a flexuose rachis; spathe-valves green, oblong-navicular, the lowest 1 $\frac{1}{2}$  in. long. Perianth bright red, with a curved tube  $\frac{1}{2}$  in. long; upper segment cucullate, obovate-cuneate, with a short claw 1 $\frac{1}{2}$ –1 $\frac{1}{2}$  in. long; lateral suborbicular, shorter; 3 lower deflexed, with a small obovate acute blade and long claw. Stamens nearly as long as the upper segment.

Var. *G. NAMAQUENSIS* Ker in Bot. Mag. t. 592. *G. equitans* Thunb. *G. galeatus* Andr. Bot. Rep. t. 122. — More robust, with

ensiform leaves sometimes  $1\frac{1}{2}$ -2 in. broad, and more numerous flowers in a spike.

Hab. Cape Colony; south-western provinces and Namaqualand.

115. *G. SCULLYI* Baker. — Whole plant 1-1 $\frac{1}{2}$  ft. long. Corm 1-1 $\frac{1}{2}$  in. diam.; tunics thick, lacerated from above and below. Produced leaves several, linear, firm, the lower 6-9 in. long. Stem a few inches long. Inflorescence a panicle of 3-4 lax spikes with a flexuose rachis; outer spathe-valves green, lanceolate, the lower an inch long. Perianth reddish, about an inch long; segments obovate-unguiculate,  $\frac{1}{4}$  in. broad.

Hab. Namaqualand, *Scully* 158!

116. *G. ORCHIDIFLORUS* Andr. Bot. Rep. t. 241. *G. alatus* Thunb. ex parte; Jacq. Ic. t. 259. *G. viperatus* Ker in Bot. Mag. t. 688; Sweet, Brit. Flow. Gard. t. 156. *G. virescens* Thunb. — Corm globose, 1 in. diam.; tunics of matted parallel fibres. Produced leaves 3-4, crowded, firm, linear,  $\frac{1}{2}$ -1 ft. long. Stem about a foot long. Flowers 4-6 in a very lax usually simple spike with a flexuose rachis; spathe-valves green, oblong-lanceolate; lower outer 1-1 $\frac{1}{4}$  in. long. Perianth greenish, with a curved tube  $\frac{1}{2}$  in. long; upper segment oblong, with a long claw, 1-1 $\frac{1}{4}$  in. long; lateral suborbicular, with a shorter claw; 3 lower obovate, with a claw as long as the blade. Stamens nearly as long as the upper segment.

Hab. Cape Colony; south-western provinces and Namaqualand.

117. *G. PULCHELLUS* Klatt in Linn. xxxii. 693. *Hebea pulchella* Eckl. — Corm small, globose; tunics membranous. Lowest leaf subterete, a foot or more long; the other 2-3 distant, much shorter. Stem  $\frac{1}{2}$  ft. long. Flowers 4-8 in a very lax usually simple spike with a flexuose rachis; outer spathe-valves oblong-lanceolate, green,  $\frac{1}{4}$ - $\frac{3}{4}$  in. long. Perianth pale red, with a curved tube  $\frac{1}{2}$  in. long; upper segment arched, oblong-unguiculate,  $\frac{3}{4}$  in. long,  $\frac{1}{4}$  in. broad; lateral ovate, acute,  $\frac{1}{2}$  in. broad; 3 lower deflexed, with a small oblong blade and long claw. Stamens nearly as long as the upper segment.

Hab. Cape Colony; south-western provinces; first gathered by Thunberg.

118. *G. BICOLOR* Baker in Journ. Linn. Soc. xvi. 178. *Hebea bicolor* Eckl. *G. luteus* Klatt, ex parte. *G. Templemanni* Klatt. — Corm small, globose; tunics membranous. Leaves firm, subterete, distantly superposed, the lowest a foot long. Stem slender,  $\frac{1}{2}$  ft. long. Flowers 2-3 in a very lax simple spike; outer spathe-valves oblong-navicular, green, the lower an inch long. Perianth dull yellow, with a curved tube  $\frac{1}{2}$  in. long; upper segment arched, 1-1 $\frac{1}{4}$  in. long, obovate, with a long claw; lateral suborbicular; 3 lower obovate-unguiculate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stamens nearly as long as the upper segment.

Hab. Cape Colony; province of Caledon; first gathered by Zeyher.

119. *G. ARCUATUS* Klatt, Erganz. 4. — Corm small, ovoid; tunics with rhomboid areolæ. Produced leaves 2-3, firm, linear-subulate,

4-6 in. long. Stem under  $\frac{1}{2}$  ft. long. Flowers 2-6 in a very lax simple spike with a flexuose rachis; outer spathe-valves lanceolate, green,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth pinkish, with a nearly straight ascending tube  $\frac{1}{2}$  in. long; upper segment oblong-unguiculate, acute, arching, an inch long; the other similar in shape, but shorter. Stamens two-thirds the length of the upper segment.

Hab. Cape Colony; Namaqualand. First gathered by Drège.

120. *G. FORMOSUS* Klatt in Linn. xxxii. 692. *Hebea formosa* Eckl. — Corm small, ovoid; tunics of thick wiry parallel strands. Produced leaves 3, firm, subterete, the lower above a foot long. Stem 1-2 ft. long. Flowers many, in a simple or forked lax spike; outer spathe-valves green, oblong-lanceolate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth bright purple, with a nearly straight erect tube  $\frac{1}{2}$  in. long; upper segment oblong-unguiculate, arched, acute, 1-1 $\frac{1}{2}$  in. long; lateral similar in shape, but shorter; 3 lower obovate, with a long claw. Stamens much shorter than the upper segment.

Hab. Cape Colony; south-western provinces.

121. *G. DREGÆI* Klatt in Linn. xxxii. 694. — Corm small, ovoid; tunics brown, with rhomboid areolæ. Produced leaves 3-4, firm, narrow linear, 4-6 in. long. Stem slender, 4-6 in. long. Flowers 6-9 in a lax simple spike; outer spathe-valves green, lanceolate, the lower  $\frac{1}{2}$  in. long. Perianth (colour uncertain) with a nearly straight ascending tube  $\frac{1}{3}$  in. long; upper segment arched,  $\frac{1}{2}$  in. long, with a small obovate blade and long claw; the others shorter, with obovate-truncate blade and shorter claws. Stamens nearly as long as the upper segment.

Hab. Cape Colony; north-west province, Drège 2631.

122. *G. EDULIS* Burch.; Ker in Bot. Reg. t. 169. — Corm small, ovoid; tunics of fine matted parallel fibres. Produced leaves 3, firm, narrow linear, the lower sometimes overtopping the stem. Stem slender, 1-1 $\frac{1}{2}$  ft. long. Flowers 8-15 in lax simple or forked spikes; outer spathe-valves oblong-lanceolate, green,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth pale lilac, with a nearly straight ascending tube  $\frac{1}{2}$  in. long; segments all furnished with a very distinct cusp; upper obovate-unguiculate,  $\frac{3}{4}$  in. long; the others shorter, with a small rhomboid blade and long slender claw. Stamens half as long as the upper segment.

Hab. Cape Colony; eastern provinces from Grahamstown and Uitenhage, northward to Bechuanaland and Natal; first gathered by Burchell.

123. *G. PERMEABILIS* Delar. Diss. 27, t. 2. *G. dichotomus* Thunb. *Hebea Zeyheri* Eckl. — Corm small, ovoid; tunics of parallel fibres. Produced leaves 3-4, firm, narrow linear or subterete,  $\frac{1}{2}$ -1 ft. long. Stem slender, flexuose,  $\frac{1}{2}$ -1 ft. long. Flowers 6-12 in lax simple or branched spikes; outer spathe-valves green, lanceolate,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth pale pink or lilac, with a curved tube  $\frac{1}{2}$  in. long; upper segment obovate-unguiculate,  $\frac{3}{4}$  in. long; lateral rhomboid-unguiculate; 3 lower with a small oblong blade and long claw. Stamens more than half as long as the upper segment.

Hab. Cape Colony; eastern provinces.

124. *G. OATESII* Rolfe in Oates Matab. land, edit. 2, 410.—Corm not seen. Leaves narrow, linear, rigid, glabrous,  $\frac{3}{4}$ – $\frac{1}{2}$  in. broad. Stem terete, 1–2 ft. long, with 4–5 short leaves. Spike lax, 4–10-flowered; outer spathe-valves lanceolate,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Perianth 1– $1\frac{1}{2}$  in. long; tube slender, curved,  $\frac{1}{2}$  in. long; segments acute, upper 4–5 lines broad, lateral lanceolate, 3 lower much smaller.

Hab. Matabeleland Oates; Zambesi highlands, Buchanan 464; Transvaal, Holub. Near *G. permeabilis*.

### Subgenus III. SCHWEIGGERA.

125. *G. ARENARIUS* Baker in Journ. Linn. Soc. xvi. 178. *G. orchidiflorus* Pers. non Andr. *Antholyza orchidiflora* Klatt. *Hebea orchidiflora* Eckl. *Schweiggera montana* E. Meyer.—Corm large, globose; tunics of copious wiry fibres produced 3–4 in. above its neck. Leaves linear, rigid, 4–6 in. long, with 2–3 strong ribs. Stem slender, terete, a foot long. Flowers many, in a dense spike 2–4 in. long; outer spathe-valves oblong, brown, rigid,  $\frac{1}{2}$  in. long. Perianth bright red or yellow, with a slender tube half as long as the spathe; limb  $\frac{1}{2}$ – $\frac{3}{4}$  in. long; all the segments with a small obovate blade  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad and a very distinct claw. Stamens nearly as long as the segments. Capsule ovoid, inflated.

Hab. Cape Colony; south-western provinces.

126. *G. MONTANUS* Linn. fil. Suppl. 95. *G. parviflorus* Jacq. Obs. iv. 2, t. 78. *G. tabularis* Pers. *Antholyza montana* Ker; Lodd. Bot. Cab. t. 1022. *Hebea tabularis* Eckl.—Corm globose; tunics thick, of copious wiry long fibres. Leaves linear, rigid, 1– $1\frac{1}{2}$  ft. long, with about 5 strong ribs. Stem terete, 1– $1\frac{1}{2}$  ft. long. Spikes long, lax, many-flowered, simple or branched; outer spathe-valves oblong, rigid, brown,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Perianth pale red, with a slender tube rather longer than the spathe; limb about an inch long; segments with a small obovate blade  $\frac{1}{4}$  in. broad, and a long slender claw. Stamens nearly as long as the segments. Capsule oblong,  $\frac{1}{2}$  in. long.

Var. *NEMOROSUS* Baker. *Antholyza nemorosa* Klatt. *Schweiggera nemorosa* E. Meyer.—More robust than the type, with leaves  $\frac{1}{2}$ – $\frac{3}{4}$  in. broad and much branched spikes.

Var. *RAMOSUS* Baker. *Antholyza ramosa* Klatt. *Schweiggera ramosa* E. Meyer.—Leaves narrow, with 2–3 ribs. Spikes laxer than in the type. Perianth-segments with a smaller blade.

Hab. Cape Colony; south-western provinces.

### Subgenus IV. HOMOGLOSSUM.

127. *G. WATSONIODES* Baker in Journ. Linn. Soc. xxi. 405; Bot. Mag. t. 6919.—Corm globose. Produced leaves 3–4, flat, linear, moderately firm,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad, the lower 1– $1\frac{1}{2}$  ft. long. Stem 2 ft. or more long. Flowers 6–9 in a very lax secund spike; spathe-valves green, lanceolate, the lower outer 2 in. or more long. Perianth bright crimson, with a curved tube  $1\frac{1}{2}$  in. long, cylindrical in

the upper half; segments oblong, acute, the upper  $1\frac{1}{2}$  in. long,  $\frac{1}{2}$  in. broad, the others smaller. Stamens half as long as the segments. Capsule oblong, an inch long. Seeds broadly winged.

Var. *MINOR* Baker.—Leaves more rigid, very narrow. Whole perianth not above  $1\frac{1}{2}$  in. long.

Hab. Mount Kilimanjaro, 8000—13,000 ft. Gathered first by Mr. Joseph Thomson, and afterwards by Mr. H. H. Johnston, who introduced it into cultivation in 1884.

128. *G. ANTHOLYZOIDES* Baker.—Corm not seen. Stem simple, 3 ft. long, bearing 4 superposed rigid strongly ribbed leaves, the lower 1–2 ft. long. Spike lax, many-flowered, a foot long; outer spathe-valves lanceolate, green, 1–2 in. long. Perianth bright red; tube curved,  $1\frac{1}{2}$  in. long, dilated above the middle; segments obovate-cuneate, the upper  $\frac{3}{4}$ –1 in. long, the lower much smaller. Stamens reaching nearly to the tip of the upper segments.

Hab. Transvaal, near Pretoria, *Scott-Elliot* 1447! Near *G. Watsonius*. Connects *Gladiolus* and *Antholyza*.

129. *G. WATSONIUS* Thunb. Diss. No. 10; Jacq. Ic. t. 233; Bot. Mag. t. 450; Red. Lil. t. 369. *G. praecox* Andr. Bot. Rep. t. 38. *Antholyza revoluta* Burm. *Watsonia revoluta* and *praecox* Pers. *Homoglossum revolutum* Baker. *H. praecox* Salisb.—Corm globose, 1 in. diam.; tunics thick, cancellate. Produced leaf single, linear-subulate, rigid, a foot long. Stem slender, terete, 1– $1\frac{1}{2}$  ft. long, with 2–3 short leaves with long glabrous sheaths. Flowers 2–4, in a very lax secund spike; outer spathe-valves green, lanceolate, 1–2 in. long. Perianth bright red, with a curved tube  $1\frac{1}{2}$ –2 in. long, cylindrical in the upper half; upper segments oblong-acute,  $\frac{3}{4}$ –1 in. long; lower narrower, recurved. Stamens much shorter than the limb.

Var. *G. GAWLERI* Klatt.—Segments of the limb larger, variegated red and yellow over the lower part of the face.

Hab. Cape Colony; southern provinces, from Capetown eastward to Kaffraria.

130. *G. MERIANELLUS* Thunb. Diss. 11. *Antholyza Merianella* Linn. *Watsonia humilis* Pers. non Miller. *W. pilosa* Klatt.—Corm globose, middle-sized; tunics of strong wiry fibres. Leaves 3–4, distantly superposed, with long hairy sheaths and short narrow linear strongly ribbed free tips. Flowers 3–6, in a very lax secund spike; outer spathe-valves green, lanceolate, 1– $1\frac{1}{2}$  in. long. Perianth bright pink, with a curved tube  $1\frac{1}{2}$ – $1\frac{3}{4}$  in. long, cylindrical in the upper half; segments broad-oblong, subequal, obtuse,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long. Stamens nearly as long as the segments.

Hab. Cape Colony; south-western provinces.

131. *G. LUCIDOR* Baker. *Antholyza lucidor* Linn. fil. *Homoglossum lucidor* Baker. *Watsonia lucidor* Eckl.—Corm large, globose; tunics breaking up into fine fibres. Basal leaves rigid, subulate from a linear base. Stem 1– $1\frac{1}{2}$  ft. long, with several superposed leaves with short rigid subulate tips. Flowers many, in a dense equilateral spike 3–6 in. long; spathe-valves oblong, rigid,  $\frac{1}{4}$ – $\frac{1}{2}$  in. long, the inner the largest. Perianth bright red, with a curved tube

1-1½ in. long, cylindrical in the upper two-thirds; segments oblong-unguiculate, subequal, ½-¾ in. long. Stamens nearly as long as the segments.

Hab. Cape Colony; south-western provinces.

192. *G. NERVOSUS* Baker. *Antholyza nervosa* Thunb.—Corm large, globose; tunics breaking up into fine fibres; inner produced as flattened bristles above its neck. Basal leaves 4-6, rigid, ensiform, strongly ribbed, ½-1 ft. long. Stem terete, 1-2 ft. long. Flowers in a dense equilateral spike 3-6 in. long; spathe-valves firm, oblong-lanceolate, ¼-½ in. long. Perianth bright red, with a curved tube 1-1½ in. long, cylindrical in the upper two-thirds; segments oblanceolate-unguiculate, ½-¾ in. long, the lower spreading. Stamens nearly as long as the segments.

Hab. Cape Colony; southern provinces.

#### Hybrid Gladioli.

A large proportion of the garden Gladioli are of hybrid origin. The best general account of these will be found in Dean Herbert's paper in Journ. Hort. Soc. vol. ii. p. 87-91. The following are the principal hybrid types to which Latin names have been given:—

1. *G. gandavensis* Hort. Van Houtte, figured Flore des Serres, March, 1846, t. i.; and Paxton's Magazine, xi. 27, which appears to be *psittacinus* crossed with *cardinalis*, not with *oppositiflorus*, as Herbert supposed. To this belong most of the late-flowering, bright-coloured types, with a strongly-hooded horizontal upper segment, including *G. brenchlyensis*. *G. citrinus* Flore des Serres, t. 539, has a flower of similar size and shape, but bright yellow.

2. *G. ramosus*, figured Paxton's Magazine, vi. 99, between *cardinalis* and *oppositiflorus*.—The flower is openly funnel-shaped, bright red, with dark blotches at the base of the three lower segments. Allied to this are the four forms figured as *floribundus* in Ann. Gand. v. 53. The hybrids of this group are more hardy and flower earlier than those of the last.

3. *G. pudibundus*, figured Paxton, Mag. ii. 197, and Sweet, Brit. Flow. Gard. ser. 2, t. 176, between *cardinalis* and *blandus*. *G. Spofforthianus* Herb. has the same parents. *G. Willmoreanus* Flore des Serres, t. 239, said to be a cross between *gandavensis* and *floribundus*, is much nearer the latter.

4. *G. Colvillei*, figured Sweet, Brit. Flow. Gard. ser. i. t. 55, a cross between *cardinalis* and *tristis concolor*, has bright scarlet suberect flowers, with oblong acute segments, with a lanceolate blotch of bright yellow at the base of the three lower. *G. Colvillei albus* (The Bride) is a frequently-cultivated form, with pure white flowers.

M. Souchet, of Fontainebleau, commenced his experiments in 1834, and worked mainly with *cardinalis*, *gandavensis* and *blandus*. The principal raiser of new forms in England has been Mr. Kelway, of Langport, in Somersetshire.

5. *G. Lemoinei* Hort.—M. Lemoine, of Nancy, has lately raised a series of forms with bright yellow and bright red flowers with

large purplish brown blotches at the base of the lower segments, by crossing *gandavensis* and other forms with *G. purpureo-auratus*. Three of these are figured in the Garden of July 24, 1886.

6. *G. nanceanus* Hort. — Another cross lately raised by M. Lemoine between *Saundersii* and *Lemoinei*. Herr. Leichtlin has also raised *Saundersii* hybrids, and Herr Froebel, of Zurich, has crossed it with *gandavensis*.

There are plates of hybrid *Gladioli* in the old series of the 'Floral Magazine' at tabs. 36, 77, 123, 171, 184, 222, 266, 315, 363, 364, 405, 419, 463, 464, 507, 508 and 556; and in the new series at tabs. 43, 102, 295 and 296.

### 57. ANTHOLYZA Linn.

*Perianth*-tube long, curved, dilated halfway up; segments oblong or lanceolate, very unequal, the uppermost the largest. *Stamens* unilateral, arcuate, inserted at the middle of the perianth-tube; anthers lanceolate-sagittate. *Ovary* 3-celled; ovules many, superposed; style filiform; branches simple, cuneate at the tip. *Capsule* membranous, loculicidally 3-valved. *Seeds* turgid or discoid, generally winged.—*Rootstock* a tunicated corm. *Leaves* linear or ensiform. *Spike* distichous, simple or branched; spathe-valves oblong or lanceolate. *Flowers* usually bright red.

#### Cape species.

Perianth-segments less unequal	.	.	Sp. 1-5.
Perianth-segments very unequal	.	.	Sp. 6-9.
Tropical African species.	.	.	Sp. 10-13.

1. *A. SPICATA* Brehmer; Klatt, Erganz. 11.—Basal leaves 6-8, linear, a foot long,  $\frac{1}{3}$  in. broad, with 3-4 strong ribs. Stem terete,  $1\frac{1}{2}$ -2 ft. long. Spike simple, dense, 3-4 in. long; spathe-valves ovate, acute, reddish, the inner the largest, an inch long. Perianth-tube as long as the spathe; segments dull violet, oblong, the upper  $\frac{1}{3}$  in. long, the others rather shorter. Anthers  $\frac{1}{2}$  the length of the filaments.

Hab. Cape Colony; south-western province, at Dutoit's Kloof, *Drege* 1576!

2. *A. PANICULATA* Klatt in *Linnæa*, xxxv. 379.—Corm large, globose, lower leaves lanceolate, very oblique,  $1\frac{1}{2}$ -2 ft. long, 2-3 in. broad, with 9-10 distant strong ribs. Stem stout, copiously branched, 3-4 ft. long. Spikes dense, many-flowered, with a very wavy rachis; spathe-valves oblong, brown, rigid,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long. Perianth bright red-yellow; tube curved, 1- $1\frac{1}{4}$  in. long; upper segment lingulate,  $\frac{1}{4}$ - $\frac{1}{2}$  in. long; the others smaller, spreading, lanceolate. Stamens reaching to the tip of the upper segments.

Hab. Natal. First gathered by Gerrard.

3. *A. FUCATA* Baker in *Journ. Linn. Soc.* xvi. 180. *Tritonia fucata* Herb. in *Bot. Reg.* xxxiv. t. 35.—Corm large, globose; tunics membranous, brown. Basal leaves ensiform, firm, green, 2- $2\frac{1}{2}$  ft. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Stem branched, overtopping the leaves,

Spikes lax, secund, 3-4 in. long; rachis flexuose; spathe-valves ovate, under  $\frac{1}{4}$  in. long. Perianth bright red-yellow; tube curved, 18-21 lines long; upper segment red, lingulate,  $\frac{3}{4}$  in. long; the others shorter, lanceolate or oblanceolate, spreading. Stamens reaching nearly to the tip of the upper segment.

Hab. Cape Colony. Known to me only from the figure cited, which was drawn from a plant grown by Dean Herbert at Spofforth in 1837.

4. *A. ÆTHIOPICA* Linn. Sp. Plant. i. 54; Ker in Bot. Mag. t. 561; Andr. Bot. Rep. t. 210. *A. præalta* Red. Lil. t. 387. *A. ringens* Andr. Bot. Rep. t. 32. *A. floribunda* Salisb.—Corm large, globose; tunics large, membranous. Basal leaves several, ensiform, green, moderately firm, 1-1 $\frac{1}{2}$  ft. long, an inch or more broad. Stem branched, 3-4 ft. long. Spikes moderately dense, 6-9 in. long; spathe-valves oblong-lanceolate, greenish,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth red-yellow; tube curved, 18-21 lines long; upper segment red, lingulate, 1-1 $\frac{1}{4}$  in. long; the others much shorter, spreading. Stamens reaching to the tip of the upper segment. Capsule oblong,  $\frac{1}{2}$  in. long. Seeds turgid, not winged.

Var. *A. IMMARGINATA* Thunb. *A. æthiopica* Red. Lil. t. 110.—Leaves about  $\frac{1}{2}$  in. broad. Flower red, with a little dull yellow; upper segment and tube each 1-1 $\frac{1}{4}$  in. long.

Var. *A. VITTIGERA* Salisb. in Trans. Hort. Soc. i. 324 (Bot. Mag. t. 1172).—Stature of the type. Perianth-tube bright yellow, with stripes of red.

Var. *A. BICOLOR* Gasp. in Belg. Hort. ii. 145, with figure. *A. æthiopica* var. *minor* Bot. Reg. t. 1159.—Habit dwafser. Leaves narrower. Perianth-tube red at the top, bright pale yellow downwards.

Hab. Cape Colony; southern provinces.

5. *A. INTERMEDIA* Baker in Journ. Linn. Soc. xvi. 180.—Corm not seen. Basal leaves 6-10, linear, moderately firm in texture, 6-9 in. long,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad at the middle, with 3 prominent ribs. Stem terete, about as long as the leaves. Flowers many, forming a dense simple spike 4-5 in. long; spathe-valves lanceolate, tinged red, about  $\frac{1}{2}$  in. long, the inner rather the largest. Perianth bright red; tube 1-1 $\frac{1}{4}$  in. long; segments lingulate-unguiculate, black on the claw, the upper one an inch long, the others much smaller. Stamens reaching nearly to the tip of the upper segment.

Hab. Cape Colony; province of Uitenhage, *Macowan* 2070! Intermediate between *æthiopica* and *cafra*.

6. *A. CAFFRA* Ker in König and Sims, Ann. i. 232. *Anisanthus splendens* Sweet, Brit. Flow. Gard. ser. ii. t. 84. *Gladiolus splendens* Herb.—Corm large, globose, with a long neck of fine fibres. Leaves narrow linear, firm, green, a foot long. Stem slender, terete, 1 $\frac{1}{2}$ -2 ft. long, bearing 2-3 much-reduced linear leaves. Flower 12-20 in a lax spike; spathe-valves lanceolate, brown,  $\frac{1}{2}$ - $\frac{3}{4}$  in. long. Perianth bright red; tube 1-1 $\frac{1}{4}$  in. long; upper segment lingulate-spathulate,  $\frac{1}{4}$ -1 in. long; the others much smaller, spreading, lanceolate or oblanceolate. Stamens reaching nearly to the tip of



the upper segment. Capsule large, inflated. Seeds triquetrous, narrowly winged.

Hab. Cape Colony; eastern provinces from Albany northward to Natal. Plant's "Mule Anisanth," figured Bot. Mag. 1842, t. 53, is a hybrid between this and *Gladiolus cardinalis* crossed with *tristis*.

7. A. QUADRANGULARIS Burm. Fl. Cap. A. *abbreviata* Pers. *Gladiolus quadrangularis* Ker in Bot. Mag. t. 567. *G. abbreviatus* Andr. Bot. Rep. t. 166. *Petamenes quadrangularis* Salisb. — Corm large, globose, stoloniferous. Stem slender, terete, 2–3 ft. long, bearing 2–3 superposed narrow linear leaves, like those of *Gladiolus tristis*. Flowers 2–4 in a very lax spike; outer spathe-valve lanceolate, green,  $1\frac{1}{2}$ –2 in. long. Perianth variegated bright red and yellow; tube 2 in. long; upper segment lingulate, red,  $\frac{3}{4}$  in. long; the others much smaller, spreading, oblong or lanceolate, greenish. Stamens reaching to the tip of the upper segment; anthers purple.

Hab. Cape Colony; south-western provinces, rare.

8. A. CUNONIA Linn. Sp. Plant. i. 54; Miller, Ic. t. 113; Red. Lil. t. 12. *Cunonia Antholyza* Miller. *Gladiolus Cunonia* Ker. *Anisanthus Cunonia* Sweet. — Corm small, globose; tunics membranous. Leaves about 4, linear, moderately firm,  $\frac{1}{2}$ –1 ft. long. Stem simple,  $1-1\frac{1}{2}$  ft. long, with several reduced leaves with short free linear tips. Spike very lax, 4–6-flowered; spathe-valves lanceolate, green,  $\frac{3}{4}$  in. long. Perianth bright red; tube an inch long, faintly saccate at the middle; upper segment obovate-unguiculate, an inch long; lateral much shorter, obovate, adnate to the claw of the upper one. Stamens reaching to the tip of the upper segment. Capsule oblong, membranous,  $\frac{1}{2}$ – $\frac{3}{4}$  in. long. Seeds discoid, with a broad wing.

Hab. Cape Colony; southern provinces.

9. A. SACCATA Baker in Journ. Linn. Soc. xvi. 180. *Anisanthus saccatus* Klatt. — Corm ovoid, small; tunics brown, membranous. Lower leaves narrow linear, moderately firm, bright green, a foot long, with three strong ribs. Stems 2–3 ft. long, simple or branched, with several superposed leaves with free linear tips. Flowers 4–10 in lax secund spikes; spathe-valves lanceolate, green,  $\frac{3}{4}$ –1 in. long. Perianth red; tube  $1-1\frac{1}{4}$  in. long, conspicuously saccate at the middle; upper segment lingulate, an inch long; lateral oblong-lanceolate, much shorter; lower very small. Stamens reaching nearly to the tip of the upper segment.

Hab. Cape Colony; karoo north of the Olifant's River, *Drège* 2646!

10. A. ABYSSINICA Brong. in A. Rich. Fl. Abyss. ii. 306. — Corm globose, 1 in. diam.; tunics brown, fibrous. Lower leaves 3–4, linear, green, moderately firm, a foot long. Stem 1–2 ft. long, bearing 3–4 reduced linear leaves. Spike simple, few-flowered; outer spathe-valve oblong-lanceolate,  $1\frac{1}{2}$ –2 in. long. Perianth-tube curved, an inch long; upper segment oblong, bright red, as long as the tube; lateral oblong acute,  $\frac{1}{2}$  in. long; lower minute. Stamens shorter than the upper segment.

Hab. Mountains of Abyssinia.

11. *A. HUILLENSIS* Welw.; Baker in Trans. Linn. Soc. ser. 2, Bot. i. 270.—Corm globose, 1 in. diam.; tunics fibrous in the lower part. Stem 6–15 in. long, bearing 3 small superposed linear-subulate leaves. Spike simple, lax, secund; spathe-valves oblong,  $\frac{1}{2}$  in. long. Perianth-tube curved, an inch long; upper segment oblong, bright red,  $\frac{3}{4}$  in. long; lateral small, obovate; 3 lower minute. Stamens nearly as long as the upper segment. Capsule obovoid-oblong,  $\frac{1}{2}$  in. long. Seeds discoid, winged.

Hab. Angola; province of Huilla, temperate region, *Welwitsch* 1539!

12. *A. ZAMBESIACA* Baker.—Stem slender, stiffly erect, a foot long, bearing 3–4 superposed leaves with short free linear tips. Spike few-flowered; spathe-valves lanceolate, green, an inch long. Perianth-tube curved, an inch long; upper segment oblong, very cucullate, bright red,  $1\frac{1}{2}$  in. long,  $\frac{3}{4}$  in. broad; lateral suborbicular,  $\frac{1}{4}$ – $\frac{1}{3}$  in. long and broad; 3 lower minute. Stamens reaching nearly to the tip of the upper segment.

Hab. Zambesiland; Leshumo Valley. Gathered by Dr. Holub in 1883.

13. *A. GRACILIS* Pax in Engl. Hochgeb. Fl. Trop. Afric. 177.—Corm globose; tunics of parallel fibres. Stem 2–3 ft. long. Leaves linear, bright green,  $\frac{1}{4}$ – $\frac{1}{2}$  in. broad; sheaths purple. Spikes lax, 5–6-flowered; spathe-valves lanceolate-acuminate,  $1\frac{1}{2}$  in. long. Perianth scarlet; tube narrowly funnel-shaped, much curved, nearly an inch long; segments oblong, subequal,  $\frac{1}{2}$  in. long. Stamens an inch long.

Hab. Mount Kilimanjaro, alt. 9000–10,000 ft., *Dr. Hans Meyer*.

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HANDBOOK  
OF  
THE IRIDEÆ

BY

J. G. BAKER, F. R. S., F. L. S.,  
KEEPER OF THE HERBARIUM OF THE ROYAL GARDENS, KEW.



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## PREFACE.

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THIS is the last of a series of botanical handbooks on which I have been working for a long time. When I first came to Kew, in January, 1866, I found the groups of plants that enter largely into horticulture that most wanted working at were the Vascular Cryptogams and Petaloid Monocotyledons. To those, consequently, during my connection with Kew, I have paid special attention. First, as was agreed upon with Sir Joseph Hooker when I was engaged as first-assistant in the herbarium, I finished the 'Synopsis Filicum' which Sir William Hooker had planned out and commenced. This was published in 1868, and a second edition, with a Supplement, in 1874. In 1891 I contributed to the fifth volume of the 'Annals of Botany' a classified index of the new species discovered up to that date. This has now been issued separately. In the Handbooks of the Fern Allies, Amaryllidæ, Bromeliaceæ, and the present work, I have followed the same concise general plan as in the Fern Synopsis. The *Liliaceæ* are dealt with in greater detail in the 'Journal of the Linnean Society.' The papers extend from the eleventh to the eighteenth volume, and cover the whole order, with the exception of the two large genera, *Smilax* and *Allium*, which have been monographed recently by M. Alphonse DeCandolle and Dr. Von Regel. Those who wish for full bibliographical details about the species of *Irideæ* will find them in a paper

entitled "Systema Iridacearum" in the sixteenth volume of the 'Journal of the Linnean Society,' but this contains only descriptions of the genera, not of the species. In the nomenclature and circumscription of the genera I have in the present handbook followed Bentham and Hooker's 'Genera Plantarum,' with very slight exception. The number of known species of Vascular Cryptogamia now amounts to 3500, and of these orders of Petaloid Monocotyledons to little short of 5000.

J. G. BAKER.

HERBARIUM OF THE ROYAL GARDENS, KEW,  
*August 17th, 1892.*

## KEY TO THE GENERA.

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Tribe I. MORÆÆ. — Flowers stalked, usually more than one to a spathe, often fugitive and opening one after the other. Style-branches placed opposite the stamens and the outer segments of the perianth.

\* *Style-branches furnished with crests that overtop the anthers and transverse stigmas.*

† *Inner segments of the perianth not convolute* (temperate regions).

1. IRIS.—Perianth usually with a tube above the ovary. Filaments free. Ovary 3-celled. Rootstock usually a rhizome, in § *Xiphion* a bulb.—*North temperate zone.*

2. HERMODACTYLUS.—Like *Iris*, but ovary 1-celled, with 3 parietal placentas and rootstock digitate.—*Mediterranean region.*

3. MORÆA.—Perianth without a tube. Filaments monadelphous. Ovary 3-celled. Rootstock, except in § *Dietes*, a tunicated corm.—*Cape, Tropical Africa, Lord Howe's Island.*

†† *Inner segments of the perianth convolute* (tropical).

4. MARICA.—Perianth without a tube. Style-crests petaloid. Leaves in a distichous rosette, not plicate. Peduncle flattened. Rootstock not bulbous.—*Tropical America.*

5. CYPELLA.—Perianth without a tube. Style-crests large, spur-like or flattened. Stems terete. Leaves superposed, plicate. Rootstock bulbous.—*Tropical America.*

6. TRIMEZIA.—Perianth without a tube. Style-crests small tubercles or cusps. Stems terete. Leaves not plicate. Rootstock bulbous.—*Tropical America.*

\*\* *Style-branches furnished with terminal stigmas, not overtopping the anthers.*

7. TIGRIDIA.—Perianth-segments connivent in a cup, then spreading. Style-branches bifid; forks subulate.—*Tropical America.*

8. HYDROTÆNIA.—Like *Tigridia*, but perianth-segments without any spreading blade.—*Tropical America.*

9. RIGIDELLA.—Perianth-segments connivent in a cup; inner very small; outer with a large reflexed blade. Style-branches bifid; forks subulate.—*Mexico & Guatemala.*

10. HERBERTIA.—Perianth-tube none; inner segments small, not convolute. Style-branches bifid at the tip.—*Texas & Subtemperate S. America.*

11. FERRARIA.—Perianth-segments subequal, connivent in a cup, joined at the base. Style-branches forked at the tip, densely penicillate.—*Cape & Angola.*



12. HOMERIA.—Perianth-segments subequal, connivent in a cup at the base, then spreading. Style-branches with two petaloid stigmatose crests.—*Cape*.

13. HEXAGLOTTIS.—Perianth-segments subequal, obtuse, spreading from the base. Style-branches cut down to the base into two subulate forks.—*Cape*.

Tribe II. SISYRINCHIEÆ.—Flowers stalked, usually more than one to a spathe, and opening out one after the other, often fugitive. Style-branches alternate with the anthers.

Subtribe I. CROCEÆ. — Rootstock a bulb or corm. Spathes essentially 1-flowered.

14. CROCUS. — Peduncle short, hidden. Perianth with a long tube and long ascending segments. Style-arms entire or cut into capillary branches.—*S. Europe, N. Africa, W. Asia*.

15. SYRINGODEA. — Peduncle short, hidden. Perianth with a long tube; segments spreading or ascending. Style-branches subulate, entire.—*Cape*.

16. GALAXIA.—Peduncle short, hidden. Perianth with a cylindrical tube and short obtuse spreading segments. Stigma peltate, petaloid.—*Cape*.

17. ROMULEA.—Peduncle produced. Perianth-segments oblong, much exceeding the short tube. Spathe-valves herbaceous.—*Mediterranean region, Trop. Africa, Cape*.

Subtribe II. CIPUREÆ.—Rootstock a bulb or corm. Perianth-tube obsolete. Flowers usually more than one to a spathe, very fugitive.—All American.

\* *Perianth-segments dimorphic.*

18. CIPURA. — Inner segments connivent. Style-branches dilated. Clusters of flowers sessile, mostly fascicled. Flowers white.

19. SPHENOSTIGMA.—Inner perianth-segments spreading. Style-branches dilated. Clusters of flowers peduncled. Flowers generally blue.

\*\* *Perianth-segments subequal, obovate-cuneate.*

20. ELEUTHERINE. — Filaments free. Style-branches long, simple, subulate. Flowers white.

21. CALYDOREA. — Filaments free. Style-branches subulate, entire or emarginate. Flowers blue or yellow.

22. GELASINE. — Filaments united. Style-branches simple, subulate. Flowers blue.

23. NEMASTYLIS.—Filaments free or united. Style-branches cleft to the base into subulate forks. Flowers usually blue.

Subtribe III. EUSISYRINCHIEÆ.—Rootstock not a bulb nor corm. Perianth cleft down to the ovary. Flowers fugitive, usually more than one to a spathe.

\* *Perianth-segments unequal.*

24. DIPLARRHENA.—Inner segments shorter, connivent. Upper stamen imperfect.—*Australia.*

25. LIBERTIA.—Inner segments obovate-cuneate; outer oblong, usually shorter. Stamens all perfect.—*Australia, New Zealand, Chili.*

\*\* *Perianth-segments subequal.*

26. BELEMCANDA.—Leaves broad. Inflorescence a lax corymb. Style-branches flattened and emarginate at the apex. Flowers red, dotted.—*China.*

27. ORTHOSANTHUS.—Clusters paniced. Filaments nearly or quite free. Style-branches subulate. Flowers pale blue, shortly pedicellate.—*Australia, Tropical America.*

28. BOBARTIA.—Clusters terminal on a leafless peduncle, usually fascicled. Style-branches subulate. Flowers pale yellow, with long pedicels.—*Cape.*

29. SISYRINCHIUM.—Clusters terminal, single or fascicled. Filaments more or less connate. Style-branches subulate. Flowers usually blue or yellow; pedicels long.—*America, Sandwich Islands, Ireland.*

30. TAPEINIA.—Stem very short, bearing a single 1-flowered spathe.—*Magellan Straits.*

Subtribe IV. ARISTEÆ.—Rootstock not a bulb nor corm. Perianth with a distinct tube above the ovary. Flowers fugitive, usually more than one to a spathe.

\* *Perianth-segments unequal.*

31. PATERSONIA.—Inner segments very small. Filaments connate.—*Australia.*

32. CLEANTHE.—Inner segments the largest, obovate. Filaments free.—*Cape.*

\*\* *Perianth-segments subequal.*† *Filaments connate.*

33. SYMPHYSTEMON.—Perianth-tube funnel-shaped. Style-branches spreading, subulate.—*Chili & Southern Andes.*

34. CHAMELUM.—Perianth-tube slender. Style shortly tricuspidate.—*Chili.*

35. SOLENOMELUS.—Perianth-tube slender. Style unbranched.—*Chili.*

†† *Filaments free.*

36. ARISTEA.—Herbaceous, rarely fruticose. Perianth-tube short, cylindrical. Filaments short, subulate.—*Cape, Tropical Africa, Madagascar.*

37. WITSENIA.—Fruticose. Perianth-tube funnel-shaped, longer than the segments.—*Cape.*

38. KLATTIA.—Fruticose. Perianth-tube short, cylindrical. Filaments very long, filiform.—*Cape.*

Tribe III. IXIÆ.—Flowers spicate, not fugitive, never more than one to a spathe. (This tribe is concentrated at the Cape, but 40, 41, 42, 46, 47, 51, 56, & 57 extend also to the mountains of Tropical Africa, 50 to Socotra, and 56 to the Mediterranean region.)

\* *Style-branches simple. Perianth regular. Stamens equilateral.*

39. SCHIZOSTYLIS.—Like *Hesperantha*, but rootstock not thickened into a corm.

40. HESPERANTHA. — Style short; branches long, subulate. Spathe-valves green.

41. GEISSORHIZA. — Style longer than in the last; branches shorter, subulate. Spathe-valves oblong, green or brownish upwards.

42. DIERAMA.—Style long, with short clavate branches. Spathe-valves large, entirely membranous. Leaves long, rigid.

43. STREPTANTHERA. — Style long, with short clavate branches. Spathe-valves membranous. Leaves short, lanceolate.

44. IXIA.—Style long, with short subulate branches. Outer spathe-valve short, emarginate, membranous or chartaceous.

\*\* *Style-branches bifid. Stamens unilateral.*

45. FREESIA. — Perianth-tube broadly funnel-shaped, with stamens inserted below the throat. Spathe-valves small, green.

46. LAPEYROUSIA.—Perianth-tube slender, with stamens inserted at the throat. Ovules many, superposed.

47. WATSONIA.—Perianth-tube broadly funnel-shaped above the middle, where the stamens are inserted. Spathe-valves moderately large, rigid.

48. MICRANTHUS. — Perianth-tube cylindrical, with stamens inserted at the throat. Ovules 2, erect, collateral.

\*\*\* *Style-branches simple. Stamens unilateral and arcuate.*

49. BABIANA.—Differs from the following genera by its very plicate hairy leaves. Perianth-limb regular or irregular.

\* *Perianth-limb subregular.*

50. ACIDANTHERA. — Spathe-valves large, green, lanceolate. Perianth-tube subcylindrical, usually very long.

51. CROCOSMA. — Spathe-valves short, oblong. Perianth-tube subcylindrical. Capsule inflated, deeply 3-lobed.

52. MELASPHERULA. — Perianth small, without any tube; segments very acuminate.

53. TRITONIA.—Perianth with a short cylindrical tube. Spathe-valves small, oblong; outer emarginate.

54. SPARAXIS.—Perianth-tube short, funnel-shaped in the upper half. Spathe-valves scarioso, deeply lacerated.

\*\* *Perianth-limb irregular.*

55. SYNNOTIA.—Spathe-valves scarioso, deeply lacerated.

56. GLADIOLUS.—Spathe-valves large, green, lanceolate. Perianth-tube funnel-shaped.

57. ANTHOLYZA. — Spathe-valves oblong-lanceolate. Perianth-tube cylindrical in the lower half, suddenly dilated at the middle.