CURTIS'S
BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;
WITH SUITABLE DESCRIPTIONS;

BY

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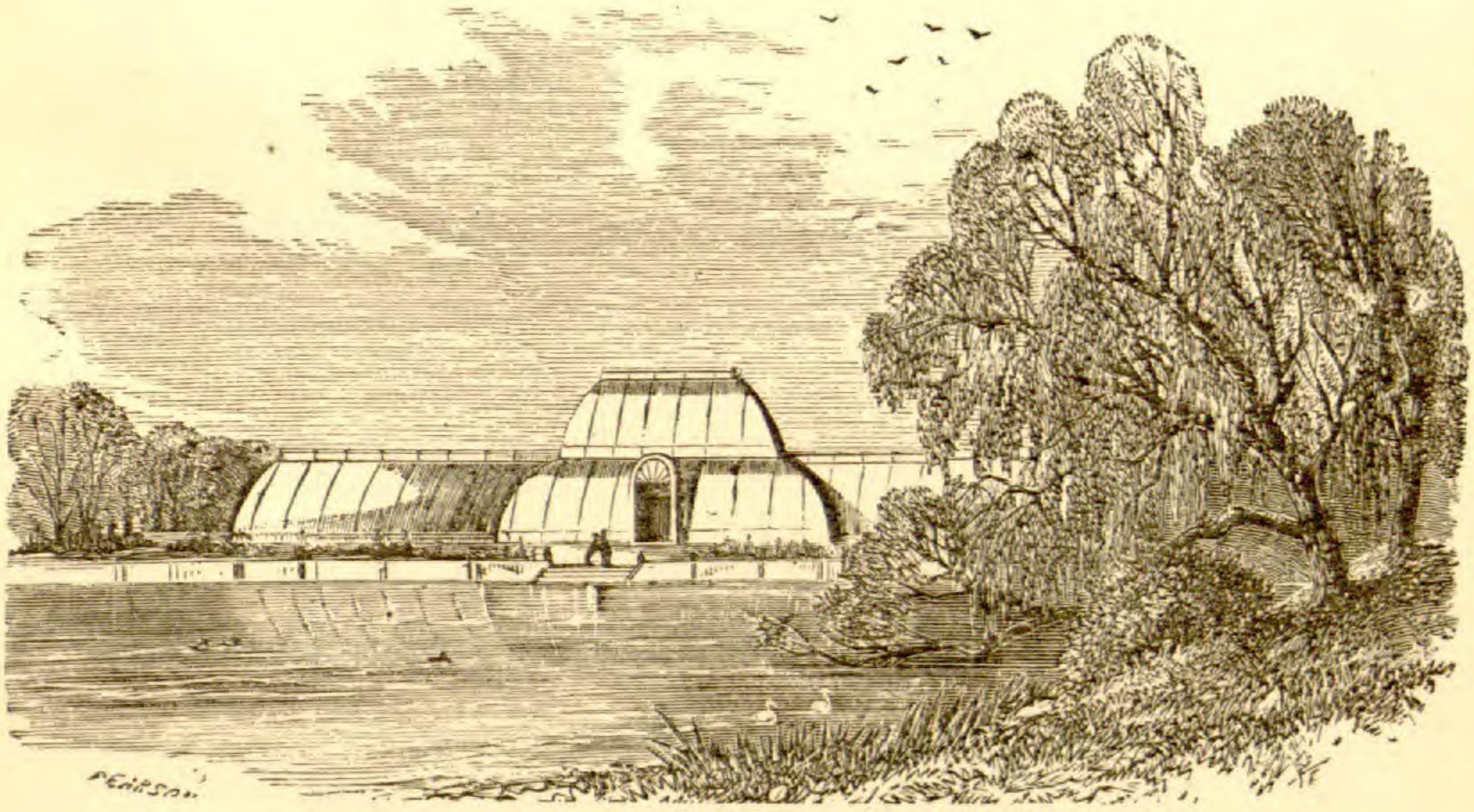

"For certes at my devise
There is no place in Paradise
So good in for to dwell, or be,
As in that garden, thoughte me."—CHAUCER.

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TO

DR. EDWARD DE REGEL,

DIRECTOR OF THE IMPERIAL BOTANICAL GARDENS,
ST. PETERSBURG, ETC., ETC., ETC.

DEAR DR. DE REGEL,

Let me claim the privilege of many years' friendship, and dedicate to you the 111th volume of the BOTANICAL MAGAZINE, as a testimony of my genuine admiration for your distinguished services as a scientific Horticulturist, and of my appreciation of your acquirements and labours as a Botanist.

Believe me, dear Dr. Regel,

Most faithfully yours,

JOS. D. HOOKER.

ROYAL GARDENS, KEW,
December 1*st*, 1885.

M.S.del, J.N.Fitch lith.

Vincent Brooks Day & Son Imp

TAB. 6793.

MAGNOLIA CAMPBELLII.

Native of the Eastern Himalaya.

Nat. Ord. MAGNOLIACEÆ.—Tribe MAGNOLIEÆ.

Genus MAGNOLIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 18.)

MAGNOLIA *Campbellii*; arborea, foliis deciduis ellipticis oblongis ovatisve abrupte acuminatis subtus sericeis denum glabratis, floribus ante folia enatis maximis roseis, bracteis amplis late ovatis fusco-sericeis exterioribus plerumque foliferis intimis flori appressis, sepalis petalisque conformibus 12–15 elliptico-oblongis obtusis, carpellis in spicam cylindricam confertis 1–2-spermis.

M. Campbellii, *Hook. f. et Thomson in Hook. f. Ill. Him. Plant.* t. 4, 5, and in *Flora Indica*, p. 77; *Hook. f. Flora of British India*, vol. i. p. 41; *Gamble, Manual of Indian Timbers*, p. 5, and *Trees and Shrubs of Darjeeling*, p. 2.

Magnolia, *Griff. Posth. Papers*, vol. ii. p. 153; and *Ic. Pl. Asiat.* t. 656.

This, which is in every respect, except in having deciduous foliage, the noblest species of the genus, was, before the destruction of the grand forests that clothed the higher elevations of the outer ranges of the Sikkim Himalaya, by far the most notable tree of the district, and I have seen the flanks of a mountain rose-coloured in spring from its abundance and its habit of flowering before the development of the leaves. It was discovered by Dr. Griffith in the Bhotan Himalaya at 8000 feet elevation (near Tongsa), but his specimens were very imperfect, and his collections being buried in the vaults of the India House, nothing further was known of the plant till I met with it in Sikkim; he, however, describes it in his (posthumously published) "Itinerary Notes," p. 153, No. 755, as a large tree, leafless when flowering, with flowers a span in diameter; the sepals (inner bracts ?) green and petals white. This work did not reach England till after the publication of the "Illustrations of Himalayan Plants," in which *M. Campbellii* first appeared.

As a species, *M. Campbellii* ranks near *M. Yulan*, and others with deciduous leaves, whilst in its arboreous habit it has no rival. The trunk attains a height of eighty feet,

with a dark bark, that of the branches being nearly black; the wood is white and soft, with about twelve rings to the inch, and is occasionally used for planking. Gamble, in his valuable work on Indian timbers, says that it is now (1881) growing scarce in Sikkim, whereas when I was in that country upwards of thirty years ago, it was one of the commonest trees at about 8000 to 9000 feet on the hills near Darjeeling. It was chosen by Dr. Thomson and myself to commemorate the eminent public services of the late Dr. Archibald Campbell, for many years Political Resident at Darjeeling, to whom the rise and progress of that magnificent hill station is due, and who has further contributed largely to our knowledge of the geography, natural productions, arts, manufactures, and people of the Nepal and Sikkim Himalaya.

Our plate gives a very indifferent idea of the size and colour which the flowers of this plant attain; Mr. Gamble says that they measure as much as ten inches in diameter, and they are often of a deep rose colour. I have seen four or five such on a branch a foot and a half long, resembling a bunch of nelumbium flowers, but far more vividly coloured.

Repeated attempts have been made to introduce *Magnolia Campbellii* by seed, but on arrival the fleshy albumen has always been found to have decayed and killed the minute embryo. Living plants have been sent by Drs. Anderson and King, of the Calcutta Botanical Gardens, but they have proved too tender for the open air in the East of England. In Ireland, however, it has succeeded. I saw a small tree of it in Mr. Crawford's well-known garden near Cork in 1878; this flowered in March of the present year, when that gentleman kindly forwarded the flower for figuring in this work. At Kew it grows well in the temperate house, but has not hitherto flowered. The leaves were fully developed on Mr. Crawford's plant in July, and were then added to the drawing. The fruit and seed, and the analyses of these, are added from the "Illustrations of Himalayan Plants." In the south of France and in Italy it has flowered on several occasions.—*J. D. H.*

Fig. 1, Leafing branch; 2, flowering ditto; 3, stamen; 4, stigma; 5, fruit; 6, seed; 7, vertical section of ditto; 8, embryo:—*all but figs.* 3, 4, 7, 8, *of the natural size.*

6794.

3

4.

2.

1

6

7

5.

A.B. del, J.N. Fitch lith.

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TAB. 6794.

IDESIA POLYCARPA.

Native of Japan.

Nat. Ord. BIXINEÆ.—Tribe FLACOURTIEÆ.

Genus IDESIA, *Maxim.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 972.)

IDESIA *polycarpa*; arbor magna, coma rotundata, ramulis crassiusculis cicatricatis, foliis alternis longe petiolatis amplis polymorphis rotundatis cordatis ovato-oblongisve acuminatis serratis, stipulis parvis caducis, racemis pendulis axillaribus et terminalibus, floribus dioicis albis v. flavidis, sepalis 3–6 crassiusculis pubescentibus coriaceis late oblongis apicibus dentatis, petalis 0, *fl. mas.* staminibus perplurimis, *fl. fœm.* staminodiis numerosis, ovario globoso, stylis 3–6 patenti-recurvis stigmatibus globoso-clavellatis, placentis 3–6 multiovulatis, baccis numerosissimis globosis.

I. polycarpa, *Maxim. Mel. Biol. Imp. Acad. St. Petersb.* vol. vi. 1866, fasc. i. p. 19; (*Bull. Acad. Petersb.* vol. x. 1866, p. 485;) *Franchet et Savat. Enum. Pl. Jap.* vol. i. p. 44; *Lavallée, Arboret. Segrez.* t. 13; *Carriere in Rev. Hortic.* 1872, p. 174, *cum ic. xylog.*

POLYCARPA Maximoviczii, et FLACOURTIA Japonica, *Hort.*

KARA SENDAN, *Oliver in Journ. Linn. Soc.* vol. ix. p. 168.

The earliest notice of the remarkable tree, of which the female flowers are here represented, was by Professor Oliver (as he has pointed out to me) in his paper "On a few Plants collected in Japan, &c., by Mr. R. Oldham, late Collector for the Royal Botanic Gardens, Kew," published in the ninth volume of the Journal of the Linnæan Society, p. 168, where a description of a specimen in fruit is given, with the Japanese name of Kara Sendau, and a reference of it, doubtfully, to the order *Bixineæ*. Two years afterwards, in 1866, the learned Russian botanist and Japanese traveller, Maximovicz, published a full description of it under the name of *Idesia*, in commemoration of a Dutch traveller, Eberhard Isbrants Ides, who undertook an exploration of China about the beginning of last century. Lastly, a capital figure of it appeared three years ago in the beautiful "Arboretum Segrezianum" of the lamented M. Lavallée, together with full details. There it is described as a large tree with a straight trunk crowned with numerous horizontally spreading branches, forming a broad rounded cyme, resembling the Catalpa.

Idesia is, as at present known, monotypic, but there is

in the Herbarium of Kew a plant from Cachar (north-east of Bengal) in young fruit which so strongly resembles that of *Idesia* that it may prove to be a second species of the genus; the leaves are oblanceolate, and not glaucous beneath.

Idesia is a native of Japan, where it occurs both wild and cultivated. It was introduced into Europe by Dr. Regel, of the St. Petersburg Botanical Gardens, and was subsequently largely diffused by M. Linden. The Royal Gardens of Kew have received it from several Continental sources.

The berries are remarkable for staining the Herbarium paper black or dark brown, which suggests their use for ink; they are said to be eatable, but are probably not worth eating; and if they stain the mouth as they do paper, they are not likely to prove popular. The specimen from which our figure was taken is a small tree in the Kew arboretum, where it is quite hardy, flowering in Midsummer.

DESCR. A tree forty to fifty feet high; bark smooth, white or yellowish; branches stout, with thick pith, covered with scars of fallen leaves and lenticels. *Leaves* long-petioled, drooping, five to ten inches long and sometimes eight inches broad, very variable in shape, usually cordate and acuminate, sometimes oblong or even orbicular, deep green, quite glabrous except at the axils of the nerves beneath, which are bearded, teeth distant, under surface glaucous; petiole four to six inches long, often red; stipules minute. *Panicles* shorter than the leaves, pendulous, many- and sparse-flowered, puberulous, rachis branches and pedicels slender. MALE FL. half an inch diameter. *Sepals* oblong, obtuse, spreading, pubescent; tip entire or toothed. *Stamens* numerous, filaments hairy, anthers didymous. FEMALE FL. smaller than the male. *Sepals* broader and shorter, erect. *Staminodes* numerous, minute, with interposed glands. *Ovary* shortly stipitate, globose; placentas three to six; styles three to six, radiating from the top of the ovary, with club-shaped or capitellate stigmas; ovules very many. *Berries* very numerous, as large as small grapes, globose, orange-yellow with a greenish pulp. *Seeds* very many, ovoid, smooth; testa crustaceous.—*J. D. H.*

Fig. 1, Section of fem.-flower; 2, sepal and staminodes; 3 and 4, staminodes and interposed glands of disk; 5, pistil; 6, stigma; 7, transverse section of ovary:—*all enlarged.*

M.S. del. J.N. Fitch, lith.

Vincent Brooks Day & Son Imp.

TAB. 6795.

FUCHSIA TRIPHYLLA.

Native of St. Domingo.

Nat. Ord. ONAGRARIEÆ.

Genus FUCHSIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 790.)

FUCHSIA *triphylla*; fruticulus pubescens, foliis ternatim verticillatis breviter petiolatis oblanceolatis acutis subserratis supra viridibus, puberulis subtus purpurascentibus velutino-pubescentibus, nervis numerosis arcuatis, floribus corymbosis nutantibus v. pendulis, bracteis viridibus pedicellis perianthiisque toto-coccineis, calycis tubo basi modice inflato dein gracili supra medium inflato-ellipsoideo, lobis triangularibus acutis, petalis rotundatis calycis lobis brevioribus, staminibus 4 alternipetalis petalis subæquilongis 4 oppositipetalis petalis brevioribus, stylo exserto.

F. triphylla, *Linn. Sp. Pl.* p. 1191; *Willd. in Usteri Annal.* vol. iii. t. 6, fig. 3 (copied from *Plumier*); *Hemsley in Gard. Chron.* 1884, vol. ii. p. 263.

F. racemosa, *Lamk. Dict.* vol. ii. p. 565; and *Ill.* t. 282, fig. 1; *DC. Prodr.* vol. iii. p. 39; *Descourlitz Flore Medicale des Antilles*, vol. ii. p. 161, t. 109.

FUCHSIA triphylla flore coccineo; *Plumier, Nov. Plant. Amer. Gen.* p. 14, t. 14; and *Plant. Amer. Ed. Burm.* t. 133, fig. 1.

A most interesting plant, from being the type of the well-known and large genus *Fuchsia*, which was founded upon it 180 years ago, and yet it has been all but unknown to science till the present year! I cannot do better than extract the details of this anomaly in botanical history and literature from an excellent account of *Fuchsia triphylla* drawn up by Mr. Hemsley for the "Gardener's Chronicle" (cited above), premising that Mr. Hemsley was the first to recognize the name and interest of the plant, when transmitted to Kew by Messrs. Henderson for naming.

In the latter part of the seventeenth century, Father Plumier, a missionary, collected largely in the West Indies, and chiefly in the Island of St. Domingo, and in 1703 published his "Nova Plantarum Americanarum Genera." Of these genera one was that which he called "*Fuchsia triphylla flore coccineo*." It is accompanied with a rude and inexact figure, only four stamens being represented, and the petals being of a wrong form; there is, however, no

doubt that the figure is intended for this plant, and Linnæus, in the first edition of the "Species Plantarum" (1753), took it up as *Fuchsia triphylla*. Shortly afterwards, in 1758, Burmann published a series of plates of drawings made by Plumier in the West Indies and South America, including one of the *Fuchsia* (tab. 133, fig. 1). Other species of *Fuchsia* were soon added to the genus, and Lamarck (no doubt from finding the triphyllous character to be common to other species of the genus) in 1793 changed the name to *F. racemosa*, without comment, which Descourlitz in his "Flora of the Antilles" adopts. Lastly, Kunth, in describing Humboldt and Bonpland's South American collections, proceeding on the assumption that *F. triphylla* is a Continental American plant, doubtfully refers to it a triphyllous species from New Grenada, and in so doing is followed by De Candolle.

The specimen here figured was sent to Kew by Messrs. Henderson, with the information that it was collected by Thomas Hogg in St. Domingo, where it forms a round bush, "not over eighteen inches high, every shoot of which is terminated by a raceme of orange-scarlet wax-like flowers." Descourlitz's figure is sufficiently characteristic, though he figures the flowers as erect, and the leaves as green beneath. He states that Plumier found it in uncultivated places, "en allant du quartier de la bande du Sud, à celui qu'on nomme le Grand Cul-de-Sac," adding that he has found it himself often at St. Jago de Cuba. He attributes to it medicinal properties, amongst others the curing of certain intermittent fevers, and says that it is a powerful remedy in asthenic derangements of the lymphatic system.—*J. D. H.*

Fig. 1, Portion of under-surface of leaf; 2, calyx laid open; 3, petal; 4 and 5, anthers; 6, style and stigma:—*all enlarged.*

1.

2.

3

4

M.S. del, J.N. Fitch lith

Vincent Brooks Day & Son Imp

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Tab. 6796.

DENTARIA POLYPHYLLA.

Native of Middle Europe.

Nat. Ord. Cruciferæ.—Tribe Arabideæ.

Genus Dentaria, *Linn.* Cardamineæ, subgenus Dentaria, *Benth. et Hook. f. Gen. Pl.* vol. i. p. 70.

Dentaria *polyphylla;* glaberrima, foliis 2–4 approximatis oppositis alternis v. ternatim verticillatis breviter petiolatis pinnatisectis, segmentis 7–9 approximatis subsessilibus lineari-lanceolatis acuminatis grosse serratis, floribus subcorymbosis longe pedicellatis nutantibus, sepalis oblongis obtusis pallide viridibus, petalis triplo longioribus obovato-spathulatis albis emarginatis, siliquis erectis elongato-ensiformibus in stylum longe angustatis oligospermis, valvis coriaceis enerviis tenuissime striolatis, seminibus oblongis funiculo evanido.

D. polyphylla, *Waldst. et Kitaib. Pl. Rar. Hung.* vol. ii. p. 174, t. 160; *DC. Syst. Veg.* vol. ii. p. 271, and *Prodr.* vol. i. p. 154; *Koch, Syn. Fl. Germ.* p. 49; *Reichb. Ic. Fl. Germ.* vol. ii. t. 32; *Bertoloni, Fl. Ital.* vol. vii. p. 5.

The question of the distinction between the genera *Dentaria* and *Cardamine* has often been discussed, and is so far settled in the "Genera Plantarum" that the former has been reduced to a subgenus of the latter. Brown and Bernhardi distinguished them by habit and the dilated funicles of *Dentaria*. Spenner found a character in the cotyledons of *Dentaria pinnata*, which, instead of being flat, as in *Cardamine*, have their margins on both sides folded inwards. This folding is, however, sometimes (as in *D. enneaphylla*) confined to one side of the cotyledons only, and in other species it is evanescent, as in the common *D. bulbifera*. Koch has pointed out a character in the petioled cotyledons of *Dentaria*. Bernhardi indicates a very important difference in the germination of the two genera, for whereas in *Cardamine* the plumule germinates between the two cotyledons, in *Dentaria* the cotyledons perish, and a tubercle forms at their base, from which, in the following year, growth takes place. How far this is constant in the genus is not known; and the fruiting of *D. bulbifera* is a

very rare phenomenon; of upwards of fifty specimens in the Kew Herbarium not one has a pod. I am not aware whether the structure of the embryo and the germination of *D. polyphylla* have been observed, but I find that the cotyledons are longitudinally folded, one embracing the other, and the radicle is bipartite almost to its tip, forming a long stalk as it were to each cotyledon.

D. polyphylla is one of the most elegant of early spring flowering plants, and admirably suited for the rock garden, from the bright green of the leaves and the grace of its drooping corymbs of white or pale straw-coloured flowers. It has rather a restricted range, inhabiting wooded mountains from Central Switzerland eastwards to Carniola and Croatia, and southward in Italy to Etruria.

The Royal Gardens are indebted to Messrs. Froebel, of Zurich, for plants, which flowered in February and March.

Descr. Quite glabrous. *Rootstock* six to ten inches long, including the tubercles nearly three-quarters of an inch in diameter. *Stem* one to one and a half feet high, stout, cylindric, green. *Leaves* two to four at the top of the stem, opposite, or if alternate near together, or forming a whorl of three, pinnatisect; petiole short, stout; segments two to three and a half inches long, subsessile, linear-lanceolate, acuminate, coarsely serrate. *Corymb* many-flowered; flowers long pedicelled, drooping. *Sepals* white or pale green, one-third of an inch long, oblong, obtuse, erect. *Petals* three times as long, claw long, limb obovate retuse or emarginate. *Anthers* yellow. *Pod* two to two and a half inches long, straight, sword-shaped, gradually narrowed into a distinct style; valves coriaceous, inelastic, nerveless. *Seeds* oblong, one-eighth of an inch long; cotyledons stalked.—*J. D. H.*

Fig. 1, Stamens, hypogynous glands and ovary; 2, ovary:—*all enlarged.* (3, ripe capsule, *of the natural size;* and 4, seed, *enlarged,—both from the Herbarium.*)

A

A1

A3.

A2

B

B1

B3.

B2.

A.B, del, J.N.Fitch lith.

Vincent Brooks Day & Son Imp

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TAB. 6797.

A.—TORENIA CONCOLOR.

B.—TORENIA FORDII.

Natives of China.

Nat. Ord. SCROPHULARINEÆ.—Tribe GRATIOLEÆ.

Genus TORENIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 954.)

TORENIA *concolor*; glabra v. parce pubescens, ramis elongatis diffusis, foliis petiolatis ovatis ovato-cordatisve acutis serratis, pedunculis axillaribus foliis longioribus, calycibus elongatis sub-bilabiatis angulis anguste alatis, corollæ violaceæ concoloris tubo exserto lobis amplis, filamentis anticis dente auctis, ovario tereti.

T. concolor, *Lindl. in Bot. Reg.* t. 62.

T. longiflora, *Morren in Ann. de Gand.* vol. ii. pp. 441, 471.

T. rubens, *var.* grandiflora, *Benth. Fl. Hongkong*, p. 250.

T. asiatica, *Linn., var.* concolor, *Hook. f. Fl. Brit. Ind.* vol. iii. p. 277.

TORENIA *Fordii*; erecta, pubescens, foliis breviter petiolatis late ovato-rotundatis v. -cordatis obtusiusculis serratis utrinque pubescentibus, pedunculis subterminalibus et axillaribus foliis multo brevioribus, calycibus brevibus angulis vix alatis, corollæ parvæ stramineæ tubo breviter exserto, lobis brevibus latioribus quam latis lateralibus plaga violacea notatis, filamentis anticis dente auctis, ovario 5-costato.

The Torenias, which are now becoming favourites in cultivation from their beautiful colours and long periods of blooming, form one of the most puzzling of genera to the botanist who has to discriminate the species, which have been, for the most part, described from miserably-bad herbarium specimens.

When studying the genus for the "Flora of British India," I gave much time to the attempt to unravel the species and fix their nomenclature, with little success, I fear. The next best thing to be done is to cultivate them, and have them figured under such names as cannot mislead. Happily several species have already been well figured in the BOTANICAL MAGAZINE, which enable very good comparisons to be made. *T. concolor* I reduced in the "Flora of British

JANUARY 1ST, 1885.

India" to *T. asiatica*, being quite unable to distinguish these in a dried state; and a reference to the figure of that striking plant at Plate 4249, together with another of *T. hirsuta* (Plate 5167) (also referred by me to *asiatica*), shows how close the three are in all structural characters, differing chiefly in the colour of the corolla. *T. asiatica* and *T. hirsuta* are natives of India; the former extending from the mountains of the Madras Peninsula and Ceylon to the Malay Peninsula and Java; the latter was described from plants introduced by Messrs. Low, of Clapton, the exact locality of which is not given. *T. concolor*, again, was sent from China to the Horticultural Society's Gardens in 1844 by Mr. Fortune, who found it in marshy ground in Hongkong, at about 2000 feet above the sea.

The Kew plants, which flowered in August, were raised from seed sent by Mr. C. Ford, the Superintendent of the Hongkong Botanical Gardens, in December, 1881, along with *Utricularia bifida* (Plate 6689).

T. Fordii is a very different species from *T. concolor*, but no less puzzling. Its nearest ally is, no doubt, *T. cordifolia*, figured at Plate 3715 of this work, and to which name it has more title from the shape of the leaf than the plant there represented. *T. cordifolia* has, however, narrower leaves, a much more broadly winged calyx, and a corolla of a pale blue colour. *T. parviflora* is another near ally, and is a very widely diffused plant in the tropics of both worlds, but it is glabrous, has much narrower leaves, a much larger calyx, and blue corolla.

T. Fordii was discovered by Mr. C. Ford during an excursion which he made to the Lo-fau-shan Mountains, which are on the coast opposite the Island of Hongkong, and from whence he sent seeds in 1883, the plants from which flowered in June, 1884.

Both *T. concolor* and *Fordii* are very attractive stove plants, flowering for several months continuously.—*J. D. H.*

A.—*T. concolor*. Fig. 1, Stamens; 2, ovary; 3, section of ditto:—*all enlarged*.

B.—*T. Fordii*. Fig. 1, Stamens; 2, ovary; 3, section of ditto:—*all enlarged*.

M.S.del, J.N.Fitch lith.

Vincent Brooks Day & Son Imp

TAB. 6798.

PANAX MURRAYI.

Nat. Ord. ARALIACEÆ.

Genus PANAX, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 938.)

PANAX *Murrayi*; caule simplici stricto erecto apicem versus folioso, foliis crebris subverticillatis 3–4-pedalibus patenti-recurvis pinnatis, rachi puberulo v. tomentello tereti, foliolis multi-10–12-jugis approximatis petiolulatis 3–6-pollicaribus oblique e basi inæquali lata lanceolatis acuminatis integris v. grosse obtuse dentatis glaberrimis, umbellulis subglobosis multifloris in racemos simplices puberulos dispositis racemis pedalibus subterminalibus strictis rachi valida, floribus gracile pedicellatis, calycis margine minuto 5-denticulato, petalis denum reflexis ovatis acutis valvatis.

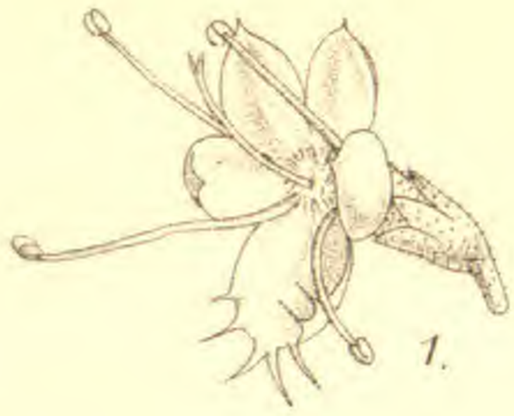
This stately plant was presented to the Royal Gardens by Mr. Bull, who imported it from the South Sea Islands (though the exact locality appears to be unknown), and flowered it in his establishment at Chelsea in May, 1881, under the provisional name of *Aralia splendidissima*. It is, however, not an *Aralia*, but a genuine *Panax*, having the valvate petals of that genus, and it is so similar to specimens of *P. Murrayi*, of Baron Mueller, a native of northern New South Wales and Queensland, that, having regard to the great difference in habit and foliage that exists between young and old plants of this genus, I cannot venture to describe it as a different species.

P. Murrayi is described as "a splendid tree, with a trunk fifty to sixty feet high, and then trichotomously branched;" and there is nothing in the habit or mode of growth of the present plant that would not point to this being its future condition. The leaflets of dried specimens of *P. Murrayi* are extremely variable; in some leaves they are straight, linear-oblong, three inches long, with cuneate base and rounded tip; in others they are eight inches long, lanceolate, acuminate, with a rounded base; the nervation also is very variable. In short, variations such as these (and far wider indeed) are normal in the foliage of *Araliaceæ*, and leave little room for supposing that the plant here

figured is anything but the young state of *Panax Murrayi*; —provided always that the two are supposed to agree in their flowers and fruits. These characters, however, cannot be satisfactorily resorted to, for there are only fruits and very imperfect male flowers on the Herbarium specimens of *P. Murrayi*, and only male flowers without fruit on Mr. Bull's plant; the calyces alone of the two can be compared, and they appear to be identical.

DESCR. *Stem* in the plant figured now (1885) four feet high, stout, erect, as thick as the wrist. *Leaves* forming an elegant umbrella-formed crown to the stem eight feet in diameter, numerous, close-set, spreading and recurved, three to four feet long, shortly petioled; rachis as stout as a goose-quill, terete, puberulous, slightly thickened at the nodes, green speckled with brown; leaflets ten to twelve pair, approximate, petiolulate, three to six inches long, oblong-lanceolate from an oblique rounded base, one to three inches broad, acuminate, entire or undulate or subcrenate, bright green, shining; nerves very faint, spreading. *Racemes* simple, crowded at the end of the stem, suberect, strict, a foot long; rachis very stout, pubescent; umbels subglobose, one inch in diameter, on peduncles one inch long or less; pedicels one-fourth to one-sixth of an inch. *Flowers* all male, pale greenish brown; calyx truncate, with five minute teeth; petals one-eighth of an inch long, reflexed; stamens erect, anthers oblong, as long as the filaments; style short, erect, two-grooved, tip emarginate. —*J. D. H.*

Fig. 1, Bud; 2 and 3, flowers; 4 and 5, stamens; 6, pedicel, calyx, and style:—*all enlarged.*



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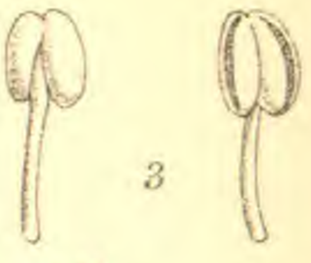

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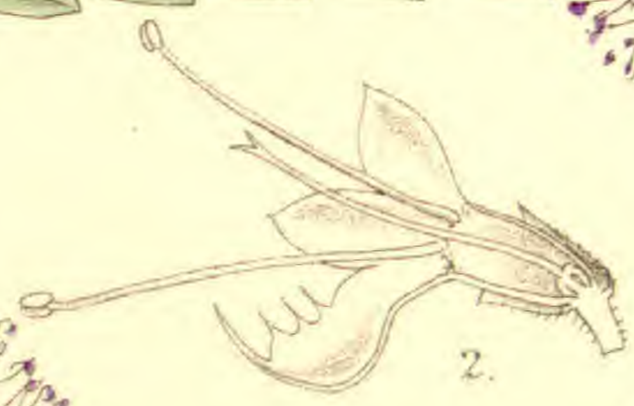

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A.B. del, J.N Fitch lith.

Vincent Brooks Day & Son Imp

TAB. 6799.

CARYOPTERIS MASTACANTHUS.

Native of Japan.

Nat. Ord. VERBENACEÆ.—Tribe CARYOPTERIDEÆ.

Genus CARYOPTERIS, *Bunge;* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1157.)

CARYOPTERIS *Mastacanthus;* fruticulus pubescens, ramulis teretibus erectis v. adscendentibus, foliis oppositis petiolatis ovato-oblongis grosse serratis obtusis v. acutis, cymis pedunculatis axillaribus densifloris, calycis campanulati lobis lanceolatis acutis, corollæ lobis 4 breviter ovatis apiculatis, quinto majore concavo fimbriato.

C. Mastacanthus, *Schauer in DC. Prodr.* vol. xi. p. 625; *Bocq. Rev. Verb.* p. 110, t. 19; *Gard. Chron.* vol. xxi. (1884), p. 148, fig. 30; *Franch. et Sav. Enum. Pl. Jap.* vol. i. p. 257; *Benth. Fl. Hongk.* p. 268.

C. incana, *Miquel Prolus. Fl. Jap.* p. 29.

MASTACANTHUS sinensis, *Endl. in Walp. Rep.* vol. iv. p. 3; *Lindl. in Bot. Reg.* 1846, t. 2.

BARBULA sinensis, *Lour. Fl. Coch.* p. 444.

NEPETA incana, *Thunb. Fl. Jap.* p. 244.

N. japonica, *Willd. Sp. Pl.* vol. iii. p. 62.

Though introduced upwards of forty years ago, and so well worthy of cultivation, this beautiful plant has been unknown in our gardens for many years, having been chasséed from the greenhouse in favour of more gaudy things. Lindley figured and described it in 1846 as "an autumn-flowering herbaceous plant, of some importance, because it furnishes an abundance of rich violet blossoms at a season when that colour, never abundant, is peculiarly rare in gardens." He advises its being kept in a greenhouse, watered abundantly, and syringed over head twice a day in summer, but that in consequence of the autumn flowering, the syringing should be discontinued as soon as the flower-buds are formed, otherwise these will be liable to "damp off." In winter very little watering is required, nor is fire heat required, except to keep off frost.

At Kew, during the last two seasons, this *Caryopteris* has flowered freely in the open air, and against a south

wall profusely. Dr. Masters calls it undoubtedly one of the best flowering shrubs, and adds that it is hardy at Combe Wood, but that it must not be thence inferred that it would be so in less propitious localities. For my own part I do not doubt that in any part of England a severe winter would kill most plants that grow in so hot a country as Canton, and I follow Dr. Lindley in regarding this as a greenhouse plant.

C. Mastacanthus was introduced by Fortune from China, where he found it wild near Canton, Chusan, and Koo-lung-soo. We have it also from Hongkong and Foochow; and it is common in Southern Japan in fields, rocky places, and on the mountains. The specimen here figured flowered against a wall in Kew Gardens in October last. Its second introduction is due to Mr. Veitch's collector, Mr. Maries.

Descr. A shrub one to five feet high; branches terete and leaves beneath pubescent or tomentose. *Leaves* very variable, one to three inches long, petioled, ovate or oblong-ovate, or oblong-lanceolate, acute or obtuse, coarsely (rarely finely) serrate, pubescent above, base rounded or cuneate; petiole slender, one-quarter to three-quarters of an inch long. *Cymes* in all the upper axils, peduncled, subglobose, dense-flowered; peduncle one to one and a half inch long, slender; pedicels very short. *Flowers* about one-sixth of an inch long. *Calyx* minute, green, cleft to the middle into lanceolate lobes. *Corolla* bright blue; tube longer than the calyx, cylindric; limb one-third of an inch in diameter, lobes spreading, four upper rounded-ovate, obtuse; lower lip-like, twice as large, deflexed, fimbriate. *Stamens* four, thrice as long as the corolla, filaments slender, strict, diverging; anthers minute. *Ovary* globose; style filiform, stigma two-fid. *Capsule* four-valved, valves each folding round a seed and falling away with it.—*J. D. H.*

Fig. 1, Flower; 2, the same cut vertically; 3, stamens; 4, ovary; 5, transverse section of ditto :—*all enlarged.*

6800.

M.S.del.J.N.Fitch lith.

Vincent Brooks Day & Son Imp

J.Reeve & Co. Londo

TAB. 6800.

PHILLYREA VILMORINIANA.

Native of Asia Minor.

Nat. Ord. OLEACEÆ.—Tribe OLEINEÆ.

Genus PHILLYREA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 677.)

PHILLYREA *Vilmoriniana*; frutex glaberrimus, foliis breviter petiolatis 5–6-polli-caribus oblongo- v. elliptico-lanceolatis acuminatis integerrimis basi cuneatis subtus punctulatis marginibus tenuiter recurvis, floribus ad axillas fasciculatis pedicellis gracilibus longioribus v. brevioribus, calyce ad medium 4-lobo lobis triangularibus acutis, corollæ lobis lineari-oblongis obtusis, drupa ellipsoidea obtusa.

P. Vilmoriniana, *Boiss. et Balansa in Bal. Pl. exsicc.* 1866; *Boiss. Fl. Orient.* vol. iv. p. 37.

P. laurifolia, *Hort.*

The Phillyreas have been favourites in the gardens and shrubberies of England for nearly 300 years, since which time at least a dozen sportive forms have been cultivated, and usually combined under the three names of *media*, *latifolia*, and *angustifolia*; these are, however, connected by so many intermediate forms, that in the opinion of many botanists all may be regarded as varieties of one species that inhabits the whole Mediterranean region from Spain to Syria, and also Armenia and Anatolia. Such being the character and distribution of the genus as previously known, it was no little surprise to botanists when the indefatigable collector Bourgeau detected in 1866, in Pontus in Asia, a *Phillyrea* so manifestly different from all the forms previously known, that its claims to be regarded as a distinct species could not be disputed. Such is the present plant, and what is of more interest to the horticulturist is, that it is by far the most beautiful shrub of any, with very large deep-green leaves, compared by Boissier to those of the Portugal Laurel, and that it appears to be perfectly hardy. Curiously enough, Dr. Masters, in the "Gardener's Chronicle," October, 1883, p. 494, speaking of it as "*P. Vilmoriensis*, syn. *laurifolia*," says, "At a little distance we took it to be a Portugal Laurel."

FEBRUARY 1ST, 1885.

The exact habitat of this shrub is the mountains of the province of Lazistan (in the ancient Pontus), on the south-east shore of the Black Sea, above the town of Rhizé, and in the valley of Khabackar, at an elevation of 3000 feet (French). It has been in the open air at Kew for four years uninjured, but has not flowered. The subject of our plate was received from Mr. Anthony Waterer, and was grown in his splendid nurseries at Knaphill, where it flowered in April of last year.

Descr. A large leafy glabrous shrub; branches stout, erect, covered with smooth brown bark. *Leaves* shortly petioled, four to five inches long, elliptic-lanceolate, acuminate, quite entire, very coriaceous, very dark green and shining above, paler beneath with minute dots; midrib stout, nerves very finely reticulate; base cuneate; petiole one-quarter to one-third of an inch, stout. *Flowers* crowded in the leaf-axils, white; pedicels sometimes nearly an inch long, very unequal in length, slender, quite glabrous. *Calyx* small, four-cleft to the middle; lobes triangular, erect, acute. *Corolla* one-third of an inch in diameter, cleft nearly to the base into four oblong-linear spreading and recurved obtuse lobes. *Stamens* two, filaments short; anthers linear-oblong, erect. *Ovary* oblong-ovoid, narrowed into a style as long as itself, stigma small, ovoid, two-lobed. *Fruit* ellipsoid, half an inch long, purplish, stigma deciduous. —*J. D. H.*

Fig. 1, Flower; 2, calyx; 3, portion of base of corolla and stamen; 4, ovary; 5, transverse section of ditto; 6, fruit:—*all but fig.* 6 *enlarged.*

AB del, J.N.Fitch lith

Vincent Brooks Day & Son Imp.

Tab. 6801.

CLEMATIS tubulosa, *var.* Hookeri.

Native of Northern China.

Nat. Ord. Ranunculaceæ.—Tribe Clematideæ.

Genus Clematis, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 3.)

Clematis *tubulosa;* herbacea v. basi lignescens, caulibus sulcatis et angulatis pubescentibus strictis erectis, foliis 3-foliolatis, foliolis amplis oblique ovato-rotundatis acutis dentatis rugosis glabriusculis, floribus axillaribus et in paniculas dispositis lilacinis, perianthio tubuloso basi parum ampliato, sepalis linearibus v. lineari-spathulatis acutis extus striatis sericeis, antheris linearibus obtusis filamento subæquilongis et paullo angustioribus.

Var. *Hookeri*, herbacea, ramis incano-sericeis, floribus pollicaribus, sepalis linearibus apices versus revolutis.

C. Hookeri, *Dcne. in Nouv. Archiv. du Mus.*, Ser. 2, vol. iv. p. 206, t. 11.

The Clematises of the *tubulosa* group are likely to prove a trouble to horticulturists anxious to keep a correctly named collection of these beautiful plants; and I fear that the efforts of my late friend M. Decaisne to divide them (in the work quoted above) into species will not prove to be altogether satisfactory. Only one form of the group has hitherto been figured in this work, namely, that called *C. tubulosa*, Plate 4269, and this Decaisne separates from *C. tubulosa*, as *C. Hookeri;* fortunately he gives an admirable plate of *C. Hookeri*, which precisely accords with the figure here given; whereas the *C. tubulosa* of Plate 4269 as exactly (except in the obtuse anthers) accords with his *C. Davidiana* (p. 205, tab. 10), also excellently well figured by him, and differing from *Hookeri* in the much shorter pedicels, more crowded axillary erect flowers, and more spathulate sepals which are revolute from the middle, and the very acuminate anthers (not shown in the Botanical Magazine figure of *tubulosa*). Whether *Davidiana* is separable specifically from *tubulosa* is another question. M. Maximovicz, whose knowledge and acuteness as a systematist are of the highest order, regards all Decaisne's eight species as forms of one polymorphous plant ("Melange Biologique," in Bull. Acad.

St. Petersb. vol. ix. (1876), p. 589); and judging from the published figures, I should think he is right. If there is a second species, it is probably *C. Davidiana*, as to which being different the reader may judge by comparing the present plate with 4269, and I may add that the habit of the two in the garden is not the same. Then again with regard to var. *Hookeri*, the figure of it given by Decaisne precisely accords with that given as the typical *tubulosa*;—if the names were transposed, no one could tell the difference. In the text they are separated by the stems being herbaceous and annual in the latter, and woody at the base in the former; to which he adds that *Hookeri* is the most precocious of the group, flowering (in Paris, I presume) at the end of February (at Kew in September !). Lastly, there is a *C. azurea*, Lindl., stated to be from the Crimea (the Tauride), of which Decaisne says that it probably is *C. Hookeriana* (*tubulosa*, Botanical Magazine), adding that the Tauride is given in the Botanical Magazine as the native country of its *tubulosa*. This is a curious oversight, for in that work North China is given as the habitat, and there is no allusion to the Crimea.

There is another branch of this group of the tubulose Clematises which inhabits China and Japan, and of which *C. stans*, Sieb. and Zucc., is the type; these have smaller more crowded flowers of an opaline colour rather than lilac, and usually more acuminate sepals. *C. stans* has flowered at Kew, and will shortly be figured; by which time I hope that the genus will have been revised by Messrs. Forbes and Hemsley for a census of the plants of China which is in preparation at Kew.

The specimen here figured is from an authentically named plant of *C. Hookeri* sent to Kew by my late friend M. Lavallée; it flowered in the open air in the end of September.—*J. D. H.*

Fig. 1, Section of flower; 2, stamens :—*both enlarged.*

M.S.del. J.N.Fitch lith.

Vincent Brooks Day & Son Imp

Tab. 6802.

CIRRHOPETALUM PICTURATUM.

Native of Moulmein.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Cirrhopetalum, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 504.)

Cirrhopetalum *picturatum*; pseudobulbis late ovoideis angulatis, folio breviter petiolato lineari-oblongo basi angustato apice rotundato emarginato crasse coriaceo luride viridi lateribus convexis, scapo valido purpureo-maculato vaginis paucis acutis pallidis, bracteis lanceolatis pedicellis longioribus, floribus 2-pollicaribus, sepalo dorsali parvo galeato sanguineo maculato apice filo flexuoso instructo, lateralibus in laminam lineari-elongatam convexam acuminatam pallide fusco-virescentem conniventibus, petalis parvis ovato-rotundatis aristato-acuminatis intus sanguineis, labello recurvo linguæformi convexo obtuso sanguineo.

C. picturatum, *G. Loddiges in Bot. Register*, vol. xxvi. (1840), *Miscell.* p. 49, n. 106; *Lindl. l. c.* 1843, sub t. 49.

Bulbophyllum picturatum, *Rchb. f. in Walp. Ann.* vol. vi. p. 262.

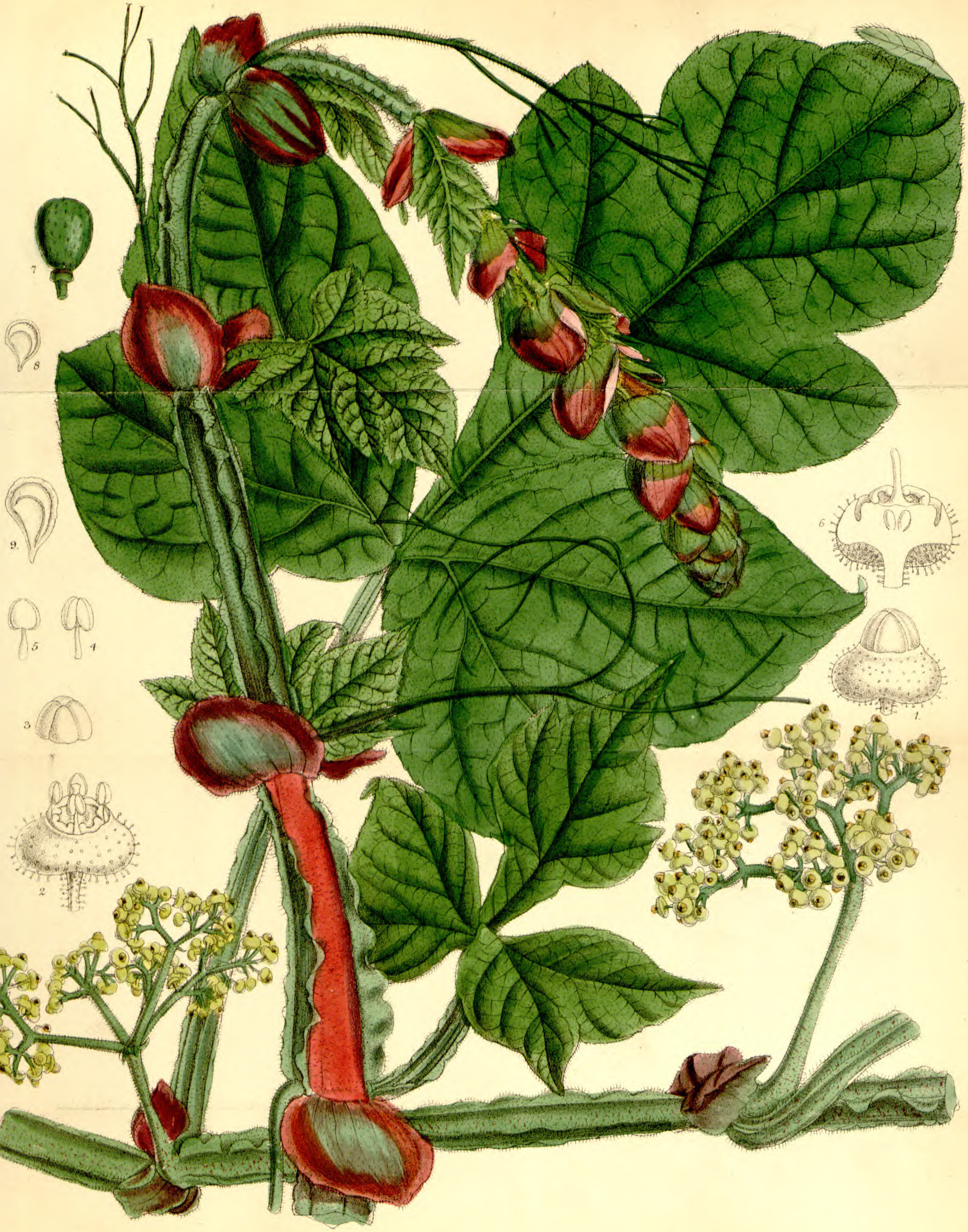
It is with some hesitation that I refer the subject of this plate to Loddiges' *C. picturatum*, because of its much larger size and the absence of the cilia on the upper sepal, the acuminate lateral sepals, and the petals being neither ciliate nor villous; it is, however, so similar to a Moulmein plant collected by Parish, which Reichenbach has named *picturatum*, that I am disposed to regard it as a large state of the species. The Moulmein plant is smaller, but it has the acuminate lateral sepals of this, the sepals, petals and lip are of precisely the same form, and it shows very slight ciliation on the sepals and petals.

The Royal Gardens are indebted to Messrs. Low & Sons, of Upper Clapton, for this well-marked species, which was received from their collector, Mr. Richard Curnow, then in Burma. The original plant was cultivated forty-five years ago by the Messrs. Loddiges, who probably received it from the Calcutta Botanical Gardens.

Descr. *Pseudobulbs* tufted, two to two and a half inches long by one to one and a half inches broad, turgidly ovoid, with three or four rather acute raised angles, very dark

green, quite smooth. *Leaf* solitary, three to six inches long by one to one and a half broad, linear-oblong, contracted into a short stout channelled petiole, tip rounded and emarginate, substance very thick, dark green, deeply grooved down the middle, each side convex with recurved margins. *Scape* eight to ten inches long, ascending, then erect, as stout as a crow-quill, green speckled with purple; sheaths about three, distant, an inch long, tip free, erect, acute, pale yellow-brown speckled with red. *Umbel* five inches in diameter, about ten-flowered; bracts half an inch long, lanceolate, coloured like the sheaths, twice as long as the pedicels. *Flowers* two inches long and upwards, lurid. *Upper sepal* one-third of an inch long, erect, hooded, obtuse with a terminal purple obscurely knobbed thread as long as itself, dull green spotted with blood red; lateral sepals conniving into a long linear straight convex acuminate blade, pale dirty green, each gibbous at the back above the base. *Petals* very small, rounded ovate, tip awned, coloured like the dorsal sepal. *Lip* included, tongue-shaped, obtuse, recurved, blood-red. *Column* very short, stout, without auricles.—*J. D. H.*

Fig. 1, Flower; 2, column and lip; 3, anther; 4, pollen:—*all enlarged.*



M.S. del, J.N. Fitch lith

Vincent Brooks Day & Son Imp

TAB. 6803.

VITIS PTEROPHORA.

Native of Brazil.

Nat. Ord. AMPELIDEÆ.

Genus VITIS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 387.)

VITIS *pterophora*; alte scandens, sparse pilosa, ramis crassis carnosis tetragonis et tetrapteris alis undulatis, foliis longe petiolatis 3-foliolatis, foliolis amplis sessilibus rugoso-undulatis trapezoideo- v. rhombeo-obovatis acuminatis serratis nervis reticulatis impressis, terminali sub 3-lobo lobis lateralibus brevibus acutis v. obtusis, lateralibus oblique v. dimidiato ovatis margine inferiore in lobum producto, stipulis amplis late ovatis v. rotundatis ciliatis fusco-purpureis, petiolo angusto tetrapteo, cymæ pedunculatæ ramulis crassis divaricatis, pedicellis calycibusque glandulosis, calycis depresso-globosi crassi basi intrusi ore integerrimo, petalis 4 minutis obtusis demum solutis, disco annulari, filamentis brevibus, stylo columnari, bacca immatura obovoidea.

V. pterophora, *Baker in Mart. Fl. Bras.* vol. xiv. pars 2, p. 213.

V. Gongylodes, *Lynch in Journ. Linn. Soc.* vol. xvii. p. 306, t. 15, *non Baker*; *Masters in Gard. Chron.* vol. xix. part 1, p. 52, fig. 8.

The enormous genus *Vitis*, which includes upwards of 230 known species, contains many plants of great horticultural interest, notably the Grape Vine, the beautiful V. (*Cissus*) *discolor* (Plate 4763), the Five-fingered Ivy, and V. (*Ampelopsis*) *tricuspidata*, the singular gouty-stemmed vine, *V. macropus* (Plate 5479), and its ally, *V. Bainesii* (Plate 5472). Interesting as these are, they do not surpass the subject of the present plate, which has for several years past attracted the attention of visitors to the Victoria House at Kew, from its great size, handsome appearance, and singular habits. The roots occupy a border, and the stout stem climbs up to the roof of the house, where its long green and red leafy branches are trained from girder to girder, and from whence they send down the remarkable whipcord-like red roots, of which some reach the water of the Victoria tank, and there form enormous brushes of rootlets like the tail of a horse; whilst the dependent branches are the subject of a singular growth, which and the functions of the tendrils have been described by Mr.

Lynch, late foreman of the house, in a paper communicated to the Linnean Society of London, and quoted above. Each branch bears at its extremity, after ceasing to grow for the season, an elongated tuber, formed by the lengthening and swelling of one or more of the subterminal internodes. These tubers are sometimes five or even six inches long, and as thick as the thumb; they are cylindric or club-shaped, and shortly winged; green, fleshy, and rounded at the end, from which protrudes the deciduous often leaf-bearing tip of the branch. When the tuber is formed of two or more internodes, there is always a constriction at the nodes. Finally these tubers drop off, and on reaching the ground will form new plants under favourable circumstances. No exact counterpart to this structure has been observed in the vegetable kingdom. The tendrils are no less curious. These are very slender, and repeatedly forked. At the tip of each branch a small adhesive disk is formed, as in the five-fingered ivy and some other climbing plants; though in these they are not generally developed until the tendril has reached a point of support. On reaching a support the disks adhere to it and enlarge greatly, and in the case of the support admitting of it, the tendril clasps it closely, and secretes from its surface a viscid tissue that glues it to the support. Thus the tendrils exhibit three modes of attachment, by clasping, by the disks, and by the adhesive tissue.

Vitis pterophora is a native of Brazil, where it was discovered early in the century by the traveller and botanist Burchell growing on the banks of the Tocantins River, an affluent of the Amazons. Dried specimens have also been sent from the Province of Rio de Janeiro by M. Glaziou, and from the Botanical Gardens of Jamaica. It flowers at Kew in the autumn months. Fruit formed in the Cambridge Botanical Gardens very sparingly, and did not ripen.—*J. D. H.*

Fig. 1, Flower; 2, the same with the petals removed; 3, petals before they separate; 4 and 5, stamens; 6, vertical section of ovary; 7, unripe berry; 8 and 9, unripe seeds:—*all but figs.* 7 *and* 8 *enlarged.*

M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

TAB. 6804.

DIOSCOREA CRINITA.

Native of Natal.

Nat. Ord. DIOSCOREACEÆ.

Genus DIOSCOREA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 742.)

DIOSCOREA *crinita;* tota molliter pubescens v. puberula, ramulis gracillimis teretiusculis, foliis longe petiolatis 5-foliolatis, foliolis petiolulatis ellipticolanceolatis oblongis v. oblanceolatis obtusis v. acutis apice longe cuspidatis integerrimis v. margine sinuatis, racemis axillaribus solitariis v. fasciculatis v. ad apices ramulorum subpaniculatis breviter pedunculatis gracilibus niveis villosis bracteis imbricatis stipitatis ovatis concavis apicibus acuminatis elongatis recurvis, fl. ♂ sepalis ovatis subacutis 3 exterioribus villosis 3 interioribus glabris, filamentis brevibus, antheris sepalis exterioribus oppositis didymis connectivo dorso carunculato cum staminodiis trulliformibus sepalis interioribus oppositis alternantibus, pistilli rudimento subclavato, fl. ♀ ovario ellipsoideo tomentoso, sepalis 6 minutis obtusis, staminodiis minimis, stigmatibus 3 brevibus recurvis.

As trained on a balloon trellis, this forms one of the most elegant conceivable pot-plants, from its delicate pale-green translucent foliage and copious snow-white pendulous racemes. It is a native of Natal, where it was first collected by the late W. T. Gerrard, and is the No. 445 of his distributed collection. It has also been received from Mr. J. M. Wood, now Superintendent of the Natal Botanical Gardens, who collected it in the bush at Umhloti, flowering in February, 1882. It has two closely allied South African neighbours, *D. retusa*, Masters (in Gard. Chron. 1870, p. 1149, fig. 217), from the country west of Natal, which has broader retuse leaves, and much smaller male bracts and flowers, and *D. Forbesii*, Baker, of Delagoa Bay, which has similar bracts, but sessile leaflets.

For the plant here figured the Royal Gardens are indebted to Mrs. Eliza Steane, of New House Park, Rickmansworth, Herts, who sent it in full flower and great beauty, September, 1884. The female flowers here figured are from the Herbarium specimens; the fruit is unknown.

MARCH 1ST, 1885.

DESCR. A slender graceful climber, clothed everywhere with soft white pubescence; branches very slender. *Leaves* long-petioled; leaflets five, two to three inches long, petiolulate, elliptic-lanceolate or oblanceolate, obtuse, acute or acuminate, with a long setaceous mucro, very membranous and delicate, pale green, pubescent on both surfaces, outer margin of outer pair sometimes lobed; petiole very slender, one to two inches long; petiolules a quarter to half an inch. *Racemes* very numerous, solitary or several in the leaf-axils, and forming a panicle at the end of the branches, shortly peduncled, very slender, two to three and a half inches long, pendulous, snow-white, tomentose; bracts imbricate, one-third of an inch long, of the male stipitate, of the female sessile, ovate, concave, with a subulate recurved tip. MALE FL. half the length of the bract. *Sepals* six, ovate, subacute, three outer tomentose, three inner glabrous. *Stamens*, three perfect opposite the outer sepals, with short filaments and didymous anthers, alternating with three larger trowel-shaped staminodes; connective of perfect anthers broad behind and carunculate. *Pistil* rudimentary, columnar, but enlarged in the upper half, tip three-fid. FEMALE FL. *Ovary* ellipsoid, tomentose. *Sepals* very minute, obtuse. *Staminodes* most minute. *Stigmas* three, short, recurved.—*J. D. H.*

Fig. 1, Portion of ♂ raceme; 2, ♂ flower; 3, outer sepal and stamen; 4, back of anther, showing the carunculate connective; 5, inner sepal and staminode; 6, rudimentary pistil; 7, portion of ♀ raceme; 8, bract and ♀ flower; 9, outer sepal and staminode; 10, top of ovary and stigmas; 11, inner sepal and staminodes :—*all but fig. 7 enlarged.*

M.S. del, J.N. Fitch lith.

Vincent Brooks Day & Son Imp

L Reeve & C° London.

TAB. 6805.

SOLIDAGO DRUMMONDII.

Native of Eastern North America.

Nat. Ord. COMPOSITÆ.—Tribe ASTEROIDEÆ.

Genus SOLIDAGO, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 256.)

SOLIDAGO (Virgaurea) *Drummondii;* puberula, caule 3–5-pedali ramoso folioso, foliis breviter petiolatis ellipticis utrinque acutis argute serratis 3-nerviis utrinque puberulis superioribus sensim minoribus ovatis integerrimis v. denticulatis summis interfloralibus parvis oblongis obtusis integerrimis, inflorescentiæ ramis racemiformibus v. paniculatis, capitulis secundis, involucri glabriusculi squamis erectis lineari-oblongis obtusis, fl. radii 4–5 parvis disci 5–6, achenio puberulo, pappo brevi.

S. Drummondii, *Torr. et Gr. Fl. N. Am.* vol. ii. p. 217; *Gray, Synopt. Fl. N. Am.* vol. i. part ii. p. 159.

S. ulmifolia, *Hook. Comp. Bot. Mag.* vol. i. p. 97 (*not of Nuttal*).

It is a singular fact, that large as the genus *Solidago* is, numbering between seventy and eighty species, all adapted for garden outdoor culture, and most useful as being amongst the latest flowering of autumnal plants, but one (*S lanceolata*, Tab. 2546) has been figured amongst the 6800 plates hitherto published in the BOTANICAL MAGAZINE. This is no doubt due to the undeserved neglect which plants too nearly resembling our native ones often experience in gardens. The *Solidagos*, for instance, all bear a general resemblance to our common Golden Rod, *S. Virga-aurea*, which is considered too common for horticultural purposes, though very beautiful in itself, and especially worthy of a place in suburban gardens, where colours at a later season are so greatly needed. Our grandfathers were wiser in their generation, for no less than thirty species are enumerated in the "Hortus Kewensis" as cultivated in England, of which about half, together with more than as many more, are now growing in the herbaceous grounds at Kew (where there are in all thirty-four species, with several varieties).

S. Drummondii is a native of the warmer States of

MARCH 1ST, 1885.

North America, from South-West Illinois and Missouri to Louisiana. The Kew plant was communicated by Professor Sargent from the Harvard University (U.S.) Botanical Garden in 1878. It is perfectly hardy at Kew, and grows much taller than any native specimens that I have seen, but the heads are more scattered. It flowers throughout October.

DESCR. A tall, branching, erect, herbaceous perennial, attaining five feet in cultivation, with stems as thick as a swan's quill, puberulous, terete, striate, leafy all the way up, and terminating in a profusion of panicled racemes of secund small heads. *Leaves* three to four inches long, shortly petioled, elliptic, acute at both ends, sharply serrate, three-nerved from a considerable way above the base, puberulous on both surfaces, bright green; upper gradually smaller, more ovate, entire or serrulate, uppermost (amongst the heads) small, one-third to one-half of an inch long, variable, elliptic oblong or ovate, obtuse or acute, quite entire. *Heads* one-third of an inch long, few-flowered; involucre cylindric, of erect linear-oblong nearly glabrous green bracts. *Ray-flowers* five or six, deeply three-toothed; *disk-flowers* rather more numerous. *Achenes* puberulous; pappus scanty.—*J. D. H.*

Fig. 1, Ray-flower; 2, disk-flower; 3, hairs of pappus; 4, style-arms of ray-flower; 5, stamens of disk-flower; 6, stigma of ditto:—*all enlarged.*

M.S. del, J.N. Fitch, lith.

Vincent Brooks Day & Son Imp

Tab. 6806.

NEVIUSA ALABAMENSIS.

Native of Alabama.

Nat. Ord. Rosaceæ.—Tribe Spiræaceæ.

Genus Neviusa, *A. Gray;* (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 613.)

Neviusa *alabamica;* frutex ramulis gracilibus puberulis, foliis alternis breviter petiolatis ovatis v. oblongo-ovatis acuminatis basi rotundatis serratis v. duplicato-serrulatis membranaceis utrinque puberulis, stipulis parvis liberis, floribus subpaniculatim corymbosis, pedunculis pedicellisque gracillimis, sepalis foliaceis inciso-serratis, petalis 0, staminibus multiseriatis sepalis longioribus capillaribus niveis, antheris parvis, carpellis 2–4 parvis sericeis stylis capillaribus, stigmatibus obtusis.

N. alabamensis, *A. Gray in Proc. Amer. Acad. Nat. Sc.* vol. iv. p. 99; *Mem. Acad. N.S.* vol. vi. p. 374, t. 30; *Chapm. Fl. S. U. States,* p. 121; *Baill. Hist. Pl.* vol. i. p. 393; *Maximov. Adnot. de Spiræac.* p. 139.

Neviusa is one of the rarest plants of the United States, being, in so far as hitherto known, confined to the State of Alabama, and there to some shaded cliffs near Tuscaloosa, where it was discovered by the Rev. R. D. Nevius, after whom Gray named the genus. The affinities of the genus have been variously considered. A Gray, its founder, referred it to the neighbourhood of *Kerria* in the tribe *Rubeæ*, from which tribe, as defined by me in the "Genera Plantarum," both these genera differ in their solitary ovules, and I placed both in the tribe *Spiræaceæ* of *Rosaceæ*. Maximovicz, in his able and elaborate revision of the *Spiræaceæ*, rejects both from this latter group, and agrees with Gray in referring them to *Rubeæ*.

Neviusa flowered at Kew in May, 1883; the plant was nailed against a wall exposed to the East, and presented a very beautiful appearance from the abundance of its snow-white feathery blossoms. Considering the climate and position of its native country, I should doubt its being hardy. It has been received at Kew from several contributors, notably a living plant from Professor Sargent,

of Cambridge, U.S., in 1879, and another from F. Miles, Esq., in 1881, the flowers from whose plant are here figured.

Descr. A slender shrub, with cylindric branches and very slender puberulous leafy branchlets. *Leaves* alternate, petioled, one and a half to three and a half inches long, membranous, pale green, ovate or oblong-ovate, acute or acuminate, usually doubly serrulate, puberulous with scattered hairs on both surfaces; nerves very slender; petiole slender, a quarter to half an inch long; stipules setaceous, free. *Flowers* one inch in diameter across the spreading stamens, in terminal sessile subpaniculate corymbs, peduncles and pedicels very slender. *Calyx-tube* very small; lobes five, half an inch long, oblong or obovate-oblong, deeply toothed, acute or obtuse, green, spreading, nerved, puberulous. *Corolla* none. *Stamens* very numerous, in many series, seated on a narrow disk; filaments straight, capillary, white; anthers very small, yellow. *Carpels* two to four, minute, globose, pubescent; style lateral, filiform, stigma obtuse.—*J. D. H.*

Fig. 1, Side branch with larger leaf; 2, flower with stamens removed; 3, top of filament and anther; 4, carpel; 5, vertical section of ditto:—*all but fig.* 1 *enlarged.*

M. S. del, J. N. Fitch lith.

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TAB. 6807.

CITRUS MEDICA, *var.* Riversii.

The Bijou Lime.

Nat. Ord. RUTACEÆ.—Tribe AURANTIEÆ.

Genus CITRUS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 305.)

CITRUS *medica*, Linn., vide Tab. 6745.

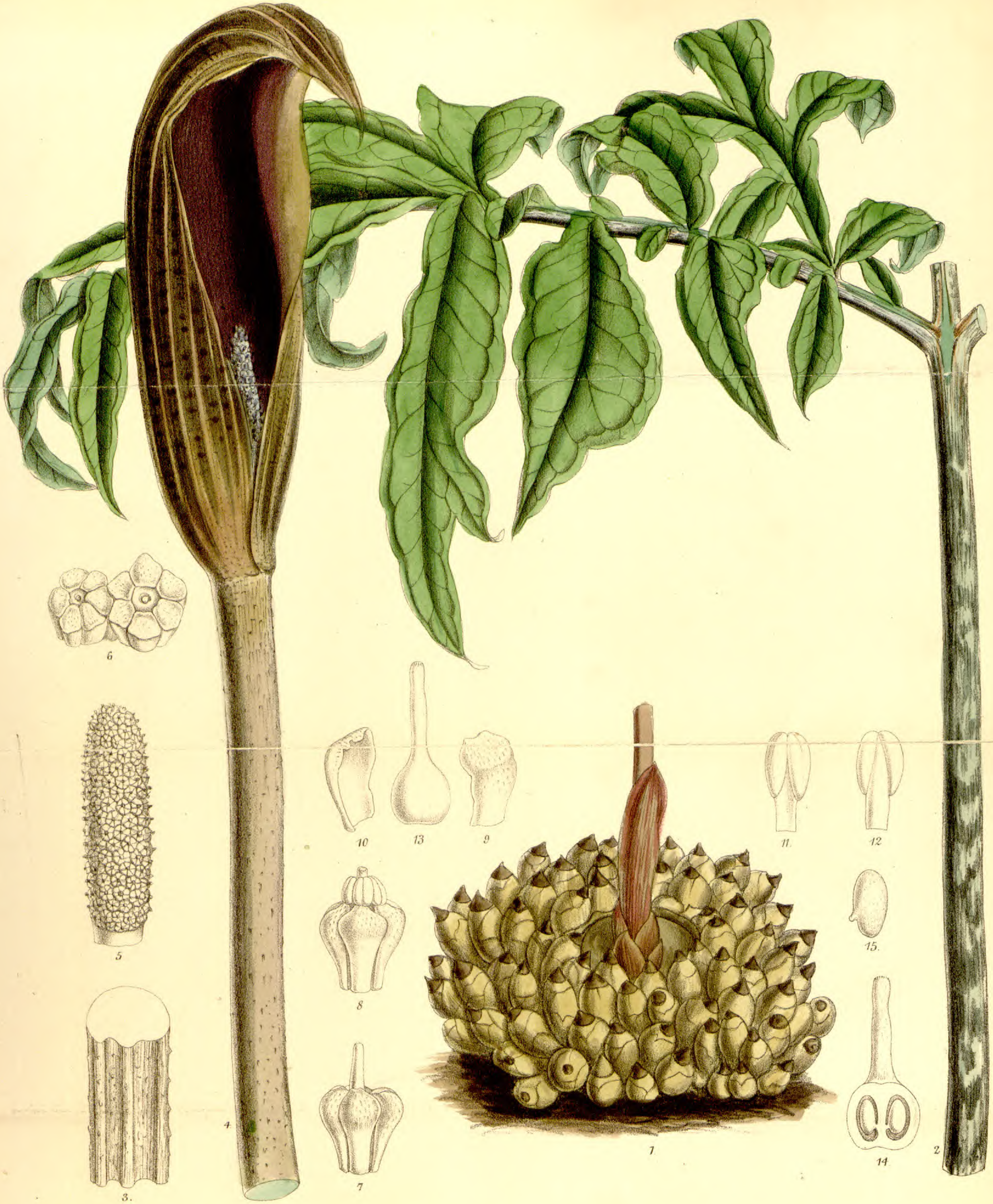
Var. *Riversii*; frutex inermis v. pauci-spinosa glaberrima, ramulis gracilibus teretibus, foliis 2–3-pollicaribus breviter petiolatis ellipticis acutis serrulatis v. obscure crenatis, basi acutis, nervis utrinque 7–10 gracilibus parallelis, petiolo brevi aptero, floribus pro genere parvulis subiinis albis 5-meris, fructu parvo 1 poll. diametro globoso v. subgloboso mamillato, cortice tenui aureo v. aurantiaco glandulis non aut vix depressis, pulpa pallida acidissima et subamara.
River's Bijou Lemon, *Masters in Gard. Chron. N.S.* vol. v. p. 690, f. 123.

Under a very full description of the West Indian Lime, which I gave in this Magazine last year (Tab. 6745), I alluded to the fruit of the "Bijou Lemon," figured without a history in the "Gardener's Chronicle," as belonging to the same variety. Specimens of this, with leaf, flower, and fruit, subsequently communicated to me by its possessors, Messrs. Rivers, of Sawbridgeworth, prove that it is a totally different variety, and that it adds another to the great host of forms of the *Citrus medica*, though still referable to what I regard as the Limes in contradistinction to the Lemons. From the West Indian the Bijou Lime differs in the few spines (our specimen is spineless), the elliptic smoother leaves with very numerous parallel regularly placed nerves (too strongly defined by far in our Plate), the wingless petioles, and in the smaller more globose higher coloured fruit, which has a distinctly bitter flavour superadded to the acid; the peel, too, is not so fragrant. I have in vain searched through the fine work of Risso and Poiteau for this Lime, but find nothing that agrees with it in fruit and leaf.

The Royal Gardens are indebted to Messrs. Rivers of Sawbridgeworth for a most interesting and instructive

selection of the numerous varieties of Orange, Lime, and Lemon which they have long cultivated with such great success, and to them I owe the flowering specimen and fruit of the Bijou Lime here represented. Mr. T. F. Rivers, to whom I applied to be informed of its origin, tells me that it was received from St. Michael's (Azores) many years ago, with other sorts of Oranges and Lemons, but with no special history attached to it. I may here add in respect of this interesting class of plants that Mr. Rivers finds that the bitter Orange will not hybridize with the sweet, nor the Limes and Lemons with the Orange; and that the produce of the attempts to cross the Tangerine with the St. Michael's has shown no sign of variation in the foliage, though now eight or ten years old. No fruit, however, has in this case yet been borne, for seedling oranges require about twenty years to develope into fruitfulness. On the other hand, Darwin (Cross and Self-Fertilization of Plants, p. 394) says that he has collected evidence on the natural crossing of varieties of the orange, and cites the authority of Gallesio for the fact.

Fig. 1, Portion of leaf; 2, flower with corolla removed; 3 and 4, stamens; 5, portion of cortex of fruit; 6, young seed:—*all enlarged.*



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M. S. del J.N. Fitch lith.

Vincent Brooks Day & Son Imp

TAB. 6808.

DRACONTIUM FŒCUNDUM.

Native of British Guiana.

Nat. Ord. AROIDEÆ.—Tribe ORONTIEÆ.

Genus DRACONTIUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 995.)

DRACONTIUM (Eudracontium) *fœcundum;* tuber tuberculis perplurimis confertis epigæis fusiformibus cinctum, folii hysteranthii lamina tripartita, segmentis interruptim pinnatis v. pinnatifidis, pinnis polymorphis aliis minutis obtusis aliis majoribus lanceolatis ovato-lanceolatisve sessilibus v. basi decurrentibus inæquilateris undulatis lobatisve v. immo pinnatifidis, petiolo griseo albo-marmorato, pedunculo scaberulo griseo-purpureo, spatha 5-pollicari lineari-oblonga costata brunnea intus saturate purpurea, vertice incurvo acuminato, spadice spatha ter breviore cylindracea obtusa, perianthii foliolis 6 spathulatis, staminibus 6, stylo elongato stigmate simplici.

This noble Aroid is evidently a congener of *Dracontium* (*Godwinia*) *Gigas* (Tab. 6048) and of *D. Carderi* (Tab. 6523), from both of which it differs in floral characters and in the profusion of bulbils produced on the tuber. These completely surround the parent organ, and rising from its whole circumference form a broad dense girdle of brown egg-like bodies with dark acute tips.

D. fœcundum was discovered by W. E. E. Thurn, Esq. (now Stipendiary Magistrate at Pomeroon in British Guiana, and formerly Curator of the Museum at George Town) during an expedition to the Corentyn River in 1880, and who sent tubers to Kew, where they flowered in March, 1882, and produced leaves in the following January. The leaf of this species, like its congeners, has a grand appearance, the petiole attaining six feet in height, with an umbrella-like blade quite four feet in diameter.

DESCR. *Tubers* surrounded by a profusion of spindle-shaped acute bulbils which rise above the ground and form a dense girdle round the base of the peduncle and petiole. *Leaf* solitary, produced after the flower; peduncle six feet high, sparsely minutely tubercled, terete above, below

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semiterete, the flat surface having three obtuse ridges, dirty white mottled with grey; lamina four to five feet in diameter, horizontal with drooping leaflets, three-partite, each segment narrowly winged and bearing several pairs of very irregularly formed leaflets, some very small and obtuse; larger leaflets two to five inches long, finely acuminate, free or confluent at their base, lanceolate or ovate-lanceolate, unequal-sided, margins undulate or lobed or the larger pinnatifid. *Peduncle* with purple obtuse basal sheaths, erect, two to three feet high, as thick as the little finger, terete, minutely tubercled, pale purplish brown. *Spathe* five inches high, erect, narrowly cylindric-oblong, with a decurved acuminate tip, dull brown, faintly ribbed, open to the base, inner surface dark vinous purple. *Spadix* one-third the length of the spathe, subsessile, erect, cylindric, obtuse, blueish brown, dense-flowered. *Perianth-segments* six, spathulate with concave incurved tips. *Stamens* six, anthers exserted, oblong. *Ovary* subglobose, with a stout far-exserted style and minute papillose stigma; ovules attached above the base of the cells.—*J. D. H.*

Fig. 1, Tuber and bulbils (*half natural size*); 2, petiole and segment of leaf (*one-third of the natural size*); 3, portion of petiole (*of the natural size*); 4, inflorescence; 5, spadix (*of the natural size*); 6, two flowers seen from above; 7, flower; 8, the same with the anthers protruded; 9 and 10, back and front views of perianth-segments; 11 and 12, front and back views of anthers; 13, ovary; 14, vertical section of ditto;—*all enlarged.*

M S. del. J.N. Fitch lith

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TAB. 6809.

ANTHERICUM ECHEANDIOIDES.

Native probably of Mexico.

Nat. Ord. LILIACEÆ.—Tribe ASPHODELEÆ.

Genus ANTHERICUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 788.)

ANTHERICUM (*Hesperanthes*) *echeandioides;* fibris radicalibus cylindricis carnosis, foliis basalibus productis 5–6 lanceolatis sessilibus membranaceis subpedalibus glabris margine undulatis, pedunculo foliis longiore bracteis 2–3 lanceolatis membranaceis erectis amplexicaulibus prædito, racemo laxissimo simplici, floribus geminis, pedicellis cernuis medio articulatis, bracteis ovato-lanceolatis, perianthio luteo segmentis dorso venis 3 sejugatis viridulis percurso, exterioribus oblanceolato-oblongis, interioribus obovato-oblongis, staminibus perianthio paulo brevioribus, filamentis hispidis, antheris lanceolatis, ovario oblongo, stylo ovario longiore, stigmate capitato.

Echeandia eleutherandra, *K. Koch in Hort. Berol. inedit.*

The present plant was flowered for the first time at Kew in November, 1883. It was received not long before from Mr. R. J. Lynch, of the Cambridge Botanic Garden, and is probably a native of Mexico. We have no wild specimens in the Herbarium that correspond to it, but within a few days of the time when it flowered at Kew it was brought from the Berlin Garden for determination by Herr Vatke, with the information that it was grown there under the unpublished name of *Echeandia eleutherandra*, K. Koch. The principal character in which *Echeandia* differs from *Anthericum* is in its syngenesious stamens, so that it properly should be classified under the latter genus, but otherwise, in habit, leaf, and the size and colour of the flower, it closely resembles *Echeandia terniflora*, which has been cultivated in European gardens from the beginning of the present century, and is figured in Redonte's Liliaceæ (Tab. 313).

DESCR. *Root-fibres* densely tufted, cylindrical. Produced *leaves* five or six, confined to the base of the stem, lanceolate, about a foot long, bright green, glabrous, membranous, an inch or an inch and a quarter broad at the middle, narrowed gradually to an acute point, deeply channelled and clasping

the stem towards the base, undulated towards the margin, especially in the lower half. *Peduncle* simple, terete, above a foot long, furnished only with two or three small clasping lanceolate membranous bract-leaves below the inflorescence. *Raceme* simple, very lax, under a foot long; flowers bright yellow, arranged in pairs; pedicels cernuous, a quarter or half an inch long, articulated below the middle; bracts ovate-lanceolate, membranous, longer than the pedicels. *Perianth* three-quarters of an inch long; segments with a keel of three greenish ribs; outer segments oblanceolate-oblong, inner obovate-oblong, a third of an inch broad. *Stamens* shorter than the perianth-segments; filaments filiform, hispid; anthers linear-oblong, versatile, shorter than the filaments. *Ovary* sessile, elliptical; style straight, longer than the ovary; stigma capitate. *Fruit* a loculicidal capsule.—*J. G. Baker.*

Fig. 1, A stamen, front view; 2, a stamen, back view; 3, pistil, complete; 4, horizontal section of the ovary:—*all more or less enlarged.*

A.B. del J.N.Fitch lith.

Vincent Brooks Day & Son Imp

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TAB. 6810.

CLEMATIS STANS.

Native of Japan.

Nat. Ord. RANUNCULACEÆ.—Tribe CLEMATIDEÆ.

Genus CLEMATIS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 3.)

CLEMATIS *stans*; herbacea, molliter pubescens, caulibus sulcatis et angulatis strictis erectis, foliis 3-foliolatis, foliolis amplis oblique ovato-rotundatis acutis grosse dentatis v. sublobatis rugosis superioribus angustioribus, floribus subverticillatim confertis pendulis opalinis, verticillis in paniculum contractam terminalem dispositis, sepalis linearibus acuminatis extus sericeo-velutinis apicibus recurvis, antheris linearibus filamento subæquilongis.

C. stans, *Sieb. and Zucc. Fl. Jap. Fam. Nat.* i. 69; *Franchet and Savat, En. Pl. Jap.* vol. i. p. 2; *Regel, Gartenfl.* t. 357.

C. Kousabotan, *Dcne. in Nouv. Archiv. du Mus. Ser.* ii. vol. iv. p. 208, t. 13.

Under *C. tubulosa*, var. *Hookeri* (Tab. 6801), I announced the forthcoming of a plate of *C. stans*, expressing at the same time my hope that the history of the group of Travellers'-joys to which it belongs, might, before its publication, be cleared up by Messrs. Forbes and Hemsley in their forthcoming census of the plants of China. These botanists now inform me that they follow Maximovicz in considering all the so-called species of this group (*C. tubulosa*, Turcz (Tab. 4269), *Davidiana*, Dcne., *Hookeri*, Dcne. (Tab. 6801), *C. stans*, S. and Z., *C. Kousabotan*, Dcne., *C. Lavallei*, Dcne., and *C. Savatieri*, Dcne.) as varieties of one, and that one the old *C. heracleæfolia*, DC. (*Syst. Pl.* i. 158; *Prodr.* i. 3), a native of China, and of which, therefore, many forms are now known to occur in Japan. Whilst quite ready to subscribe to this opinion of regarding *C. heracleæfolia* as an aggregate species, I may point out that it seems to me to present five principal types, three of which are characteristically figured in this work, namely, 1. The Chinese *C. tubulosa*, Turcz (*Davidiana*, Dcne.); erect, with axillary broad deep blue flowers, the sepals of which are revolute from far below the middle,

exposing the anthers. 2. The *C. tubulosa*, var. *Hookeri* (*C. tubulosa*, and *C. Hookeri*, Dcne.); erect, with long blue chiefly axillary flowers and perianth-lobes revolute from far above the middle. 3. *C. stans*, S. and Z. (*C. stans*, and *Kousabotan*, Dcne.); erect, with terminal racemes of much smaller paler blue flowers in whorl-like fascicles—this closely resembles a drawing of the original specimen of *C. heracleæfolia* in the British Museum, made by Mr. Forbes and shown me by Mr. Hemsley. 4. *C. Lavallei*, Dcne.; erect, with flowers in loose spreading terminal almost leafless panicles, hardly at all whorled. 5. *C. Savatieri*, Dcne.; climbing, with much stouter stems, peduncles and pedicels, and panicled flowers not in whorls. Referring to the Herbarium, I think that these types are recognizable, but united by varieties that render it impossible to regard them as distinct species.

Our figure of *C. stans* is taken from a plant so named by M. Decaisne, and sent to Kew by the late lamented Mr. Lavallée; it flowered in the end of September in the open border.—*J. D. H.*

Fig. 1, Vertical section of flower; 2, stamens; 3, pistil; 4, single carpel:—*all enlarged.*

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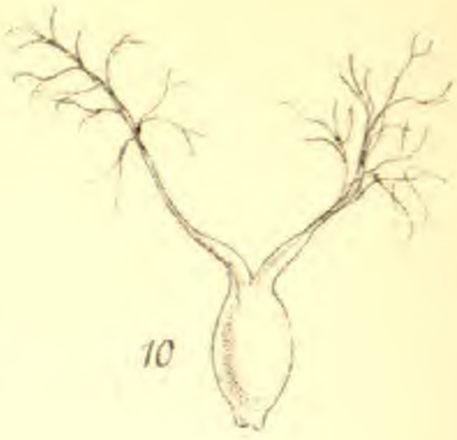

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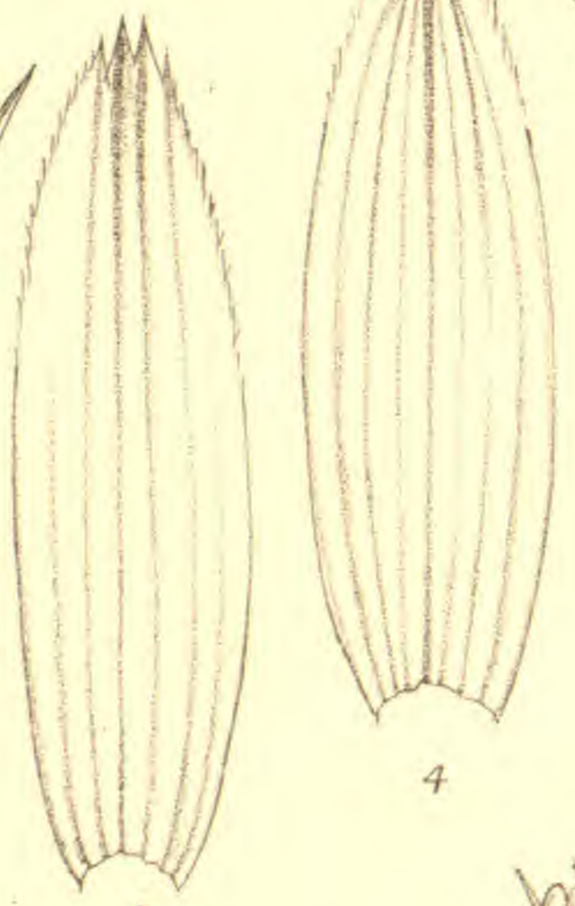

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TAB. 6811.

CHUSQUEA ABIETIFOLIA.

Native of Jamaica.

Nat. Ord. GRAMINEÆ.—Tribe BAMBUSEÆ.

Genus CHUSQUEA, *Kunth;* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 1209.)

CHUSQUEA *abietifolia;* culmis gracilibus alte scandentibus ramosis, ramulis foliosis subverticillatim fasciculatis, foliis parvis distichis rigidis lineari-lanceolatis acuminatis subtiliter serrulatis, vaginis ciliatis, ligula nulla, racemis brevibus paucifloris subsimplicibus nutantibus, rachi gracillima scaberula, spiculis lanceolatis, glumis 2 inferioribus parvis ovatis cuspidatis, gluma florente oblongo-lanceolata aristata 7-nervi, palea glumæ florenti æquilonga lineari-oblonga 6-nervi apice 4-cuspidata, lodiculis 3.

C. abietifolia, *Griseb. Fl. Brit. W. Ind.*, p. 529.

ARUNDO, No. 5, *P. Browne, Hist. Jamaic.*, p. 139.

This very interesting and graceful little Bamboo is confined to the mountainous interior of the Island of Jamaica, where it climbs the loftiest trees, and its pendulous branches form feathery masses of great beauty. It is mentioned in Browne's "History of Jamaica," but I can trace no allusion to it in Sloane's great work. Plants of it have been introduced into Kew, first by Mr. Jenman, when in charge of the Castleton Botanical Gardens (in Jamaica), and again by Mr. Morris, the Director of Public Gardens in that island. The plants sent by the latter grew well, and promised to be a charming addition to the Tropical Garden, when they, in December last, suddenly burst into flower, since which they have thrown off much of their foliage, causing me to fear that, after the manner of so many species of the most remarkable tribe of grasses to which it belongs, they may not survive the flowering period. A careful examination of the inflorescence shows that this differs both from the generic character attributed to the genus *Chusquea*, and to the specific character given by Grisebach. According to Kunth's description of the genus, as drawn up from South American species, there should be within the two outer short empty glumes two other empty ones similar to the flowering and appressed

to it. According to Grisebach's description of *C. abietifolia*, only one exists between the two lower empty and the flowering glume. In our specimen there is none at all! In other words, Kunth describes (in American species) four empty glumes; Grisebach (in this species) three, whereas in our specimens there are only two. Unfortunately there are no native flowering specimens in the Kew Herbaria; and as Grisebach's only specimens were three flowerless ones collected by Wilson, and preserved in the then Hookerian Herbarium, I am at a loss to know the source of his description.

From the native specimens, the cultivated differ only in the leaves being much smaller, as may be seen by comparing fig. 12 with those on the specimen represented.

DESCR. A very slender much-branched climbing bamboo, with flexuous wiry terete smooth stems; leafy branches four to eight inches long, whorled, spreading and drooping. *Leaves* half to three-quarters of an inch long by one-twelfth of an inch wide (one and a half inch long by one-sixth of an inch wide in native specimens), strict, rigid, sessile on the sheath, linear-lanceolate, acuminate, many-nerved, margin cartilaginous minutely serrulate, pale green, glaucous beneath; sheath ciliate; ligule none. *Racemes* terminating the leafy branches, half an inch long, very slender, with three to six pendulous pedicelled spikelets, rachis and pedicels scabrid, capillary. *Spikelets* a quarter to one-third of an inch long, lanceolate, green and purple; two outer glumes half the length of the flowering, ovate, acuminate, nerves and margins above scabrid, outer five- inner three-nerved. *Flowering glume* oblong-lanceolate, seven-nerved, tip awned, upper margin ciliate. *Pale* as long, but six-nerved, and four-toothed at the tip. *Scales* three, very variable in size and form, two lateral ovate or lanceolate, ciliate; dorsal shorter, ciliate or not. *Stamens* as long as the flowering glume; anthers very large, linear-oblong, yellow. *Ovary* glabrous. *Styles* two short, one free feathery, protruded at the sides of the spikelet.—*J. D. H.*

Fig. 1, Two spikelets; 2 and 3, outer empty glumes; 4, flowering glumes; 5, palea; 6 and 7, lateral scales; 8 and 9, different forms of dorsal scale; 10, ovary; 11, top of vagina of leaf; 12, leaves of native specimen:—*all but fig.* 12 *much enlarged.*

M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp

L. Reeve & Co. London.

TAB. 6812.

SALVIA GREGGII.

Native of New Mexico.

Nat. Ord. LABIATÆ.—Tribe MONARDEÆ.

Genus SALVIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1194.)

SALVIA (Calosphace) *Greggii;* fruticosa, glabra v. puberula, ramulis gracilibus pendulis foliosis, foliis subsessilibus crassiusculis densissime glanduloso-punctatis lineari-oblongis obtusis integerrimis basi angustatis, racemis ramulos terminantibus paucifloris glanduloso-puberulis, calycis angusti campanulati dentibus tubo striato æquilongis, corollæ coccineæ tubo exserto fauce modice inflato, ore contracto, labio superiore brevi obtuso, inferiore multo majore dilatato 3-lobo lobis lateralibus parvis orbiculatis, medio transverse oblongo 2-lobo, connectivi limbo inferiore lineari-oblongo.

S. Greggii, *A. Gray in Proc. Amer. Acad.* vol. viii. p. 369, and *Synopt. Fl. N. Am.* vol. ii. part i. p. 368.

S. microphylla, *Torrey, Bot. Mex. Bound.* p. 131, *not of H. B. K.*

The plant here figured is a member of one of the largest sections of *Salvia*, *Calosphace*, which indeed claims to be considered a sub-genus, and was regarded by Moench as a genus (under the name of *Jungia*). All are American, and not a few are amongst the most attractive of conservatory and greenhouse plants. Upwards of a dozen are figured in this Magazine, as *S. elegans* (Tab. 6448), *S. rubescens* (Tab. 5947), *S. cacaliæfolia* (Tab. 5274), and the superb blue half-hardy *S. patens* (Tab. 3808), which last is the only one that has continued in general cultivation;—so transitory are the favourites of horticulturists. It remains to be seen whether *S. Greggii* will obtain a more permanent recognition, which its great (but not greater) beauty and facility of culture should secure for it.

S. Greggii is a native of mountains in Northern Mexico, east of Saltillo, at an elevation of 10,000 feet, where it was discovered by Dr. J. Gregg in 1848-9. It was first flowered in England by Mr. W. Thompson, of Ipswich, the introducer of its near ally, *S. porphyrata* (Tab. 4939); and latterly

beautiful specimens were received from Mr. Lynch, of the Cambridge Botanical Garden, from which the accompanying drawing was taken in October last.

DESCR. A small slender obscurely puberulous shrub, about three feet high, with an erect stem, 4-angled brown branches, and drooping leafy branchlets which turn up their flowering tips (that this is ever the habit of the plant in its native country is, however, improbable, and is not confirmed by any of the indigenous specimens in the Herbarium). *Leaves* one to one and a half inch long, subsessile, linear-oblong, obtuse, narrowed at the base, rather thick, with faint nerves, closely gland-dotted, rather dull pale green. *Racemes* two inches long, six- to eight-flowered, glandular-puberulous; pedicels shorter than the calyx. *Calyx* narrowly campanulate; lips half to one-third the length of the tube, lanceolate, acute, nearly straight. *Corolla* carmine, tube twice as long as the calyx, throat ventricose, mouth contracted; upper lip short, oblong, obtuse, pubescent and glandular, lower much larger, nearly three-fourths of an inch broad, three-lobed, lateral lobes small, orbicular; midlobe transversely oblong, two-lobed, lobules rounded. *Anthers* with the lower arm of the connective linear-oblong, auricled at the base. *Style* villous on the upper side below the stigmatic arm.—*J. D. H.*

Fig. 1, Calyx; 2, stamen; 3 and 4, back and front views of the anther-cell; 5, end of style and stigmas; 6, disk and ovary:—*all enlarged.*

M.S. del. J.N. Fitch lith.

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TAB. 6813.

PHILODENDRON GLAZIOVII.

Native of Brazil.

Nat. Ord. AROIDEÆ.—Tribe PHILODENDREÆ.

Genus PHILODENDRON, *Schott*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 978.)

PHILODENDRON *Glaziovii*; caule scandente robusto, foliis distichis alternis longe petiolatis lineari-oblongis acuminatis basi cuneatis crasse coriaceis luride viridibus subtus pallidioribus, costa crassa superne planiuscula, nervis arcuatis copiosis marginem attingentibus, petiolo teretiusculo, vagina inconspicua, spathis apicem versus caulis axillaribus breviter crasse pedunculatis reclinatis expansis apice roundatis et apiculatis oblongis stramineis tubo brevi intus sanguineo, spadice sessili erecto spathæ æquilongo sed haud incluso cylindraceo sensim attenuato subacuto, inflorescentia fœminea mascula multo breviore, ovario 6–8-loculari, stigmate sessili pulvinari, ovulis 3–5-basilaribus.

This fine species does not accord with the description of any in Engler's monograph of the *Aroideæ*. Nor does it fit well into any of his ten sections of the genus, though I suppose it should be referred to the rather heterogeneous assemblage which compose that called *Baursia* by Reichenbach the elder, and which Schott subdivided under the names *Canniphyllum* and *Glossophyllum*. It appears to me to be very nearly allied to *P. Linnæi*, Kunth, a native of Para and Dutch Guiana, which is described as having somewhat similar leaves with equal lateral nerves, and a white spathe with a red tube, but which differs in having only two-ovuled cells, and in the female inflorescence being only half as short as the male.

P. Glaziovii was sent together with no fewer than seventy species of Aroids to the Royal Gardens by Senr. A. Glaziou, Director of Public and Imperial Gardens at Rio de Janeiro, of which country it is presumably a native; and I have named it in compliment to that able and zealous officer, whose contributions to the establishment of Kew, of both living plants and Herbarium specimens, have been of very great extent and high value, in both a botanical and horticultural point of view. There is nowhere to be

seen such a collection of tropical American tree-ferns as now adorns the wing of the Tropical Fern House at Kew; and for these we are indebted to Senr. Glaziou's knowledge of what to send, and how to send them.

P. Glaziovii was received in 1880, and flowered in May, 1883, in the Aroid House at Kew.

Descr. A climbing aroid, with a stem as thick as the thumb, and now five feet high, leafy from the base, as yet unbranched, and rooting from the base of every leaf against a damp wall. *Leaves* alternate, distichous, eighteen inches long by three to five inches broad, linear-oblong, acute, coriaceous, midrib flat above, prominent beneath; nerves all very slender, arching from the midrib, crowded and reaching the narrowly cartilaginous margin, petiole rather shorter than the blade, terete, slightly flattened above, nearly as thick as the little finger; sheath very short. *Spathes* axillary, shortly stoutly peduncled, six to seven inches long, by two and a half to three broad, straight, reclinate, oblong, concave, apiculate, greenish-yellow externally, straw-coloured within, scarlet within the short thick convolute tube; margins above recurved. *Spadix* as long as the spathe, sessile, wholly exserted beyond the tube, strict, cylindric, under half an inch in diameter, slightly tapering upwards; male inflorescence four times as long as the female, lower half with perfect, upper with imperfect anthers. *Ovary* shortly oblong, six- to eight-celled; stigma sessile, pulvinate. *Ovules* four to five, erect from the base of each cell, anatropous.—*J. D. H.*

Fig. 1, Reduced figure of the whole plant; 2 and 3, male flowers; 4, imperfect ditto; 5, female flowers; 6, transverse, and 7, vertical section of ovary; 8, ovules:—*all but fig.* 1 *enlarged.*

6814.

M.S. del, J.N.Fitch lith.

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TAB. 6814.

STREPTOCARPUS CAULESCENS.

Native of Tropical Eastern Africa.

Nat. Ord. GESNERACEÆ.—Tribe CYRTANDREÆ.

Genus STREPTOCARPUS, *Lindl.*; (*Clarke Monogr. Cyrtandr.* p. 148.)

STREPTOCARPUS *caulescens*; molliter hirsutus, caule elongato erecto robusto folioso, foliis petiolatis elliptico-oblongis integerrimis obtusis subacutisve, pedunculis gracillimis, cymis dichotomis laxifloris glanduloso-pilosis, pedunculis pedicellisque gracilibus, bracteis minutis subulatis, calycis parvi lobis lanceolatis acuminatis, corolla tubuloso-campanulata paulo incurva, tubo subtus inflato ⅓ poll. longo, lobis oblongis, capsula gracili 2–3-pollicari, stylo brevi.

S. caulescens, *Vatke in Linnæa*, vol. xliii. p. 323; *Clarke Cyrtandr.* p. 154; *Dickson in Trans. Ed. Bot. Soc.* vol. xiv. p. 362, t. 14.

At Plate 6782 there is figured for the first time a species (and this a newly discovered one) of the caulescent group of the beautiful genus *Streptocarpus* (*S. Kirkii*), under which it is noticed that its nearest ally was the *S. caulescens*, Vatke, which had not at that date been introduced into cultivation. Indeed, so like was *S. Kirkii* to *S. caulescens*, that doubts were expressed as to the limits of varieties of each not overlapping. The figure here given of *S. caulescens* shows that it is specifically distinct, is more hirsute, with a curious tuberous gouty stem and paler flowers, and with very differently shaped lobes of the corolla.

According to Mr. Clarke, however, the species is a variable one, of which what he regards as the typical form has much larger leaves of a lanceolate form, four to five inches long, with petioles more than half that length, and having rather larger violet-blue flowers; and he refers specimens in the Herbarium which are similar to that now figured, to a var. *ovata* with shorter broader leaves and shorter petioles. Without more and more complete specimens it is impossible to say whether or no these two forms may not represent really different plants. The fact is that the countries from which these beautiful plants have been obtained present all sorts of obstacles to the traveller, and render the collection and preservation of specimens, where possible, extremely difficult. In Vatke's description

of the specimens of *S. caulescens* that were first published, and which were collected by Hildebrandt in East Africa (and which I have not seen), the leaves are said to be oval-oblong, obtuse, and contracted into the petiole, characters which do not well suit any of the Kew examples, but rather tend to unite them.

S. caulescens is probably a common plant in the moist hill regions of Eastern Tropical Africa. Its discoverer appears to have been the indefatigable Sir John Kirk, who found it in 1877 near Magila in south latitude 5° 8′, and whose specimens exactly accord with the figure here given. The latter was raised by Mr. Mitten, A.L.S., from seeds sent from the Lake region of Central Africa by Bishop Hannington, and which flowered at Kew in February of the present year. Of the larger form, with violet flowers and lanceolate leaves, there are specimens in the Kew Herbarium collected in the Shire Highlands by Mr. Buchanan, communicated by the Botanical Society of Edinburgh; and from the mountains east of Lake Nyassa, collected by the Rev. W. P. Johnson, and presented by Mr. Waller.

A very interesting fact in the life history of all the *Streptocarpi* is their mode of germination,* and which in respect of *S. caulescens* is the subject of a paper by Prof. Dickson, published in the Transactions of the Botanical Society of Edinburgh. This author describes the embryo as having two equal minute cotyledons, of which one remains stationary in germination, whilst the other is developed into a leaf quite like the future stem-leaves. But what is most curious is, that an internode is developed between the undeveloped and developed cotyledon, which latter is therefore carried up on a stem that thereafter by fusion with the ascending axis becomes the main stem of the plant, branching above, and the branches bearing opposite leaves.—*J. D. H.*

* First observed by Prof. Caspary in 1858 (Verhand. Nat. Hist. Vereins Rheinl. vol. xv., also Flora, 1859, p. 120), and independently in 1860 by Mr. Crocker, foreman of the propagating pits at Kew (Journ. Linn. Soc. Bot. vol. v. p. 65.

Fig. 1, Base of stem, of the natural size; 2, calyx and ovary; 3, base of corolla and stamens; 4, young fruit :— *all enlarged*.

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M.S. del. J.N. Fitch. lith.

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TAB. 6815.

MACROSCEPIS OBOVATA.

Native of Western Tropical America.

Nat. Ord. ASCLEPIADEÆ.—Tribe CYNANCHEÆ.

Genus MACROSCEPIS, *Humb. Bonpl. et Kth.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 751.)

MACROSCEPIS *obovata*; hirsutissima, caule volubili, foliis subpanduriformi-obovatis caudato-acuminatis basi cordatis, petiolo brevi, cymis axillaribus densifloris, floribus breviter pedicellatis brunneis, calycis segmentis ovato-lanceolatis hirsutis, corollæ tubo glabro calyce æquilongo, lobis tubo æquilongis late ovatis obtusis ciliolatis intus papillosis, coronæ squamis crassis confluentibus.

M. obovata, *Humb. Bonpl. et Kth. Nov. Gen. et Sp.* vol. iii. p. 201, t. 233; *Synops.* vol. ii. p. 281; *Dcne. in DC. Prodr.* vol. viii. p. 599.

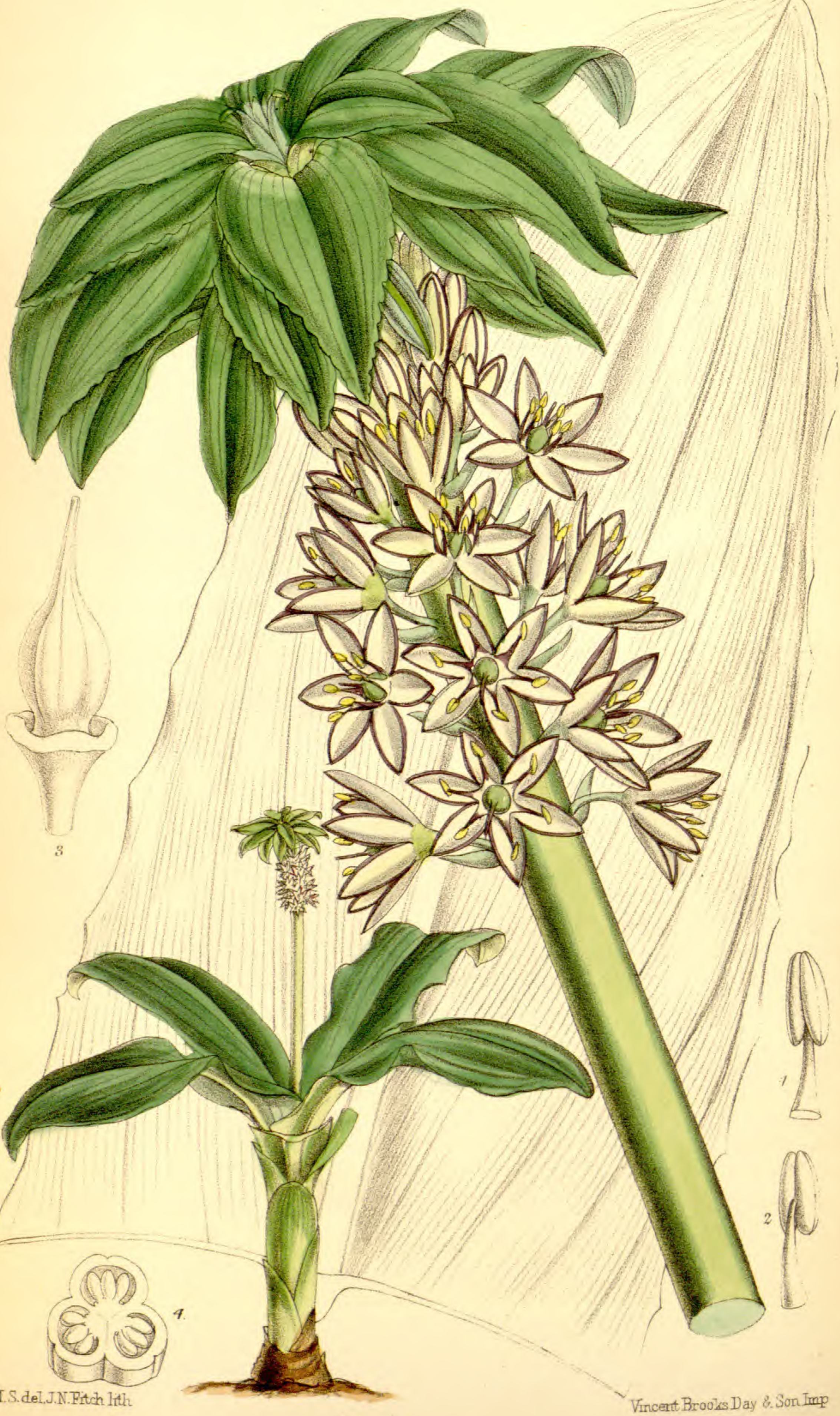
The singular plant here figured is a native of various parts of the coast of tropical South America, from Mexico to Peru. Humboldt discovered it in the Bay of Campeachy; Galleotti collected it on the sandy shores of the district of Oaxaca in Mexico, where he describes it as forming hedges; Spruce found it on the river Daule in Guayaquil, and Purdie on the plains near Molina in the province of Sta. Martha, New Grenada. For the specimen here figured I am indebted to M. Ed. André, joint-editor of the "Revue Horticole," who procured it during his late journeyings in South America, and flowered it in his stove at Lacroix in Touraine in November of last year, and kindly sent it to Kew for figuring in this work. It is a near ally of *M. tristis* (Benth. in Gen. Pl. vol. ii. p. 751), the *Schubertia tristis*, Seemann (Bot. Herald Voy. p. 168), in which the leaves are more orbicular, and the corolla is described as quite glabrous. The genus *Macroscepis* is, as Bentham observes, hardly distinguishable from *Auraujia* of Brotero, which was published in the Transactions of the Linnean Society in the same year (1818) as the volume of Humboldt's great work in which *Macroscepis* appeared. Should the two genera be united, as no doubt they will be by the

further discovery of connecting species or characters, the question of priority of generic name will arise. This will probably be settled in favour of *Auraujia*, owing to the fact that Brotero's very complete account of that genus was read before the Linnean Society in November, 1815, though not published till 1818.

Descr. A twining shrub, with milky juice, densely hirsute with long spreading hairs that are rusty brown when dry; branchlets thicker than a crow-quill. *Leaves* shortly petioled, four to six inches long, by two and a half to three inches broad, obovate and contracted above the cordate base, so as to be somewhat fiddle-shaped, acuminate with a long point; hirsute on both surfaces, but especially on the nerves beneath; costa and nerves stout; petiole a quarter to one-third of an inch, very stout. *Flower* in dense shortly peduncled or subsessile axillary cymes; pedicels short, and calyx laxly hirsute. *Sepals* one-third of an inch long, ovate-lanceolate, acuminate, erect, as long as the corolla-tube. *Corolla* salver-shaped, with rather broad tube; limb an inch in diameter, glabrous except the ciliate margins of the broadly ovate subacute lobes, which are of a yellow-brown colour within, and have a minutely papillose surface. *Column* capitate, filling the mouth of the corolla; scales thick, confluent. *Pollinia* minute, wedge-shaped, much compressed.—*J. D. H.*

Fig. 1, Flower; 2, vertical section of base of corolla, showing the glands and column; 3, column; 4 and 5, pollinia:—*all enlarged.*

6816.



M.S. del. J.N. Fitch lith.

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TAB. 6816.

EUCOMIS BICOLOR.

Native of Natal.

Nat. Ord. LILIACEÆ.—Tribe SCILLEÆ.

Genus EUCOMIS, *L'Herit;* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 813.)

EUCOMIS *bicolor;* bulbo globoso tunicis membranaceis brunneis, foliis productis 5–6 oblongis pedalibus immaculatis membranaceis margine undulatis, pedunculo cylindrico immaculato foliis breviori, racemo denso oblongo, pedicellis flore subæquilongis, bracteis parvis lanceolatis, comæ foliis 30–40 ovatis margine crispatis interdum purpureo tinctis, perianthii segmentis oblongis pallide viridibus margine purpureis, staminibus alte perigynis perianthio distincte brevioribus filamentis lanceolato-deltoideis purpureis antheris oblongis minutis, ovario ovoideo, stylo ovario æquilongo.

E. bicolor, *Baker in Gard. Chron. N. S.* vol. x. (1878), p. 492.

The alliance of this new *Eucomis* is close botanically with the well-known *E. undulata*, but for horticultural purposes it is a decided acquisition, because, whilst in all the species already introduced the flowers are a uniform green, here the segments of the perianth and the stamens are a bright purple. It was discovered by Mr. Christopher Mudd, the son of the late curator of the Cambridge Botanical Gardens, in Natal, and sent home by him to Messrs. Veitch, with whom it flowered for the first time in the autumn of 1878. Our drawing was made from a plant which was presented to Kew by our indefatigable correspondent, J. Medley Wood, Esq., of Inanda, Natal, which remained in flower for a long time during the winter of 1883-4 at the cool end of the new range of houses which is devoted mainly to Cape heaths and Cape bulbs.

DESCR. *Bulb* globose, about a couple of inches in diameter, with brown membranous tunics and copious fleshy root-fibres. Produced *leaves* five or six, contemporary with the flowers, oblong, sessile, suberect, about a foot long, three or four inches broad at the middle, crisped towards the margin, unspotted. *Peduncle* cylindrical, terete, un-

spotted, a little shorter than the leaves. *Raceme* dense, oblong, three or four inches long, two inches in diameter; pedicels about as long as the flowers; bracts small, lanceolate, scariose; empty bracts of the tip of the peduncle thirty or forty, ovate, acute, crisped at the edge, and sometimes, but not always, tinted purple. *Perianth* half an inch long; segments oblong, united at the base, pale green, with a distinct bright purple margin. *Stamens* much shorter than the perianth-segments; filaments lanceolate-deltoid, purplish; anthers small, oblong. *Ovary* ovoid, narrowed to a neck at the base; style filiform, as long as the ovary; stigma capitate.—*J. G. Baker.*

Fig. 1, Front view of an anther; 2, back view of an anther; 3, pistil and tip of pedicel; 4, horizontal section of ovary:—*all more or less enlarged.*

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M.S. del. J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

TAB. 6817.

DENDROBIUM PHALÆNOPSIS.

Native of Northern Australia and New Guinea.

Nat. Ord. ORCHIDEÆ.—Tribe EPIDENDREÆ.

Genus DENDROBIUM, *Sw.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 498.)

DENDROBIUM *Phalænopsis;* caulibus elongatis fasciculatis subcylindraceis sulcatis vaginis appressis pallidis tectis, foliis distichis sessilibus lanceolatis acuminatis luride viridibus, racemis axillaribus pendulis laxe 6–10-floris, sepalis ovato-lanceolatis acuminatis pallidis nervis reticulatis, petalis sepalis multo majoribus patentibus rhombeo-rotundatis acutis basi contractis roseis venosis, labelli sanguineo-purpurei lobis lateralibus rotundatis incurvis intermedio lingueformi oblongo apiculato basin versus 5–7-carinato carinis rugulosis, calcare recto obtuso basi inferne in sacculum subhemisphericum dilatato, columna brevi ima basi 2-callosa.

D. Phalænopsis, *Fitzgerald in Gard. Chron. N. S.* vol. xiv. (July, 1883), p. 38, and *Austral Orchids*, vol. i. *cum Ic. pict.*

Mr. Fitzgerald, who regards this as the finest of Australian Orchids, has given a good figure of it in his great work on the Australian plants of this family, which is a solitary example of an illustrated botanical publication of a high order of merit emanating from a British colony. This author rightly regards it as closely allied to *D. bigibbum*, Lindl., *superbiens*, Reichb., and *Goldiei*, all natives of the same botanical region. Of these, *D. bigibbum* is figured at Plate 4898 of this work; it is evidently a near relation, but quite distinct in its much smaller size, fewer much broader more uniformly deep rose-coloured flowers, shorter crested lip, simple saccate spur and longer column. Of *D. superbiens* there are figures in the "Gardners' Chronicle," N. S., vol. ix. p. 40, fig. 9, and in the "Floral Magazine," which represents a plant very like *D. Phalænopsis*, but with a longer raceme of more numerous flowers. *D. Goldiei* again is figured in "The Garden" for 1878; it has dark rose-red flowers, like those of *D. bigibbum*, and racemes like those of *D. superbiens*. There is still another species of the same group and country, *D. Sumneri*, F. Muell., with which

MAY 1ST, 1885.

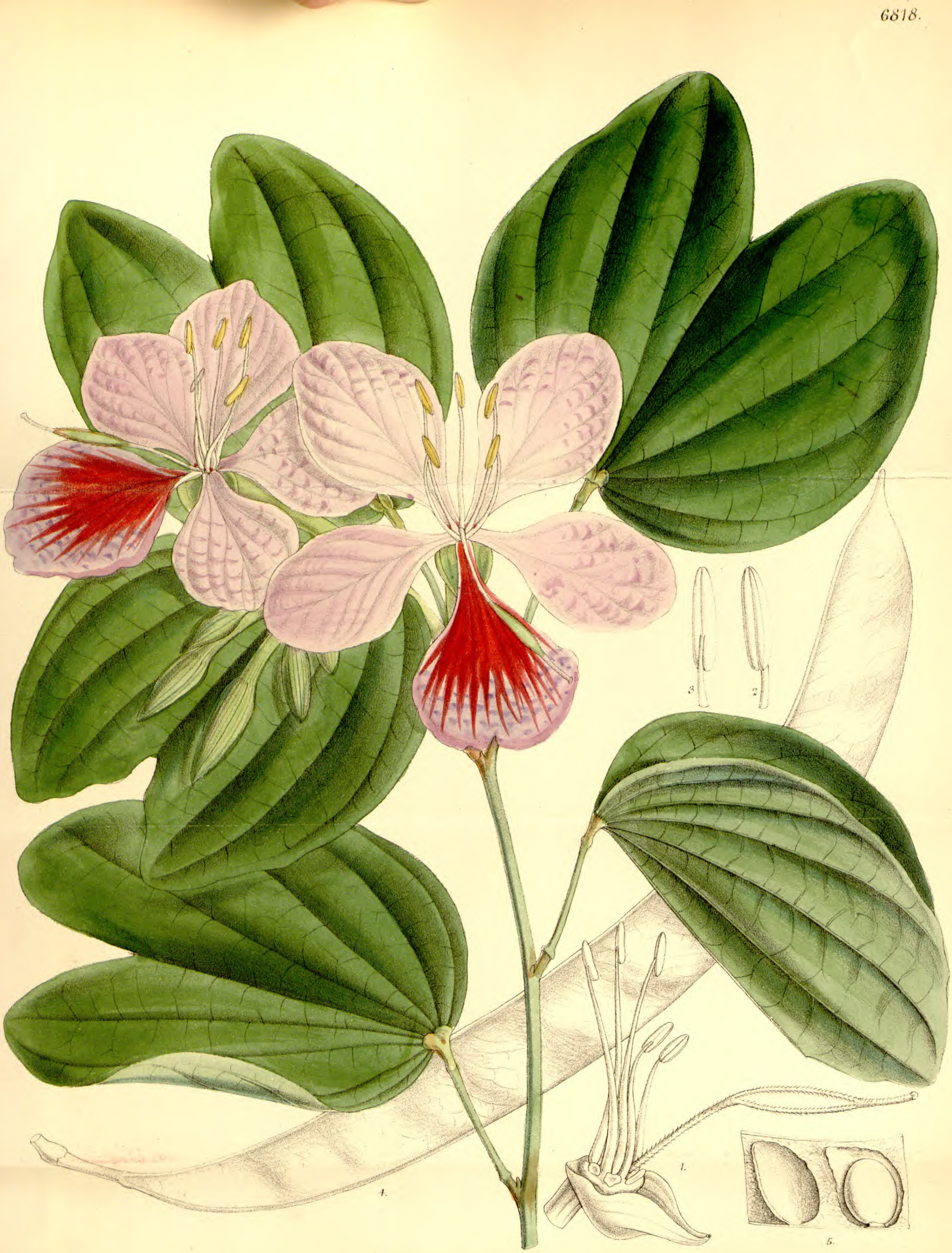
D. Phalænopsis should be compared, but I have no means of doing this satisfactorily, for it has never been figured.

According to Mr. Fitzgerald, *D. Phalænopsis* was introduced into cultivation by Captain Broomfield, of Balmain in Queensland, who procured it in Northern Australia and New Guinea. The specimen figured by that author was, however, obtained near Cook Town in Queensland, which is in the Cape York Peninsula, and latitude 15° S., and where it flowers in April. In Kew it flowered it September.

The specimen here figured is one of the few botanical prizes secured to England by Mr. Forbes during his adventurous expedition to Timor-laut (see Journ. Geograph. Soc. vol. vi. p. 113). It is probably the handsome species alluded to in the Report of the Botany of his expedition at p. 371 of the Journal of the Linnean Society, vol. xxi., as found on trees in Lavat. This gives the species a wide range in distribution, and I can detect no difference between the Australian and Timor-laut plants, except in that Mr. Fitzgerald implies that the flowers are erect in his plant, whereas they are decidedly pendulous in ours, as in *D. Goldiei*.

Descr. *Stems* tufted, a foot to a foot and a half high, and nearly as thick as the little finger, rather compressed, furrowed, clothed with appressed pale sheaths. *Leaves* alternate, distichous, six to eight inches long, sessile, lanceolate, acuminate, dark green. *Racemes* pendulous, loosely six- to ten-flowered; peduncle and pedicels slender. *Flowers* two inches in diameter, perianth spreading, but not reflexed. *Sepals* ovate-lanceolate, acuminate, very pale pink, nerves reticulate. *Petals* much larger, rhomboid-orbicular, acute, rose-red, contracted at the base. *Lip* narrow, dark purplish blood-red; lateral lobes rounded, incurved and meeting above, forming a cavernous hood, midlobe tongue-shaped, acute, with five to seven obscure rough ridges extending half-way from the lateral lobes to the tip; spur laterally compressed, straight, short obtuse, produced below into a hemispheric sac. *Column* very short, with two white calli at its base.—*J. D. H.*

Fig. 1, *Reduced figure* of the whole plant; 2, column; 3, lip; 4, anther; 5, pollen:—*all but fig.* 1 *enlarged.*



M.S. del, J.N.Fitch lith.

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TAB. 6818.

BAUHINIA VARIEGATA.

Native of the East Indies.

Nat. Ord. LEGUMINOSÆ.—Tribe BAUHINIEÆ.

Genus BAUHINIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 575.)

BAUHINIA (Pauletia) *variegata;* arborea, erecta, ramulis novellis calycibusque griseo-puberulis, foliis 9–11-nerviis glabris profunde bifidis lobis obtusis, racemis brevibus, floribus 4-poll. latis breviter pedicellatis, calycis spathacei tubo cylindraceo spathæ lanceolatæ æquilongo, petalis patentibus unguiculatis elliptico-obovatis roseis purpureo-variegatis rarius albis, antico lineis sanguineis flabellatim notato, staminibus 3–5, ovario gracili piloso stipite styloque gracilibus elongatis, legumine 1–2-pedali ensiformi curvo intus septato.

B. variegata, *Linn. Sp. Pl.* p. 535; *DC. Prodr.* vol. ii. p. 514; *Hamilt. in Trans. Linn. Soc.* vol. xiii. p. 496; *Roxb. Fl. Ind.* vol. ii. p. 319; *Wall. Cat.* No. 5795; *Beddome Flor. Sylv.* p. 92; *Brandis For. Flor.* p. 160; *Kurz For. Flor.* vol. i. p. 397; *Baker in Hook. f. Fl. Brit. Ind.* vol. ii. p. 284.

B. candida, *Roxb. l. c.* p. 318.

PHANERA variegata, *Benth. Pl. Jungh.* p. 262.

CHOVANNA-MANDARU, *Rheede Hort. Mal.* vol. i. p. 57, t. 32.

I have often wondered how it was that two of the most conspicuous common and beautiful small trees of India, *Bauhinia variegata* and *purpurea*, should never now be seen in the larger tropical plant-houses of England; it cannot be that they have not been repeatedly introduced, for according to the Hortus Kewensis the first of them was grown in England nearly 200 years ago (in 1690) by the Earl of Portland; and the white variety (*B. candida*, Roxb.) upwards of a century ago (in 1777) by Dr. Patrick Russell; whilst *B. purpurea* was raised in the following year. Neither of them is figured in any work illustrating cultivated plants, British or Continental, though *B. variegata* appears to have flowered at Kew many years ago, for in the work quoted June and July are given as the flowering months. The reason for these plants being so little grown in our hot-houses is, no doubt, that they must attain some size before they flower, and that they require a dry season to ripen their wood, the giving of which,

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without killing the plant by drought, is the standing crux of all establishments. *B. variegata* is an exceedingly common plant throughout India, but more often seen planted than indigenous; it forms a small tree, six to twenty feet high, and when covered with blossoms, which appear in March, it resembles a gigantic Pelargonium, and is indeed a glorious object. The bark is astringent and employed for dyeing and tanning, the leaves and flower-buds are used as a vegetable, and the latter are often pickled. The flowers vary greatly in colour, from white variegated with yellowish green, to rose variegated with crimson, cream-colour and purple. The specimen here figured flowered in the Royal Gardens in March of last year.

Descr. A small tree; branchlets slender, glabrous, except the tips, which with the peduncles and buds are grey with a fine pubescence. *Leaves* three to four inches long and broad, orbicular, bifid, nine- to eleven-nerved, lobes rounded, sinus acute with a mucro; petiole one to two inches long, slender. *Flowers* in short racemes, four inches in diameter, calyx spathaceous, tube as long as the limb. *Petals* clawed, obovate-oblong, obtuse, delicately veined, rose-coloured, the lower more cuneate, streaked with crimson. *Stamens* five, three longer than the others, erect. *Ovary* slender, hairy, stipes and style slender. *Pod* one to two feet long, by three-quarters to one and a quarter broad, flat, curved, stipitate, acute or acuminate, septate within. *Seeds* broadly oblong, much compressed.—*J. D. H.*

Fig. 1, Calyx, stamens and pistil; 2 and 3, anthers; 4, pods; 5, portion of valve of ditto and seed:—*all but figs.* 4 *and* 5 *enlarged.*

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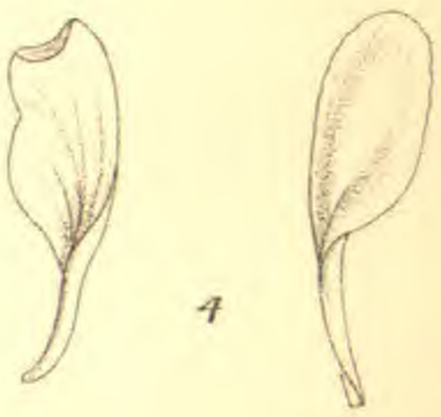

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A.B. del. J.N. Fitch lith.

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TAB. 6819.

CYTISUS HIRSUTUS.

Native of South Europe and Asia Minor.

Nat. Ord. LEGUMINOSÆ.—Tribe GENISTEÆ.

Genus CYTISUS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 484.)

CYTISUS (Tubocytisus) *hirsutus*; fruticosus, patentim molliter hirsutus, ramis foliosis erectis v. adscendentibus, foliis longe gracile petiolatis, foliolis elliptico-oblongis obovatis v. ovatis obtusis, floribus 2–4-nis omnibus lateralibus breviter pedicellatis, calycis hirsuti tubo subcylindraceo breviter bilabiato, labio superiore 2-dentato, inferiore breviore, vexillo orbiculari, legumine planiusculo hirsuto recto v. subfalcato.

C. hirsutus, *Linn. Sp. Pl.* p. 1042; *DC. Prodr.* vol. ii. p. 156; *Jacq. Obs.* vol. iv. t. 96; *Koch Synops. Fl. Germ.* 171; *Boiss. Fl. Orient.* vol. ii. p. 50; *Moggridge Flor. Ment.* t. 28.

C. falcatus, *Waldst. et Kit. Pl. Hung.* t. 238.

C. triflorus, *Lam. Dict.* vol. ii. p. 250, *non L'Herit.*

C. Tournefortianus, *Lois. in Duham. Arbr. Ed. Nov.* vol. v. p. 137.

Now that attention is being directed to the introduction of hardy flowering kinds into our hitherto too monotonous backgrounds and borders of shrubs, it is to be expected that the *Cytisi* will take a prominent place, and for this purpose none is better worth culture than the subject of the present plate, which is hardly known except in the gardens of the curious. It is a native of a wide extent of country in South Europe, from southern Switzerland and Italy to Greece, Bosnia and Bithynia. Anatolia is its eastern limit, whilst its western is the Alps of Dauphiné. Mr. Moggridge, in his "Flora of Mentone," says that it is one of the rarest leguminous plants of that district, occurring only on sandstone rocks in the Turin Valley. It must not be confounded with the *C. hirsutus* of the "Flora Græca," which is *C. spinescens*, Sieber. According to "Hortus Kewensis," it was cultivated by Mr. Philip Miller at Chelsea in 1739. For the specimen here figured I am indebted to my indefatigable friend and contributor in this work, George Maw, Esq., F.L.S., who flowered it at Benthal Hall (Shropshire) in June, 1879, and sent me specimens for illustration.

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Descr. A low spineless bush, more or less hirsute with soft spreading hairs; branches leafy, erect or ascending. *Leaves* long-petioled, three-foliolate, leaflets three-quarters to one inch long, elliptic-oblong or ovate, rarely obovate, obtuse; petiole one inch long. *Flowers* clustered on the sides of the branches, two, three and four together, very shortly pedicelled, one to one and a half inches long, yellow. *Calyx* one-third to half an inch long, tubular and slightly inflated, hirsute, shortly two-lipped; upper lip two-fid, lower much shorter. *Standard* orbicular with a long claw, pale yellow externally, golden yellow in front and streaked with orange yellow, margins recurved. *Wings* small, not half the length of the standard, oblong, obtuse; keel smaller still. *Stamens* united in a tube as long as the calyx-tube; free portions of the filaments very short; anthers minute. *Ovary* hairy; style slender, glabrous, stigma capitellate; ovules very numerous. *Pod* one to one and a half inches long by one-third of an inch wide, curved, flat, acute or acuminate, laxly clothed with very long hairs along the ventral suture. *Seeds* very small.—*J. D. H.*

Fig. 1, Longitudinal section of calyx, staminal tube and ovary; 2, calyx; 3, standard; 4, wings; 5, keel; 6, stamens; 7, pistil; 8, stigma:—*all enlarged.*

M.S. del, J.N. Fitch lith.

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TAB. 6820.

ODONTOGLOSSUM ŒRSTEDII.

Native of Costa Rica.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus ODONTOGLOSSUM, *Humb. Bonpl. et Kth.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 561.)

ODONTOGLOSSUM (Isanthium) *Œrstedii*; humile, pseudobulbis ovoideis teretiusculis lævibus, folio lineari-oblongo v. elliptico-lanceolato in petiolum angustato, racemo suberecto paucifloro, floribus albis labello basi aureo, sepalis late oblongis apiculatis, petalis consimilibus sed paullo minoribus et in unguem brevem angustatis, labello sessili 3-lobo, lobis lateralibus parvis brevissimis auriculæformibus recurvis, terminali explanato orbiculari bifido, callo basi quadrato elevato disco depresso margine postico ciliato, columna aptera.

O. ŒRSTEDII, *Reichb. fil. in Bonplandia*, vol. iii. p. 214, and in *Walp. Ann.* vol. vi. p. 845; *Xenia Orchidacea*, vol. i. p. 189, t. 68; *Beitrag. Orchideen Central-Ameriks.* pp. 15, 47, and 71, and in *Gard. Chron.* vol. vii. (1877), pp. 302 and 811, fig. 128.

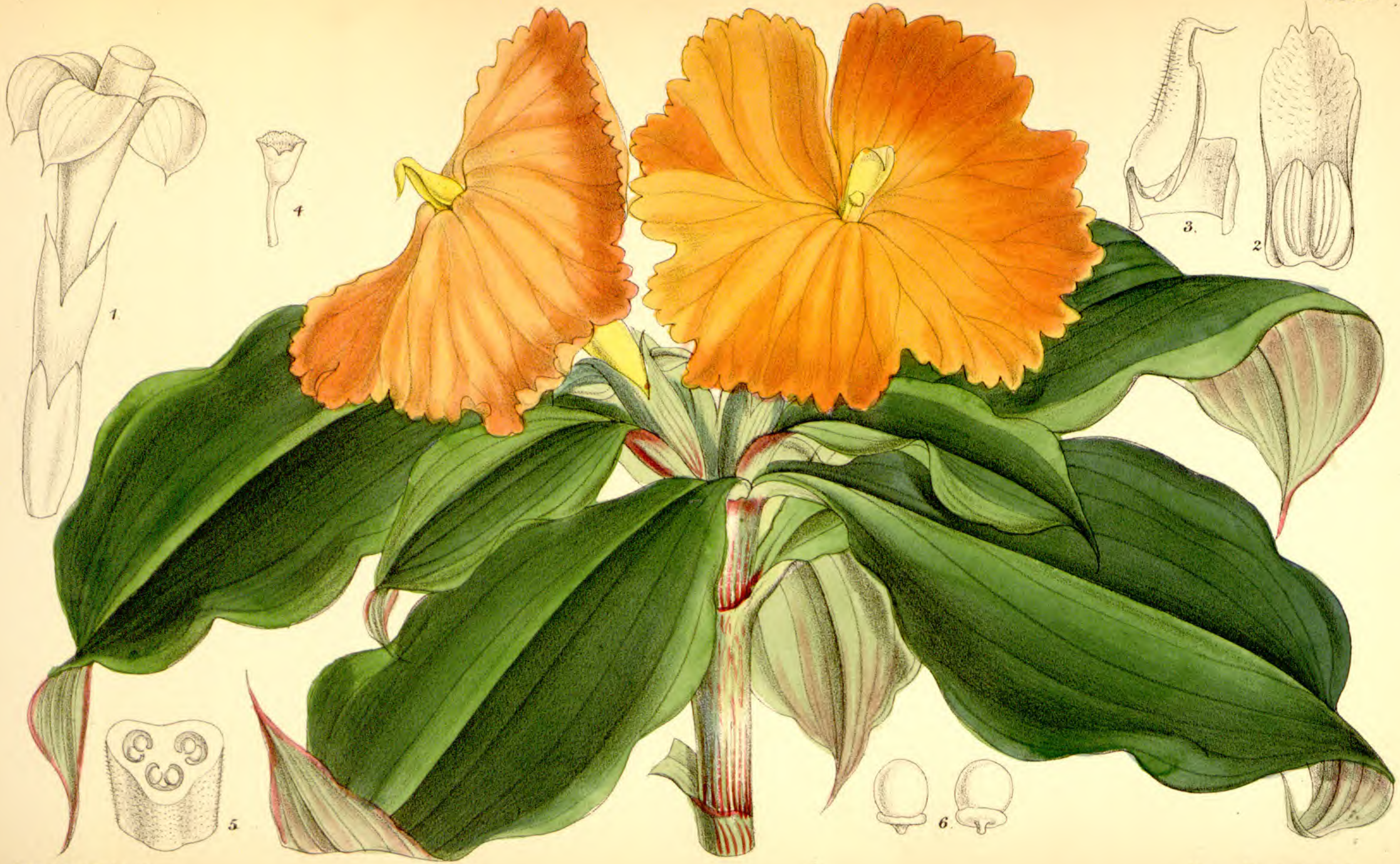
According to Dr. Reichenbach this very distinct little Odontoglot was discovered by Warscewicz in 1848, who made a rough sketch of it; but it was not well known till the learned orchidologist alluded to described it in Bonplandia from dried specimens procured by Drs. Œrsted, Wendland and Endres, in Costa Rica, on Mount Irasu, near the town of San Juan, at an elevation of 9000 feet above the sea. It having been described first from dried specimens, the pseudobulbs were supposed to be two-edged, and the peduncle one-flowered, neither of which is the case, as shown in the excellent woodcut in the "Gardener's Chronicle," and in our plate. The purple spots noted as occurring in the original specimens are replaced in ours by orange ones on the yellow base of the lip, and the three yellow lines by a square yellow disk with faint orange lines upon it. These are all matters as to which great variability is to be looked for.

Odontoglossum Œrstedii was, I believe, first flowered in Europe by Messrs. Veitch in 1877. It blossoms in the Royal Garden from February to May, the flowers lasting a

long while; the figure here given is from fine specimens obligingly sent by Mr. Shuttleworth, of Park Road, Clapham.

DESCR. *Pseudobulbs* tufted, one to one and a half inches long, ovoid, quite smooth and terete, dark green. *Leaf* solitary, four to five inches long, by one to one and a half broad, elliptic-lanceolate or linear-oblong, acute, coriaceous, dark green, narrowed into a petiole one-half to one inch long. *Peduncle* suberect, stout, longer than the leaves, flexuous, one- to four-flowered; bracts oblong, obtuse, scarious; pedicels with the ovary one and a half to two inches long, white. *Flowers* one and a half inches in diameter, pure white except the yellow base of the lip. *Sepals* oblong with rounded apiculate tips. *Petals* very similar, but suddenly contracted at the base to a short claw. *Lip* with two lateral very small lobes and a large middle one; lateral lobes short, recurved; midlobe nearly orbicular, cleft at the tip for about one-third way up, the sinus narrow; disk between the lateral lobes with a raised quadrangular golden callus marked with orange spots, centre of disk depressed, posterior margin ciliate; there is also a broad square patch of yellow with faint orange lines at the base of the midlobe. *Column* wingless, white. —*J. D. H.*

Fig. 1, Column and base of lip; 2, anther-case; 3, pollen-masses:—*all enlarged.*



M.S. del. J.N.Fitch lith.

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TAB. 6821.

COSTUS IGNEUS.

Native of Brazil.

Nat. Ord. SCITAMINEÆ.—Tribe ZINGIBEREÆ.

Genus COSTUS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 646.)

COSTUS *igneus*; glaberrimus, caule erecto folioso, foliis breviter petiolatis ellipticis v. elliptico-lanceolatis caudato-acuminatissimis undulatis supremis subrosulatis, vaginarum ore ciliolato, calyce elongato 3-fido, corollæ tubo infundibulari calyce duplo longiore lobis late ovatis oblongis v. oblanceolatis obtusis v. acuminatis recurvis, labello amplo orbiculari 2–2½ poll. diametro late aurantiaco irregulariter crenato, connectivo oblongo concavo aureo dorso pubescente basi cordato apice rostrato rostro inflexo.

C. igneus, *N. E. Brown in L'Illustr. Hortic.* vol. xxxi. p. 25, t. 511.

This brilliant plant is stated in the work above quoted to be a native of Bahia, whence it was imported by Mr. Linden, and it is there figured under the name given it by Mr. N. E. Brown, Assistant in the Kew Herbarium, to whom it was sent for the purpose of being identified and named. There are good specimens of it in the Kew Herbarium, collected by M. Glaziou, Director of Public Parks and Gardens at Rio de Janeiro, but with no particular locality, nor is it stated whether they are indigenous or cultivated.

The genus *Costus* is a very considerable one, and unlike most of the order to which it belongs, it occurs in the tropics of all the continents. The species vary much in the form of the perianth, and may be divided into very distinct sections, of which those with the lip expanded in a circular form are the most attractive. To this section belongs the *C. speciosus*, Roscoe, of India, a white-flowered species of great beauty, and very common in Bengal.

The Royal Gardens are indebted to Mr. Linden for the plant from which the plate was executed, and which flowered in a stove in September of last year.

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DESCR. *Stem* twelve to eighteen inches high, erect, stout, clothed with pale leaf sheaths. *Leaves* four to six inches long, elliptic-lanceolate, produced at the apex into a very slender acuminate point, and at the base into a short broad concave petiole, dark green above, paler and tinged with red beneath; sheath one and a half to two inches long, mouth red and ciliolate. *Flowers* clustered, two and a half to three inches in diameter. *Calyx* one inch long, tubular, unequally trifid. *Corolla* narrowly funnel-shaped, twice as long as the calyx, lobes very variable, oblanceolate or oblong, ovate, obtuse or acute. *Lip* circular, bright orange-red, undulated and expanded horizontally, irregularly crenate. *Anther* sessile; connective hooded, oblong, golden yellow, hairy at the back, tip suddenly contracted into an inflexed beak, base cordate; anther-cells broad. *Stigma* small, urceolately funnel-shaped.—*J. D. H.*

Fig. 1, Bracts, calyx and base of corolla-tube; 2, front, and 3, side view of anther; 4, stigma; 5, transverse section of ovary; 6, ovules:—*all enlarged.*

M. S. del. J. N. Fitch lith.

Vincent Brooks, Day & Son Imp

TAB. 6822.

HYACINTHUS AZUREUS.

Native of Asia Minor.

Nat. Ord. LILIACEÆ.—Tribe SCILLEÆ.

Genus HYACINTHUS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 812.)

HYACINTHUS (Hyacinthella) *azureus*; bulbo globoso copiose stolonifero, foliis 6–8 erectis loratis facie glaucis profunde canaliculatis, pedunculo tereti foliis paulo breviori, racemis densis conicis floribus inferioribus splendide cœruleis breviter pedicellatis perianthio oblongo segmentis late ovatis porrectis tubo subtriplo brevioribus, floribus superioribus subsessilibus pallide cœruleis perianthio breviori campanulato, supremis paucis rudimentariis genitalibus abortivis, staminibus prope tubi medium insertis uniseriatis, filamentis antheris subæquilongis, ovario ovoideo, stylo brevi, stigmate capitato.

H. azureus, *Baker in Journ. Linn. Soc.* vol. xi. p. 427.

Muscari azureum, *Fenzl in Delect. Sem. Hort. Vindob.* 1858; *Tchihat. Asia Minor Bot.* vol. ii. p. 539.

Bellevallia azurea, *Boiss. Fl. Orient.* vol. v. p. 307.

Amphobolis cœlestis, *Schott et Kotschy in Kotschy Taur.* p. 279, teste Boissier.

Muscari lingulatum, *Baker in Trimen. Journ.* 1874, p. 6.

The present plant is a welcome accession to our stock of hardy bulbs that flower in early spring. Although it has entirely the habit of our ordinary grape hyacinths, the segments of the perianth are not at all incurved, so that although it forms a complete link of connection between the two genera *Hyacinthus* and *Muscari*, its proper place is in the former. Our wild specimens in the Kew Herbarium were gathered on the Caramanian Taurus by Mr. Elwes, and on the Cilician Taurus by Mrs. Danford. It was first brought by Kotschy from Cilicia to the Vienna Gardens about 1856. For our Kew bulbs from which were grown the plants that furnished the material for the present figure, we are indebted to Herr Leichtlen. With us it flowers in the open ground at the latter end of February.

DESCR. *Bulb* depresso-globose, white, about an inch in diameter, copiously stoloniferous from the base. *Leaves* six or eight to a bulb, lorate, erect, glaucous, deeply chan-

nelled down the face, four to six inches long at the time of flowering. *Scape* terete, rather shorter than the leaves. *Raceme* dense, conical, with a thickened rugose axis coloured blue like the flowers; lower flowers deep blue, deflexed, with a short pedicel and an oblong perianth one-sixth of an inch long, with ovate segments about one-third as long as the tube; flowers of the upper half of the raceme nearly sessile, with a sky-blue campanulate perianth with segments nearly or quite as long as the tube; uppermost flowers minute and rudimentary. *Stamens* in the lower flowers inserted in a single row about the middle of the perianth-tube; filaments as long as the anthers. *Pistil* half as long as the perianth-tube; ovary ovoid; style short, cylindrical; stigma capitate.—*J. G. Baker.*

Fig. 1, One of the lower flowers of the raceme; 2, one of the upper flowers; 3, vertical section of one of the lower flowers; 4, an anther, seen from the front; 5, back view of an anther; 6, horizontal section of the ovary:—*all more or less enlarged.*

M.S del, J.N.Fitch lith.

Vincent Brooks Day & Son Imp

TAB. 6823.

CHRYSOPHYLLUM IMPERIALE.

Native of Brazil.

Nat. Ord. SAPOTACEÆ.

Genus CHRYSOPHYLLUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 653.)

CHRYSOPHYLLUM *imperiale;* ramulis arbustis, foliis magnis petiolatis obovato-oblongis v. oblongo-oblanceolatis acutis obtusisve grosse serratis subtus sparse stellato-tomentellis demum glabris, petiolo valido teretiusculo, floribus secus ramos fasciculatis pedicellatis subsericeo-pubescentibus flavo-virescentibus, sepalis ovato-rotundatis obtusis, corolla subrotata 5-loba crassa glaberrima, lobis late ovato-rotundatis obtusis concavis, antheris cordato-ovatis extus dehiscentibus, ovario late ovoideo piloso in stylum brevissimum crassum angustato, stigmate simplici, fructu subgloboso v. oblique ovoideo apice mammillari, seminibus compressis margine dorsali acuto, ventrali latiore hilo angusto lineari notato.

CHRYSOPHYLLUM imperiale, *Benth. in Gen. Plant.* vol. ii. p. 653.

THROPHRASTA? imperialis, *Hort.; André in L'Illustrat. Horticole,* vol. xxi. 1874, p. 77 and 152, t. 184; *Regel, Gartenfl.* 1864, p. 323, t. 453.

CURATELLA speciosa, *Dcne. mss.*

This noble plant was an inmate of both British and Continental botanical gardens for thirty years before its genus was determined, during which period the attention of both botanists and horticulturists was directed to ascertaining its native country and affinities. According to a careful history of it drawn up by M. André (L'Illust. Hortic. l. c.), the first living specimen known in Europe belonged to Madame Legrelle-d'Hanis, at Berchem, where M. Linden saw it in 1846 with the name *Throphrasta imperialis*. In 1849 M. Libon sent living plants to M. de Jonghe at Brussels, and later on M. Linden received several hundred specimens from his collector, M. Marius Porte; after which the plant became common in Europe. M. Linden's importation was of seedlings, and amongst these were ungerminated seeds which enabled that gentleman to refer the plant to the *Sapotaceæ*. For a knowledge of its native country we are indebted to M. Houillet, of the Jardin de Plantes, to which establishment M. Porte sent plants, with

the information that they were from the province of Rio de Janeiro. Lastly herbarium specimens in flower and fruit were sent to Kew by that most energetic botanist M. Glaziou, Director of Public Parks at Rio, which enabled Mr. Bentham, when studying the order *Sapotaceæ* for the Genera Plantarum, to refer the foundling to the essentially American genus *Chrysophyllum*. M. Glaziou gives as the precise habitat the Serro da Estrello; M. André gives the Mountain of Tijuca in the chain of the Corcovado, which is, I believe, part of the Serro da Estrello.

It is singular that it should have been so long before this plant flowered in Europe; this has occurred only once as fas as I am aware, and that is in the Botanical Gardens of Queen's College, Cork, where Professor Marcus Hartog, D.Sc., F.L.S., most obligingly sent me a flowering specimen in the month of April of last year. This consisted of a branch as thick as the middle finger, bearing copious clusters of flowers, and leaves a foot and a half long, and was taken from a specimen twenty feet high. At Kew the leaves attain three feet in length and ten inches in breadth. The fruit is of about the size of a small apple, obtusely five-angled, with a hard thick flesh and five cells (or fewer by arrest); the base is intruded, the apex mammillary, and the peduncle very stout and woody. The seeds are an inch long and three-quarters of an inch wide, compressed with turgid faces, an acute semicircular margin, and a nearly straight ventral one, the latter bearing the narrow hilum; the testa is thick, bony, chestnut-brown, and highly polished; albumen copious, cotyledons thin.—*J. D. H.*

Fig. 1, Reduced figure of flowering branch; 2, æstivation of calyx and corolla; 3, flower; 4, portion of corolla and stamen; 5, anther; 6, pistil:—*all enlarged.*

M.S. del, J.N. Fitch, lith.

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TAB. 6824.

EXACUM AFFINE.

Native of the Island of Socotra.

Nat. Ord. GENTIANEÆ.—Tribe EXACEÆ.

Genus EXACUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 803.)

EXACUM *affine;* annuum, erectum, ramosissimum, multiflorum, caule terete ramis tetragonis, foliis petiolatis ovatis ellipticisve obtusis v. subacutis 3–5-nerviis, floribus pedicellatis parvis nutantibus 5-meris cœruleis, calycis lobis acuminatis late crasse alatis, corollæ lobis elliptico-orbiculatis obtusis, filamentis brevibus, antheris lineari-oblongis ad apicem dehiscentibus.

E. affine, *Balf. fil. Diagn. Plant. Nov. Socotr.* pars iii. p. 6; *Regel, Gartenflora*, 1883, p. 34, t. 1108; *Wittmark in Gartenzeit.* 1884, p. 111, fig. 28, 29; *Masters in Gard. Chron.* 1884, vol. i. p. 604, fig. 116.

The rocky and to the superficial observer barren Island of Socotra in the Arabian Sea has yielded several plants of remarkable beauty, notably the *Begonia socotrana* (Plate 6555); and when the complete botanical account of the Island is published by its first explorer, Dr. Balfour, no doubt other interesting novelties worthy of introduction into our stoves will be made known. Shortly after Dr. Balfour's exploration Socotra was visited by the eminent African traveller and botanist Dr. Schweinfurth, who also made large botanical collections, which he has generously entrusted to Dr. Balfour to be incorporated with his own for publication, and their joint results are being published in the Transactions of the Royal Society of Edinburgh. Both these investigators found *Exacum affine* growing abundantly on the banks of water-courses. The specimen here figured is one of many raised from seeds sent to Kew by Messrs. Haage and Schmidt, of Erfurt, which have continued flowering since the middle of April. The introducer of the species is Dr. Schweinfurth.

As a species *Exacum affine* is allied to several Indian ones, notably to *E. petiolare*, Griseb., of Western India, which is an indication of the relationship of the Socotran Flora with the Peninsular Indian, as the *Begonia* is of its

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African affinity. On the other hand, it is perhaps as near the Madagascar *E. quinquenervium*, Griseb., thus showing an equivalent relation with that great East African Island. As, however, Peninsular India is the head-quarters of the genus *Exacum*, and two species have been detected in Socotra, whilst none occur in Arabia or the adjacent coast of Africa, and very few indeed in other parts of that continent, the Indian affinity of the Socotran Flora in this respect must be regarded as fairly established.

Descr. A glabrous annual, one to two feet high, branching copiously from the base, leafy; stem stout, terete below, above and the branches obtusely four-angled. *Leaves* one to one and a half inch long, ovate or elliptic-ovate, obtuse or subacute, three-nerved or five-nerved, the two lateral nerves being very faint, rather coriaceous, base narrowed into a petiole a quarter to half an inch long. *Flowers* very numerous, in the forks of the upper branches, or three together at the ends of the branches, inclined or nodding. *Sepals* ovate-lanceolate, with a broad dorsal wing semicircular in vertical outline, tips acuminate. *Corolla* one-half to three-quarters of an inch in diameter, pale bright blue, lobes broadly elliptic, almost rounded, subacute. *Filaments* short; anthers linear-oblong, dehiscing from the tip about half-way down. *Ovary* subglobose; style long, decurved, stigma capitate. *Seeds* extremely minute, rounded and angular, testa chestnut-brown.—*J. D. H.*

Fig. 1, Calyx and corolla (unfolded); 2, portion of corolla with stamens; 3 and 4, anthers; 5, pistil:—*all enlarged.*

M. S. del, J. N. Fitch, lith.

Vincent Brooks Day & Son Imp.

TAB. 6825.

NARCISSUS PACHYBOLBUS.

Native of Algeria

Nat. Ord. AMARYLLIDEÆ.—Tribe AMARYLLEÆ.

Genus NARCISSUS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 718.)

NARCISSUS (Hermione) *pachybolbus;* bulbo maximo tunicis pluribus brunneis membranaceis, foliis 4 linearibus erectis obtusis glaucescentibus subpedalibus facie profunde canaliculatis, pedunculo ancipiti foliis paulo breviore, umbellis 8–10-floris, spathâ ovata pedicellis æquilonga, floribus albis suaveolentibus, perianthii tubo ultra semipollicari, limbo patulo, segmentis suborbicularibus cuspidatis late imbricatis, coronâ brevi patellæformi, margine integro vel crenulato, antheris 3 in tubo inclusis, 3 coronæ oram attingentibus.

N. pachybolbus, *Durieu in Duchart. Rev.* vol. ii. p. 425; *Expl. Alger. Atlas,* tab. 47, fig. 1; *Walp. Ann.* vol. i. p. 836; *Kunth Enum.* vol. v. p. 742; *Baker in Gard. Chron.* 1869, p. 1136; *Burbidge Narciss.* p. 51, 82, tab. 39.

This distinct species of the *Tazetta* group of Narcissus is a native of the province of Oran in Algeria. It is never likely to be widely cultivated in English gardens, as it flowers in its native country in December and January, and is too thoroughly Mediterranean in its climatic requirements to be adapted for open-air growth with us. It is distinguished from the other *Tazetta* forms by its very large bulbs, stiffly erect glaucous leaves and small pure white fragrant flowers. It was introduced into cultivation about twenty years ago by the late Mr. Giles Munby, along with the other endemic Algerine Narcissus, *Corbularia monophylla*. Our drawing was made from a plant exhibited in February last at the Horticultural Society by E. G. Loder, Esq. It has also flowered under cover at Kew.

DESCR. *Bulb* globose, one and a half or two inches in diameter, with numerous brown membranous tunics, the outer opaque, the inner glossy. Produced *leaves* usually four, stiffly erect, linear, obtuse, slightly glaucescent, above a foot long, a third or half an inch broad, deeply channelled down the face in the lower half. *Peduncle* compressed,

strongly ribbed on the two faces, rather shorter than the leaves. *Flowers* eight or twelve in an umbel, horizontal or drooping, pure white, fragrant; pedicels an inch or an inch and a half long; spathe ovate, membranous, usually entire, as long as the pedicels. *Ovary* ovoid-trigonous, green; perianth-tube subcylindrical, tinged with green, above half an inch long; limb spreading horizontally, above half an inch in diameter; segments suborbicular, distinctly cuspidate, much imbricated. *Corona* patellæform, pure white, a quarter of an inch in diameter, entire or crenulate. *Anthers* oblong, bright yellow, three reaching the tip of the perianth-tube and three the rim of the corona.—*J. G. Baker.*

Fig. 1, Perianth cut open to show the corona and stamens; 2, front view of an anther; 3, back view of an anther; 4, pistil :—*all more or less enlarged.*

M. S. del J.N. Fitch lith

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TAB. 6826.

CORYDALIS PALLIDA.

Native of China and Japan.

Nat. Ord. PAPAVERACEÆ.—Sub-order FUMARIEÆ.

Genus CORYDALIS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 55.)

CORYDALIS (capnoides) *racemosa;* perennis, caule erecto v. rarius decumbente folioso, foliis deltoideo-ovatis tripinnatisectis segmentis polymorphis obcuneatis oblongis linearibusve lobatis dentatisve, racemis multifloris, bracteis pedicellis longioribus subulato-lanceolatis v. infimis dilatatis et serratis dentatisve, floribus flavis $\frac{1}{3}$–1 poll. longis, sepalis minutis deltoideo-ovatis, petalo postico linearioblongo obtuso, calcare petalis multo breviore crasso obtuso, capsula polymorpha, stylo filiformi, seminibus scaberulis v. impresso-punctatis.

C. pallida, *Pers. l. c.; DC. Prodr. l. c.; Miquel l. c.* 201; *Maximov. in Bull. Acad. Imp. Sc. Nat.* vol. x. p. 49 *in adnot.; Franch et Sav. l. c.* vol. i. p. 31, ii. p. 276.

C. heterocarpa, *Sieb. et Zucc. in Koen. Baier. Akad. Wissensch. Klass. Math. Phys.* vol. iv. 2, p. 173.

C. speciosa, *Maxim. Prim. Fl. Amur.* p. 39.

C. Wilfordii, *Regel in Bot. Reis. Radde,* vol. i. p. 148; *Miquel l. c.; Franch. et Sav. l. c.* vol. i. p. 30, ii. p. 275.

C. aurea, *Willd.*, var. β. speciosa, *Regel Fl. Ussuri,* p. 20; *Bot. Reis. Radde,* p. 145; *Gartenfl.* 1861, p. 373, t. 343; *Franch. et Sav. l. c.* p. 201 and 275.

C. aurea, *Willd.*, var. γ. pallida, *Regel ll.c.*

SOPHOROCAPNOS pallida, *Turcz. in Flora* (*Bot. Zeit.*), vol. xxx. p. 707.

FUMARIA pallida, *Thunb. in Nov. Act. Petrop.* vol. xii. p. 133, t. C.

A widely diffused and very variable native of subtropical and temperate Eastern China and Japan, extending from the Canton River to the Amur on the mainland, and also inhabiting Formosa, Bonin, and the Japan Islands. Besides varying greatly, as so many of its congeners do, in size and number of flowers (one-third to two-thirds of an inch long), the capsules present extraordinary differences in length, from one-half to one and a half inches in breadth, from narrowly to broadly lanceolate (one-eighth to one third of an inch broad), straight or falcate, twisted or straight, and with one or two rows of seeds; and a more curious form than any other is one (of which the genus *Sophorocapnos* was constituted) in which the pods are like a string of beads, each bead containing a single seed, and attached to

the next by a slender thread. These differences are so great that it is to be regretted that Siebold and Zuccarini's name of *heterocarpa* has not priority. The seeds present most puzzling variations; they are usually opaque, and clothed with minute asperities, but in some specimens their faces are smooth and polished, and in others the asperities are replaced by impressed dots on the side and back, exactly as in some specimens of the North American *C. aurea*, Willd., with which Regel has united the East Asiatic forms as varieties. There is a second Japanese *Corydalis* of which very little is known, and which may prove to be another form of this, the *C. racemosa*, Pers. (*Fumaria racemosa*, Thunb.), which is figured as having a much smaller flower and small bag-like spur. There are in the Kew Herbarium specimens conforming to this character in which the pod is narrow and sword-shaped, and the seeds not half the size and having a few impressed dots only. It may be alluded to as a singular fact that the widely-spread genus *Fumaria* has not hitherto been found in Japan.

C. pallida was raised from seeds collected in the Kow-lun Peninsula of China, north of the Canton River, and nearly opposite to Hong Kong, by Mr. Ford, Superintendent of the Botanical Gardens of the latter Island; these were received in September, 1884, and flowered in the herbaceous department in March of the present year.

DESCR. A succulent perennial (Maxim.) herb, twelve to eighteen inches high, with leafy terete pale reddish-brown stem and tripinnatisect leaves rather glaucous beneath. *Leaflets* very variable, oblong obovate or cuneate, variously cut into broad or narrow obtuse lobes. *Racemes* one to five inches long, many-fld.; bracts longer than the pedicel, green, subulate or lanceolate, or the lower broader and toothed. *Sepals* very small, triangular-ovate. *Corolla* one inch long, golden yellow, with a pale brown patch towards the obtuse tip of the dorsal petal, which is oblong, obtuse, and produced behind into an obtuse stout spur half its own length. *Pod* curved, torulose, with a long filiform style and stigma of two divaricating lobulate arms. *Seeds* more or less clothed with asperities or punctate, smaller than the dimidiate aril.—*J. D. H.*

Fig. 1, Flower; 2, sepal; 3, pistil; 4, capsule; 5, seeds:—*all but fig.* 4 *enlarged*

M S. del J.N Fitch lith.

Vincent Brooks Day & Son Imp

L Reeve & Co London.

TAB. 6827.

RHODODENDRON NIVEUM, var. FULVA.

Native of Sikkim Himalaya.

Nat. Ord. ERICACEÆ.—Tribe RHODODENDREÆ.

Genus RHODODENDRON, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 599.)

RHODODENDRON *niveum*, *Hook. f. Rhod. Sikkim Himal.*, *Conspect.* p. 4, and in *Journ. Hort. Soc.* vii. p. 78 and 93; *Hook. Bot. Mag.* t. 4730; *Lemaire, Jard. Fleur.* iv. t. 421; *Clarke in Fl. Brit. Ind.* vol. iii. p. 466.

? R. Blumei, *Nutt. in Hook. Kew Journ.* vol. v. (1853), p. 366.

RHODODENDRON sp., *Griff. Itin. Notes*, i. 185, n. 947.

VAR. *fulva*, foliis subtus fulvo-tomentosis.

I have been so frequently asked whether the subject of the present plate can really be specifically identical with the *R. niveum*, which is conspicuous for the snow-white tomentum of the under-surface of the leaves and petioles, that I have had it figured for comparison with the normal state of that plant as figured at Plate 4730 of this work. It will be seen that, except in the buff clothing of the under-side of the leaves and the much deeper coloured and larger higher-coloured truss, they do not differ in any appreciable degree. The species is remarkable as being almost the only one of the Himalayan which has flowers similar in colour to *R. ponticum* (Plate 650), and *R. catawbiense* (Plate 1671). The nearest to it in this respect is the old *R. campanulatum* (Plate 3759), which differs from *niveum* in the broader leaves of cinnamon brown colour beneath, in the lax truss and toothed calyx, and in the glabrous ovary and capsule; it further differs in the large pale anthers which it shares with both the American and the Asia Minor species, those of *niveum* being dark brown.

The var. *fulva* is one of the original plants raised from seeds sent by me in 1848-9 from Sikkim, and is planted in a border bed in the S.W. angle of the Temperate House, where it flowered freely annually, and far exceeds in beauty

JULY 1ST, 1885.

the type of the species which is no longer in cultivation in that house.

It is a singular fact, that though the province of Sikkim has been thrown open to collectors and travellers for upwards of thirty years since the first Rhododendron seeds were sent home from its mountains, there has been no addition to the number of species found there in 1849. These amounted to thirty (or forty, including strongly marked varieties published as species), of which more than half were new to science, and only three were known in cultivation. On the other hand, later collectors have added not a few varieties to the known kinds, some of which are exceedingly puzzling, notably the form of *R. Falconeri* and of *R. cinnabarum*. The journeys of Mr. Booth, collecting for the late Mr. Nuttall in the neighbouring country of Bhotan, resulted in an addition of eight new kinds, and of a number of varieties or forms of the previously discovered Sikkim ones. Altogether twenty-seven species are known from Bhotan, of which eighteen are natives of Sikkim, and one of countries south of Bhotan. Putting these data along with the fact that the Bhotan Alps have never been explored to a height at which Rhododendrons are found in Sikkim, it follows that a rich harvest of the genus remains to be garnered in the former country.

Further east in the Indian Alps the only country whence Rhododendrons have been collected is Munnepore, which has been visited botanically by Dr. Watt alone. That indefatigable collector found many species there, from seeds of which a number of young plants are being reared at Kew; but judging from the dried specimens that accompanied the seeds, these seem to be for the most part, if not wholly, either Bhotan species or forms of them.—*J. D. H.*

Fig. 1, Calyx and ovary; 3, folds at base of corolla; 3, anther:—*all enlarged.*

M.S. del. J.N. Fitch lith

Vincent Brooks Day & Son lith

TAB. 6828.

ALLIUM GIGANTEUM.

Native of Central Asia.

Nat. Ord. LILIACEÆ.—Tribe ALLIEÆ.

Genus ALLIUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 802.)

ALLIUM (Molium) *giganteum;* bulbo globoso maximo, foliis 6–9 basalibus loratis flaccidis glaucescentibus sesquipedalibus margine glabris, scapo valido tereti 3–4-pedali, floribus permultis parvis lilacinis in umbellam globosam magnam aggregatis, spathæ valvis 2 ovatis cuspidatis, pedicellis strictis elongatis, perianthii segmentis oblanceolato-oblongis obtusis flore expanso patulis, staminibus perianthio sesquilongioribus, filamentis subulatis deorsum lanceolatis basi brevissime coalitis, ovario depresso-globoso breviter stipitato, stylo subulato elongato.

A. giganteum, *Regel in Gartenflora*, vol. xxxii. (1883), p. 96, t. 1113; *Descr. Plant. Nov.* fasc. ix. p. 23.

A. elatum, *Regel Descr. Pl. Nov.* fasc. ix. p. 23, 25, t. 20, figs. *g*, *h*, *i* et *k*.

This is the most striking species of a group of Alliums which inhabit Central Asia, characterized by their tall stature, broad leaves, small lilac flowers, and exserted stamens. It was supposed by Dr. Regel to be a native of the Himalayas, but that is a mistake. At the instigation of Mr. Frank Miles, the well-known explorer and war correspondent O'Donovan, who was killed in Egypt, collected a number of bulbs on his adventurous expedition to Merv, the account of which has lately been reprinted in book form. It was from these bulbs, given by Mr. Miles direct, and also by Max Leichtlin to Dr. Regel, that the specimens were derived from which the plant was originally named and figured. I think there can be no question, now we know this, that *Allium elatum*, collected by Dr. Albert Regel in the Khanate of Baldschuan, is really the same species. Our own drawing was made from a plant that flowered in the herbaceous ground at Kew in June, 1883, the bulb of which was given to us also by Max Leichtlin. It flowered also with Mr. Frank Miles at

Bingham, and a beautiful coloured drawing, which was made from his plant by Mrs. Miles, is now lying before me.

Descr. *Bulb* globose, two or three inches in diameter. *Leaves* six to nine, springing from the very base of the peduncle, lorate, flaccid, glaucescent, glabrous on the margin, withered at the tip by the time the plant is in flower, a foot and a half long, two inches broad at the middle. *Peduncle* terete, glaucous, stiffly erect, three or four feet long. *Flowers* very numerous, forming a dense globose umbel four inches in diameter; spathe-valves two, membranous, ovate, cuspidate, soon falling. *Perianth* bright lilac, one-fifth of an inch long; segments oblanceolate-oblong, obtuse, spreading widely when the flower is fully expanded. *Stamens* half as long again as the perianth-segments; filaments subulate, connected in a short collar at the very base and lanceolate above it; anthers minute, oblong. *Ovary* depresso-globose; style subulate, a quarter of an inch long.—*J. G. Baker.*

Fig. 1, The whole plant, *much reduced in size;* 2, a single flower; 3, front view of an anther; 4, back view of an anther; 5, the pistil:—*all more or less enlarged.*

M. S. del, J. N. Fitch lith.

Vincent Brooks Day & Son Imp

L Reeve & Co. London.

TAB. 6829.

SISYRINCHIUM FILIFOLIUM.

Native of Fuegia and the Falkland Islands.

Nat. Ord. IRIDEÆ.—Tribe SISYRINCHIEÆ.

Genus SISYRINCHIUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 698.)

SISYRINCHIUM (Androsolen) *filifolium;* perenne, caulibus fastigiatis simplicibus teretibus striatis basi foliosis, apice in spatham elongatam erectam productis, foliis radicalibus filiformibus caulem æquantibus brevioribusve, fasciculis florum sessilibus v. pedunculatis 2–6-floris, perianthii segmentis subæqualibus obovatis albis roseo-venosis basi aureis, filamentis in tubum inflatum monadelphis apicibus liberis, capsula globosa membranaceo-coriacea, seminibus obovoideis, testa reticulata.

S. filifolium, *Gaud. in Ann. Sc. Nat.* vol. v. p. 101, *et in Freyc. Voy. Bot.* p. 133; *D'Urv. in Mem. Soc. Linn. Paris,* vol. iv. p. 604; *Hook f. Fl. Antarct.* p. 352, t. 126; *Baker in Journ. Linn. Soc. Bot.* vol. xvi. p. 116.
S. Gaudichaudii, *Dietr. Sp. Pl.* vol. ii. p. 505.

The Falkland Islands, where this plant abounds, are amongst the bleakest spots on the globe, considering their latitude and abundant moisture; no tree grows on them, and the only shrub that attains a few feet in height is the well-known *Veronica decussata* of our greenhouses, and that is confined to a limited area of the western of the two great islands. Nor is the herbaceous vegetation very varied or luxuriant, for of attractive plants for horticultural purposes I remember but three, the subject of this plate, the *Calceolaria Fothergillii* (Plate 348), and the lovely *Oxalis enneaphylla*, lately figured (at Plate 6256) in this work. The *Oxalis* adorns the rocky shores of the islands, but the *Sisyrinchium* rears its head from out of the heather-like masses of crowberry (*Empetrum nigrum*, var. *rubrum*) which cover the ground, exposing its lovely white bells to the bitter blasts from over the Antarctic ice. It also grows, but very locally, on the adjacent American coast of Tierra del Fuego, and is closely allied to a West American species, the *S. Nuno*, Bert., of Chili, which is a much smaller and more slender plant, with flowers not half the size, and a filiform tip to the spathe. In the

"Flora Antarctica" the filaments are figured as free, and described as almost so, whilst those of the specimen now represented are monadelphous nearly to the top. On re-examining some native specimens, I find them to be united even higher up, and the anthers to be much larger than in the cultivated plant. They possibly vary in amount of cohesion.

For the opportunity of figuring this pretty plant I am indebted to Mr. Burbidge, of the Botanic Gardens, Trinity College, Dublin, who received its roots in a sod of *Lomaria alpina*, collected in the Falkland Islands by Mrs. Brandon, and flowered it in April last. Its familiar name in the colony is the "Pale Maiden."

Descr. Densely tufted; roots of long slender fleshy fibres. *Stem* six to twelve inches high, slender, green, erect, unbranched, ending in a foliaceous compressed lanceolate spathe two to three inches long, and produced into an erect point. *Leaves* as long as or shorter than the stem, linear, three-channelled, grass-green. *Flowers* two to six in a cluster, inclined or nodding, each with a lanceolate spathe at the base of the filiform pedicels, which are one inch long or less. *Perianth* from one-half to nearly an inch in diameter, broadly subcampanulate; segments subequal, obovate, obtuse or retuse, white with three pink veins, and a yellow patch at the base. *Stamens* three, their filaments connate into a membranous flagon-shaped body with free tips; anthers linear-oblong, yellow. *Ovary* turbinate; style short, with three arms that are slightly dilated at the top.—*J. D. H.*

Fig. 1, Outer, and 2, inner perianth-segments; 3, ovary and stamens; 4 and 5, anthers; 6, style and its arms:—*all enlarged.*

M.S. del J.N Fitch lith

Vincent Brooks Day & Son Imp

L. Reeve & Cº London.

TAB. 6830.

DELPHINIUM CASHMIRIANUM, var. WALKERI.

Native of Kashmir.

Nat. Ord. RANUNCULACEÆ.—Tribe HELLEBOREÆ.

Genus DELPHINIUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 9.)

DELPHINIUM cashmirianum, *Royle Ill. Bot. Himal.* p. 55, t. 12; *Hook. f. et Thoms. Fl. Ind.* p. 52 (*excl. syn. D. Jacquemontianum*); *Hook. f. Fl. Brit. Ind.* vol. i. p. 26; *Bot. Mag.* t. 6189.

Var. *Walkeri;* humilis, pilis albidis patentibus hirsuta, caule perbrevi folioso, foliis gracile petiolatis orbiculatis 5–7-lobatis lobis crenatis crenis apiculatis, floribus apicem versus caulis subumbellatis longe gracile pedicellatis laxe hirsutis pallide cæruleis, petalis sordide flavis.

The Western Himalayan *Larkspurs* are a most puzzling group, and I find it exceedingly difficult to distinguish all states of *D. vestitum*, Wall., from some of those of *D. cashmirianum*, and this again from *D. Brunonianum* and *D. viscosum*. The glandular hairs of the two latter in their normal state afford a marked character which the two former do not exhibit, and in their fresh state they emit a powerfully fetid musky odour; but the amount of hairiness of all Larkspurs varies extremely, as does the degree of viscidity and odour of the musky species; so that it is not at all improbable that these latter will prove to be high alpine states of the scentless ones. Indeed the tendency of plants to become viscid and strongly scented with elevation is a striking characteristic of the Himalayan Flora, as exhibited in the *Rhododendrons* and other genera. The plant here figured was raised by Mrs. Walker, of Chace Cottage, Enfield, from seeds sent from Rawul Pindi, in the Western Himalaya, by her son, Col. Walker, and it was kindly sent to Kew by that lady for examination. It has been carefully compared by Professor Oliver and myself with the figures and descriptions of *D. cashmirianum*, and with the copious suites of specimens of that plant in the Kew Herbarium, with the result that whilst not corresponding with anything figured or known, it presents no character of sufficient importance to warrant

its being regarded as a different species. The original figure and description of *D. cashmirianum* in Royle's "Botany of the Himalaya Mountains" represent a slender hirsute plant, with flowers of the same size and form of that here figured, but with more sharply-cut leaves and more racemose flowers with pale blue petals. The only other figure of this species is that given at Plate 6189 of this work, which represents a nearly glabrous plant, with the leaves of Royle's, but more corymbose larger violet-blue flowers with black and green petals. In the Herbarium there is every intermediate between glabrous and hirsute stem-leaves and flowers, and between sharp and obtuse lobes of the leaf, but the inflorescence is always more or less corymbose, as in Mr. Walker's plant, which distinguishes *cashmirianum* from *vestitum*, in which the flowers form a strict erect elongate raceme.

A further presumption in favour of var. *Walkeri* being an abnormal form is seen in the condition of some of the uppermost and floral leaves, which are reduced to small ovate or ovate-cordate long-petioled three-nerved blades, only half an inch long, quite entire or obscurely lobed at the side. I find no organs like these in any other species of the genus; they are, no doubt, altered states of the bracts, which Royle figures as oblong and sessile. Lastly, though I find no specimen of *D. cashmirianum* with an abbreviated leafy many-flowered stem like that of this variety, almost stemless solitary-flowered specimens occur.

Mr. Walker has been good enough to send to Kew living plants of another Himalayan Larkspur, which differs from this and from the normal forms of *D. cashmirianum* in the pentagonal five-lobed leaves, and which, if it prove sufficiently distinct from those previously figured, will find a place in this work.—*J. D. H.*

Fig. 1, Petals; 2, stamens :—*both enlarged.*

6831.

1.

2

M. S. del, J. N. Fitch lith.

Vincent Brooks Day & Son lith.

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TAB. 6831.

A. EUCHARIS MASTERSII.

B. EUCHARIS SANDERII, var. MULTIFLORA.

Natives of New Granada.

Nat. Ord. AMARYLLIDEÆ.—Tribe AMARYLLEÆ.

Genus EUCHARIS, *Planch.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 731.)

EUCHARIS *Mastersii*; bulbo globoso, foliis petiolatis ovatis acutis viridibus glabris venis curvatis 15–16-jugis, scapo gracili tereti, umbellis paucifloris, spathæ valvis parvis lanceolatis, pedicellis brevissimis, ovario oblongo-trigono, perianthii tubo sursum infundibulare deorsum cylindrico, limbo patulo tubo duplo breviori, segmentis ovatis late imbricatis, cyathi striis luteo-viridulis margine libero angusto inter filamentos dentibus 2 deltoideis prædito, antheris parvis versatilibus, stylo staminibus eminente apice stigmatoso incrassato trilobato.

This new *Eucharis*, which at the request of the importers, Messrs. F. Sander and Co., of St. Albans, has been named after Dr. Masters, F.R.S., is intermediate between the two finest species already known, *E. grandiflora*, Planch. et Lind. (Plate 4971) (*amazonica*, Hort.), and *E. Sanderii*, Baker (Plate 6676). It has entirely the same habit and leaf, and the same large pure white perianth-limb, but is different from both of them in the staminal cup (often, but improperly, called a corona), of which the free portion in the present plant forms a narrow but united collar-like rim to the perianth-tube, with two deltoid teeth between the base of each filament. Our drawing was made from specimens sent by the importers, with whom it flowered in the month of February of the present year.

DESCR. *Bulb* globose, one and a half or two inches in diameter. *Leaves* distinctly petioled, oblong, acute, just like those of *E. grandiflora* and *Sanderii* in shape and texture, eight or ten inches long, four or five inches broad, bright green on the upper surface, pale green beneath, with fifteen or sixteen curved veins on each side between the midrib and margin. *Scape* slender, glaucous, terete, under a foot long. *Umbel* two-flowered in the specimen

drawn; pedicels very short; valves of the spathe small, green, lanceolate. *Ovary* green, oblong-trigonous. *Perianth-tube* two or two and a half inches long, cylindrical in the lower two-thirds, infundibuliform in the upper third, with a throat half an inch in diameter; limb pure white, three inches in diameter; segments ovate, much imbricated. *Staminal cup* striped with green, adnate to the tube of the perianth except a narrow collar-like rim, which has a couple of deltoid teeth between each filament. *Style* reaching nearly to the tip of the perianth-segments, thickened and obtusely three-lobed at the stigmatose apex.

E. Sanderii, *Bot. Mag.*, tab. 6676, proves to vary considerably in the size and number of the flowers and the colour of the stripes of the staminal cup, which in this species is entirely adnate to the tube of the perianth except the marginal teeth. In the form figured on the lower left-hand corner of the present plate there are five or six flowers, considerably smaller than those of the type, and the stripes of the staminal cup are green. This also was imported by Messrs. F. Sander and Co.—*J. G. Baker.*

Fig. 1, Anthers of *E. Mastersii;* 2, tip of its style:—*both much enlarged.*

M.S.del, J.N.Fitch lith

Vincent Brooks Day & Son lith

L.Reeve & Cº London.

TAB. 6832.

ALPINIA ? PUMILA.

Native of Eastern China.

Nat. Ord. SCITAMINEÆ.—Tribe ZINGIBEREÆ.

Genus ALPINIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 648.)

ALPINIA? *pumila*; humilis, acaulis, surculis vaginatis, rhizomate repente, foliis petiolatis ellipticis elliptico-ovatisve acuminatis striato-nervosis petiolo in vaginam angustam elongatam longiorem producto, scapo petiolo multo breviore, bracteis oblongo-lanceolatis vaginato robusto flexuoso densifloro sericeo-pubescente, floribus parvis spicatis, bracteis 2–3-floris oblongis calycis tubo obscure 3-lobo villoso brevioribus, corollæ parvæ tubo vix exserto, segmento postico oblongo obtuso fornicato lateralibus consimilibus, staminodiis subulato-lanceolatis erectis, labello oblongo recurvo obtuso albo rubro venoso, marginibus grosse crenatis, filamento exserto latiusculo, connectivo dorso papilloso ultra loculos lineari-oblongos vix producto obtuso, stigmate clavellato truncato ciliato.

A very remarkable little scitamineous plant, which I fail to refer satisfactorily to any published genus of the order. It differs from all described species of *Alpinia* in the scapigerous inflorescence, which is not terminal as in that genus, but on a separate short scape as in the section *Geanthus* of *Amomum*, in *Elettaria*, &c. It differs from both these genera in the form of the anthers and in the long filaments, and is probably either the type of a new genus, or of a new section of *Alpinia* which would then contain plants with both terminal and radical inflorescence, as is the case in *Amomum*.

Alpinia pumila is a native of the Lo-fan-shan Mountains on the coast of China, nearly opposite the Island of Hong Kong, where it was discovered by Mr. Chas. Ford, Superintendent of the Hong Kong Gardens, whence he transmitted live plants to Kew in 1883, which flowered in April of the present year in a stove.

DESCR. *Rootstock* creeping, underground, as thick as a goose-quill, pale yellow, slightly aromatic, but not pungent; shoots clothed with brown obtuse imbricating membranous sheaths nearly an inch long. *Leaves* two or three together,

erect from the rootstock; blade four to six inches long, elliptic or elliptic-lanceolate, acuminate, rather coriaceous, green with whitish stripes between the nerves, of which there are six to eight pairs stronger than the others, but all are very fine and close; under surface a paler green; petiole two to four inches long, grooved above, upper portion erect, much shorter than the sheathing lower portion which terminates above in two small auricles. *Scape* or flowering stem springing directly from the rootstock at the base of leaves, with the inflorescence about two inches long, stout, flexuous, green, tomentosely pubescent above, furnished with several scarious brown sheathing bracts, the lower of which are elliptic-lanceolate and nearly an inch long. *Flowers* about an inch long, in a short rather dense spike, about two to each bract, quite sessile, suberect; lower bracts longer than the flower, upper shorter. *Calyx* tubular, rather dilated above and three-lobed at the truncate mouth, bright red, pubescent. *Corolla-tube* shortly exserted, two dorsal and lateral lobes subequal, oblong, obtuse, concave, very pale pink; lip as long as the lateral lobes, recurved or almost revolute, broadly ovate with incurved deeply crenate sides and an erect subulate-lanceolate staminode on each side at the base, nearly white with broad bright red veins. *Filament* as long as the dorsal segment of the corolla, broad, concave in front; anther of two linear-oblong parallel cells free at their tips above and below; connective thickened and glandular at the back, produced very shortly beyond the anther-cells into a rounded tip. *Ovary* silkily tomentose, green, subglobose, completely three-celled; ovules many, biseriate in each cell; style slender, stigma clavellate, truncate, top ciliate round the edge.—*J. D. H.*

Fig. 1, Ovary and calyx, with corolla in bud; 2, lip and staminodes; 3, anther; 4, ovary and inner staminodes; 5, stigma; 6, transverse section of ovary:—*all enlarged.*

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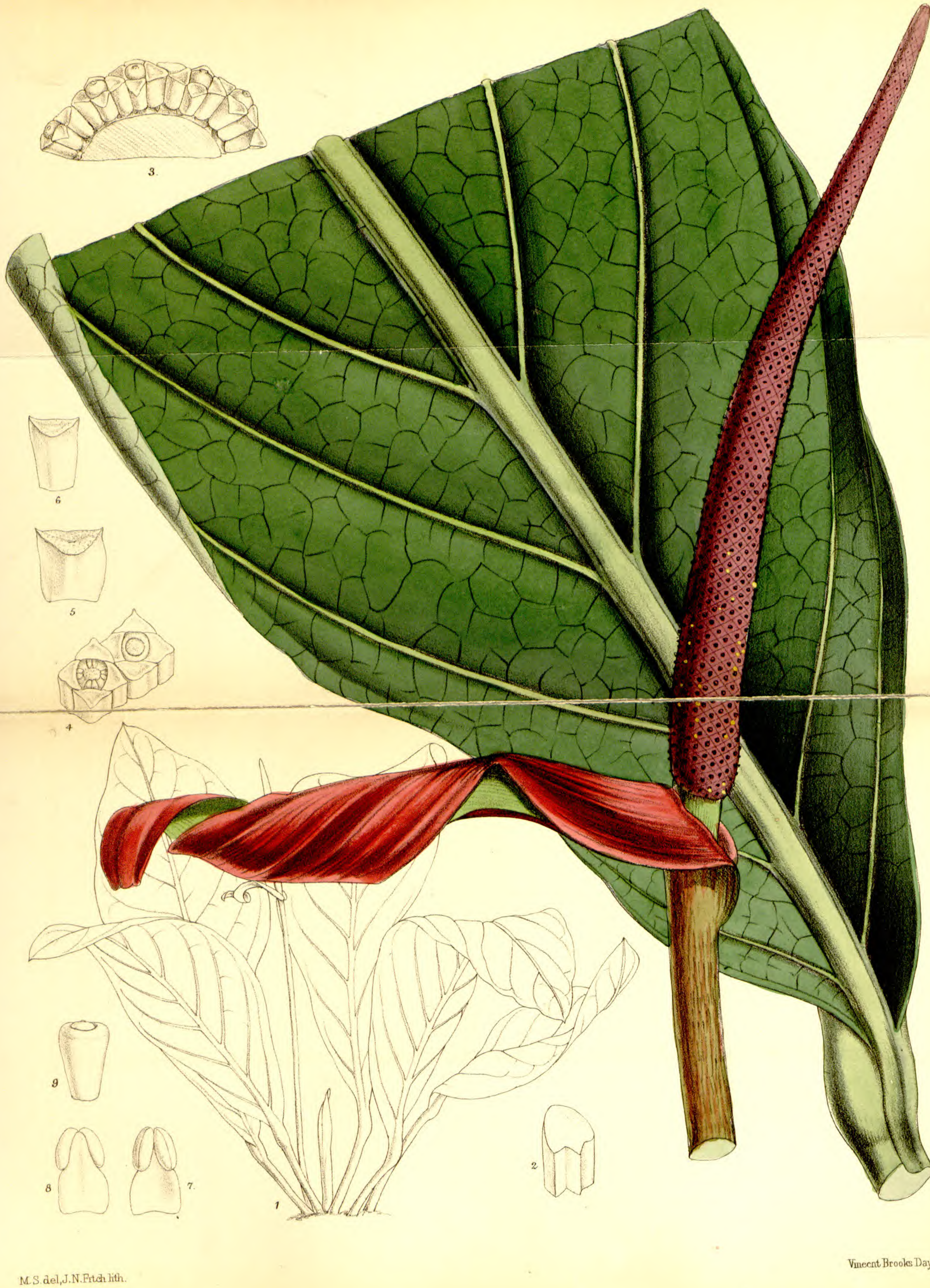

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M.S. del, J.N. Fitch lith.

Vincent Brooks Day & Son Imp

TAB. 6833.

ANTHURIUM GLAZIOVII.

Native of Brazil.

Nat. Ord. AROIDEÆ.—Tribe ORONTIEÆ.

Genus ANTHURIUM, *Schott;* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 998.)

ANTHURIUM (Pachyneurum) *Glaziovii;* acaule, foliorum lamina bipedali obovato- v. oblanceolato-oblonga crasse coriacea plana basi angustata et in geniculum brevem attenuata apice obtusa, costa crassa dorso 3-carinata, nervis primariis utrinque ad 10 erecto-patentibus nervo marginali interrupto, petiolo teretiusculo lamina ter breviore antice canaliculato, geniculo pollicari teretiusculo, pedunculo petiolo 2–3-plo longiore tereti luride virescente rubro-purpureo irrorato, spatha 7-pollicari lineari-oblonga, marginibus breviter decurrentibus intus rubro-purpurea extus luride viridi demum horizontaliter patente et torta, spadice 8-pollicari breviter stipitato subgracili a basi ad apicem attenuato luride purpureo, floribus minutis, perianthii segmentis 4 quadratis truncatis, filamentis brevibus latis, antheris oblongis, ovario turbinato, stigmate nigro.

Mr. N. E. Brown, whose knowledge of the *Aroideæ* is extensive and profound, has been good enough to aid me in the comparison of this plant both with the species in the Gardens and Herbarium at Kew, and the descriptions of Schott and Engler, and we are reluctantly obliged to consider it undescribed. I have, therefore, given it the name of the indefatigable botanist who sent it to Kew, M. Glaziou, the Director of Public Parks and Gardens at Rio de Janeiro. It belongs to the section *Pachyneurum*, of Schott, which in Engler's "Monograph of *Araceæ*" contains about seventeen species, most of them natives of Eastern tropical America from Mexico to Guiana. One alone is described as Brazilian, the *A. affine*, Schott. It is a near ally of *A. Glaziovii*, but this differs in the terete knee at the top of the petiole, in the peduncle not being at all keeled, in the spathe not being produced into a long point, and in the spadix being attenuated upwards from the base, and not cylindric.

A. Glaziovii was sent to Kew in 1880, with no note as to its exact habitat, which is only presumably Rio de Janeiro; though as amongst M. Glaziou's Brazilian contributions

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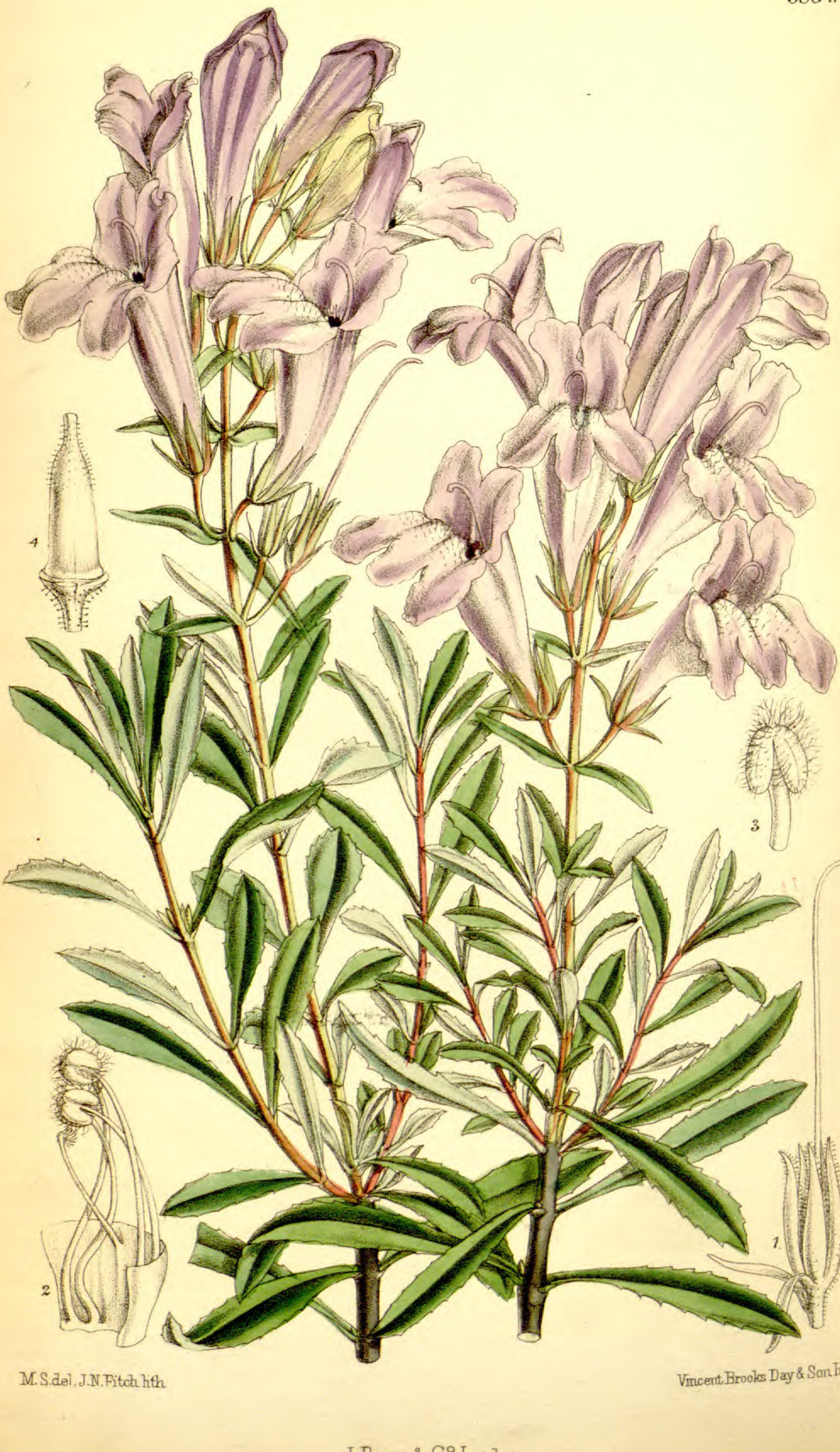
there are sundry inhabitants of other countries, it may well be that this is one of them. It is a noble species, and much handsomer than *A. crassinervium* or *affine*. It flowered first in June, 1881.

DESCR. Stemless. *Leaves* four or five, suberect, dark shining green, not glaucous beneath; blade narrowly oblong-obovate or -oblanceolate, obtuse or subacute, thickly coriaceous, flat; base shortly narrowed into the knee at the top of the petiole; midrib very stout, convex above, three-keeled at the back; principal nerves about ten pair, erecto-patent, very strong, irregularly connected into an obscure interrupted intermarginal nerve; secondary nerves reticulated, faint above except when dry; petiole one-third the length of the blade or less, subcylindric, of a dirty yellowish green, with short red-brown streaks. *Spathe* seven inches long by about one broad, linear-oblong, acuminate, shortly decurrent on the peduncle, dirty green externally, dull vinous purple within, spreading horizontally and twisted in age. *Spadix* erect, very shortly stoutly stipitate, eight inches long by three-quarters of an inch in diameter at the base, gradually tapering from the base to the obtuse tip, of a fine vinous purple colour spotted with the black stigmas. *Flowers* minute, densely packed; perianth-segments four, nearly square in outline and triangular in section, about one-twelfth of an inch long; tips truncate, quite flat. *Filaments* very broad; anther-cells oblong, half the length of the filament. *Ovary* narrowly turbinate; stigma cushion-shaped, sunk in the top of the ovary.—*J. D. H.*

Fig. 1, Reduced figure of whole plant; 2, section of midrib of leaf; 3, portion of spadix with flowers; 4, two flowers; 5 and 6, perianth-segments; 7 and 8, stamens, 9, ovary:—*all but fig.* 1 *enlarged.*



M.S.del., J.N.Fitch lith.

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TAB. 6834.

PENTSTEMON MENZIESII, var. SCOULERI.

Native of North-West America.

Nat. Ord. SCROPHULARIACEÆ.—Tribe CHELONEÆ.

Genus PENTSTEMON, *Mitch.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 940.)

PENTSTEMON (Eupentstemon) *Menziesii*; suffruticosus, glaberrimus v. inflorescentia partibusque novellis glanduloso-puberulis, foliis ovatis oblongis oblanceolatisve integerrimis v. serratis inferioribus breviter petiolatis, floribus racemosis v. subpaniculatis 1–2-bracteolatis, sepalis ovato-lanceolatis linearibusve acuminatis, corolla erecta 1–2-pollicari infundibulari-tubulosa bilabiata, labio superiore 2-fido inferiore 3-fido, antheris villosis demum peltatis, loculis brevibus divergentibus, filamentis sterilibus nudis apice barbatis.

P. Menziesii, *Hook. Fl. Bor. Am.* vol. ii. p. 78; *Benth. in DC. Prodr.* vol. x. p. 320.

Var. Scouleri, foliis lanceolatis v. oblanceolatis acute pauci-serratis corolla 2-pollicari violacea. *A. Gray in Proc. Amer. Acad.* vol. vi. p. 56, and *Synopt. Fl. N. Am.* vol. ii. part 1, p. 260.

P. Scouleri, *Lindl. Bot. Reg.* t. 1277; *Benth in DC. Prodr.* vol. x. p. 320.

Though very unlike the ordinary state of *P. Menziesii*, which is a much smaller plant with fewer flowers and much broader smaller often obovate or obcuneate leaves, there are so many intermediate states between them that it is impossible to challenge Asa Gray's decision that they are one species; and indeed there are other forms no less distinct from both, as var. *Newberryi*, A. Gray, with rose-coloured flowers; var. *Douglasii*, A. Gray (*P. crassifolius*, Lindl.; Bot. Reg. vol. xxiv. t. 16), with quite entire oblanceolate leaves, and especially var. *Lyallii*, A. Gray, with linear-lanceolate leaves three to four inches long, and often racemose flowers. As is to be expected in a plant having so wide a range of variation, *P. Menziesii* has a correspondingly wide area of distribution, being found on the lofty Sierras of Western North America, from the sources of the Fraser River in British Columbia, southward to middle California; and from the sea-level at Nootka Sound, where it was discovered by Archibald Menzies, to an elevation of 8000 feet on the Sierra Nevada, where I have gathered it

in company with Dr. Gray in the Yosemite Valley, and on Mount Shasta. The var. *Scouleri* is the more exclusively northern form, but the dwarf small and broad-leaved type occurs as far north as any. It is a beautiful plant, the seeds of which were sent from the Cambridge (Massachusetts) Botanical Gardens. It flowered in the month of May, and is perfectly hardy.

DESCR. A herb, or almost an undershrub, one to two feet high, glabrous except the sparsely glandular-hairy tips of the young shoots and inflorescence; branches cylindric, terete, dark brown. *Leaves* one to two inches long, opposite, usually oblanceolate, acute or acuminate, coriaceous, sharply toothed or quite entire, the upper sessile, the lower narrowed into a short petiole; nerves obscure. *Flowers* two inches long, pale violet-blue, shortly pedicelled, axillary and running out into leafy racemes, or the lower paniculate; pedicels a quarter of an inch long, one- to two-bracteate under the flower. *Sepals* subulate-lanceolate, acuminate, one-third of an inch long. *Corolla* straight, between funnel-shaped and tubular, tube rather compressed, shallowly grooved or ribbed; mouth oblique, two-lipped, one and a half inch in diameter; lips undulate, upper erect two-lobed, lower spreading three-lobed, lobes rounded, sub-crenate. *Stamens* included, anthers clothed with long hairs, at length peltate; cells short, diverging, barren filaments with a terminal tuft of hair. *Ovary* linear-oblong, sparsely glandular towards the tip.—*J. D. H.*

Fig. 1, Calyx, bracts and style; 2, base of corolla and stamens; 3, anther; 4, ovary:—*all enlarged.*

M.S. del, J.N. Fitch lith.

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TAB. 6835.

ARCTOTIS AUREOLA (upper figure).

ARCTOTIS REVOLUTA (lower figure).

Natives of the Cape of Good Hope.

Nat. Ord. COMPOSITÆ.—Tribe ARCTOTIDEÆ.

Genus ARCTOTIS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 458.)

ARCTOTIS *aureola;* erecta v. decumbens, ramosa, niveo-lanata, foliis sessilibus oblongis obovato-oblongisve sinuato-pinnatifidis, lobis oblongis v. late ovatis apice rotundatis integris v. sublobatis supra læte viridibus, basi auriculatis auriculis lobatis, pedunculis lanatis et minutissime glanduloso-pilosis, capitulis 3–4½ poll. latis aureis aurantiacisve, involucri glabriusculi late hemispherici squamis late oblongis apice rotundatis viridibus nigro-limbatis, extimis linearibus recurvis, intimis scariosis, ligulis 2-seriatis obtusis, floribus disci aureis, stigmatibus piceis, acheniis lanatis, pappi squamis lineari-oblongis interioribus duplo majoribus.

A. aureola, *Ker in Bot. Reg.* t. 32.

A. aspera, *Linn.*, var. γ. aureola, *DC. Prodr.* vol. vi. p. 488.

A. aspera, *Linn.*, var. ε. undulata, *Berg.; Harv. Fl. Cap.* vol. iii. p. 453.

The genus *Arctotis* promises to be a puzzle to systematic botanists and horticulturists, and until a good many more of its forms are in cultivation it is impossible to define the species with any approach to confidence. The larger orange-yellow species here figured was obtained by Mr. Lynch at the Cambridge Botanical Gardens, under the name of *A. speciosa*, Jacq., a stemless very different-looking plant, figured at Plate 2182 of this work (and referred to *A. acaulis*, Linn., by De Candolle and Harvey). It was sent to Kew and examined by Prof. Oliver, who recognized it as *A. aureola*, Ker, a very old inhabitant of European gardens, though long since gone out of cultivation; and the question arises as to the name that *A. aureola* should bear; for according to its author, Ker, it is the *A. undulata* of Gaertner, whereas De Candolle makes it a distinct variety (v. *aureola*) of *A. aspera*, Linn., in which he is followed by Harvey in the "Flora Capensis," who, however, takes the name of *undulata* for the variety, and combines with it the *A. cuprea*, Jacquin. Now *A. aspera* is a half-shrubby

hispid and scabrous plant, very variable in foliage, differing according to Ker (and this is borne out by the Cambridge specimen) in this respect of scabridity, in the want of subulate or acicular shaggy outer scales of the involucre, and in the larger and differently coloured flowers. There are no doubt all characters of degree, as an examination of a suite of Herbarium specimens of *A. aspera* shows; but if they are not taken into account, and if *A. aureola* is to be merged in *A. aspera*, so must not a few other species of the genus.

Mr. Lynch points out that his plant differs from the type figured in the Register in being weak and straggling instead of stiff and erect, and that unlike *A. aureola* it strikes freely from cuttings, on which account he suggests that it should bear some distinctive name; but I think it would be inexpedient to found varieties of exotic plants grown in gardens on such characters, and in the present chaotic state of the genus *Arctotis*, it is very undesirable to multiply names; and all the more in this case, because the genus is not, and never will be, an established one in the gardens of this country, the plants not being long-lived, and requiring favourable seasons for their full development out of doors.

Mr. Lynch's specimens were received from Mr. Max Leichtlin, of Baden-Baden, and flowered in April last. The flowers were exceptionally fine, and this is attributed by Mr. Lynch to grafting on the more robust *A. aspera*, var. *arborescens* (see Plate 6528); it may, however, be suspected that the hot season may have had more effect than this.

A. revoluta, Jacq., also a Cape plant, of which a head is figured on the plate, was received from Mr. Lynch with the above; in white cottony clothing, and the form, &c., of the leaves, it closely resembles *A. aureola*, but the outer involucral scales are much narrower, with tomentose tips, and the others have no black border.—*J. D. H.*

Fig. 1, Flower of ray; 2, outer and inner pappus scale of ditto; 3, style arms of ditto; 4, flower of disk; 5, tip of petal; 6, anther; 7, style arms:—*all enlarged.*

M.S. del, J.N. Fitch lith.

Vincent Brooks, Day & Son Imp.

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TAB. 6836.

DIDYMOSPERMA NANUM.

Native of Assam.

Nat. Ord. PALMEÆ.—Tribe ARECINEÆ.

Genus DIDYMOSPERMA, *Wendl. and Drude; (Benth. et Hook. f. Gen. Pl.* vol. iii. p. 917.)

DIDYMOSPERMA *nanum;* palma 1–3-pedalis, erecta, caudice a basi folioso, foliis suberectis petiolatis pinnatis, pinnis 2–3 jugis subopppositis sessilibus cuneato-obovatis v. oblongis inæqualiter lobatis spinuloso-eroso-dentatis, basi cuneata integerrima, terminali latiore sæpe 2-fida, supra glabris flabellatim striato-nervosis, subtus glaucescentibus glabris v. costa tenuiter furfuracea, petiolo elongato gracili, vagina elongata rete tenui ferrugineo-furfuracea, spadicibus axillaribus simplicibus furcatisve erectis, pedunculo brevi spathis subdistichis imbricatis oblongis obtusis furfuraceis tecto, floribus dense spicatis albis, ♂ oblongis sepalis orbiculatis membranaceis, petalis oblongis obtusis concavis valvatis, staminibus ad 14, filamentis brevibus, fl. ♀ subglobosis, sepalis late ovatis, petalis triangulari-ovatis crasse coriaceis valvatis, stigmatibus minutis sessilibus, fructu oblique oblongos obtusos 1-spermos, embryone dorsali.

D. nanum, *Wendl. and Drude, in Kerchov. de Denterg., Les Palmiers*, p. 243.

WALLICHIA (Orania) nana, *Griff. in Calc. Journ. Nat. Hist.* vol. v. p. 488; *Mart. Hist. Nat. Palm.* p. 190, t. 315.

HARINA nana, *Griff. Palm. Brit. Ind.* p. 176, t. 238, A, B.

With the exception of some Madagascar species of *Dypsis*, and South American *Chamædoreas*, and perhaps *Geonomas*, this is the dwarfest Palm I can recall to mind, rarely exceeding two feet in height. It is, however, for its size far more robust than the plants mentioned above, and having none of the grace of the order to which it belongs, it is unsuited for decorative purposes. *Didymosperma*, as a genus, consists of six or seven species, all from transgangetic India and the Malay Islands. They are separated from *Wallichia* by their short three-cleft calyx and numerous stamens. One species, *D. distichum*, differs from almost all other Palms in having distichous leaves terminating a tall caudex like that of *Ravenalia;* the rest are, as far as is known, chiefly dwarf. There is a species very like *D. nanum*, apparently undescribed, found at Perak in the Malayan Peninsula, differing in the quite glabrous sheaths and petioles, which are more slender; the leaflets suddenly

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terminate in long points, and the fruit is globose. *D. nanum* is a native of the Assam Valley, where it was discovered by Major Jenkins nearly half a century ago, and sent by him to Griffith when in charge of the Calcutta Botanical Gardens; it has since been found by several collectors, and by myself in the same valleys at the northern base of the Khasia Hills. The specimen here figured was received from Dr. King, of the Calcutta Botanical Gardens, in 1874, and flowers annually in the winter months.

Descr. A dwarf robust Palm, two to three feet high, with furfuraceous rusty pubescence on the leaf-sheaths, petioles and spathes. *Stem* short, clothed with leaf-sheaths. *Leaves* one to two feet long, pinnate, glabrous above, rather glaucous beneath; leaflets one to three pair with an odd one, subopposite, sessile, seven to ten inches long by three to five inches broad, cuneately obovate or oblong, acute, rounded or truncate, irregularly transversely cut or lobed, finely sharply irregularly toothed, except the quite entire cuneate base, midrib strong, lateral nerves very slender, flabellate; oblong thickenings occur on the under-surface at the very base of the pinnules between the nerves; terminal pinnule broader, often bifid or bipartite; petiole long, slender; sheath long with fibrous margins. *Spadix* of male and female stout, quite erect, simple or forked once or twice, the branches erect; spathes imbricate, concealing the stout peduncle, oblong, obtuse, concave, the upper often two-fid. *Flowers* densely crowded on a stout rachis; male about a quarter of an inch long, buds oblong obtuse, stamens numerous, included; female larger, one-third of an inch in diameter, globose, with broader calyx and corolla; ovary trigonously globose; stigmas very minute. *Fruit* oblong, about half an inch long, white. *Seed* solitary.—*J. D. H.*

Fig. 1, Underside of base of leaflet; 2, female flower seen from above; 3, the same seen sideways; 4, ovary; 5, section of ditto:—*all enlarged.*

M. S. del, J. N. Fitch lith.

Vincent Brooks, Day & Son Imp.

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TAB. 6837.

PRIMULA AURICULA.

Native of Central Europe.

Nat. Ord. PRIMULACEÆ.—Tribe PRIMULEÆ.

Genus PRIMULA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 631.)

PRIMULA *Auricula*; rhizomate crasso elongato fibris radicalibus cylindricis elongatis, foliis pluribus rosulatis sessilibus obovato-cuneatis glabris vel pubescentibus, utrinque plus minus farinosis margine pallidis farinosis integris vel superne crenatis, pedunculo foliis eminente glabro vel superne pubescente, umbellis 3–20-floris, bracteis minutis ovatis, pedicellis calyce longioribus, calyce campanulato segmentis ovatis obtusis tubo 2–3-plo brevioribus, corollæ luteæ tubo infundibulari, limbi segmentis obovato-cuneatis profunde emarginatis, fructu globoso calyce longiori.

P. Auricula, *Linn. Sp. Plant.* edit. 2, p. 205; *Jacq. Fl. Austr.* t. 415; *Hoppe in Sturm Deutsch. Flora*, Pent. Mon. cum icone; *DC. Fl. Franc.* vol. iii. p. 448; *Koch Syn. Fl. Germ.* edit. 2, p. 674; *Reich. Ic. Fl. Germ.* vol. xvii. p. 36, t. 1093, figs. 1, 2; *Gren. and Godr. Fl. Franc.* vol. ii. p. 451.

P. lutea, *Vill. Delph.* vol. ii. p. 469.

In view of the interest that is being taken at present in Alpine Primulas, and of the exhibition and conference which is intended to be held next spring under the auspices of the Royal Horticultural Society, it seemed very desirable that a figure and full description of *Primula Auricula* should be given in the BOTANICAL MAGAZINE. It is one of the most widely spread of all of the species, as it extends in a wild state from Dauphine and the Jura on the west through Switzerland to Lombardy, the Tyrol, Hungary and Transylvania. But although it is so well known to botanists, the synonymy as above given being only a small selection of the botanical works in which it has been noticed or described, yet this typical wild form does not appear to have ever been figured in any of the horticultural journals. What the relation is of this widely-spread wild type to the multiform races of the garden Auricula is a subject that still remains to be fully worked out. It evidently both runs into varieties and hybridizes freely with several other species, both of the *Auriculastra* and *Arthritica* groups, but the subject is much too wide to be discussed fully now.

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Our drawing was made from a plant that flowered in the rockery at Kew in the course of the present summer.

DESCR. *Rootstock* nearly as thick as a man's little finger, sending out copious whip-like root-fibres. *Leaves* many in a rosette, sessile, obovate-cuneate, two or three inches long, an inch or an inch and a half broad, glabrous or pubescent, more or less farinose on both sides, especially when young, cartilaginous and farinose on the margin, entire or crenate in the upper third or half. *Peduncle* longer than the leaves, sometimes half a foot long, glabrous or pubescent towards the apex. *Flowers* three to twenty in an umbel, bright yellow, fragrant; bracts minute, ovate, mealy; pedicels half or three-quarters of an inch long. *Calyx* campanulate, nearly one-sixth of an inch long; segments ovate-oblong, obtuse, less than half as long as the tube. *Corolla-tube* narrowly infundibuliform, under half an inch long; limb half or three-quarters of an inch in diameter; segments obovate-cuneate, deeply emarginate. *Stamens* in the short-styled form, as drawn, forming a ring below the throat of the corolla-tube. *Capsule* globose, a quarter of an inch long and broad.—*J. G. Baker.*

Fig. 1, Calyx; 2, corolla, cut open; 3, an anther; 4, pistil of short-styled form —*all more or less enlarged.*

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M.S. del, J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

TAB. 6838.

CHAMÆDOREA ARENBERGIANA.

Native of Guatemala.

Nat. Ord. PALMEÆ.—Tribe ARECINEÆ.

Genus CHAMÆDOREA, *Wendl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 910.)

CHAMÆDOREA (Stephanostachys) *Arenbergiana;* palma gracilis, caule erecto solitario remote annulato, foliis maximis pinnatis, vaginis longissimis cylindricis, pinnis multijugis 1–1½-pedalibus e basi lata oblongo-lanceolatis attenuato-acuminatis multicostatis, spathis plurimis 6–10-pollicaribus arcte sese appressis apicibus erectis lineari-oblongis obtusis viridibus striatis vaginam pedalem efformantibus, spadicibus infra foliaceis, masculis brevissime pedunculatis subumbellatim ramosis, pedunculo spathis omnino occluso, ramis effusis pedalibus crassitie digiti minoris cylindraceis stramineis, femineis 6-pollicaribus simplicibus suberectis femineis paullo crassioribus; fl. mas. calyce minimo 3 dentato, corollæ segmentis orbiculatis concavis convolutivo-imbricatis, antherarum loculis brevibus divaricatis, pistillodio columnari obscure 3-lobo; fl. fem. petalis latioribus transverse oblongis concavis, staminodiis 0, ovario subgloboso 3-lobo, stigmatibus 3 parvis trigonis acutis.

CH. Arenbergiana, *Wendl. Ind. Palm.* 66. *Kerch. de Denterg. Les Palmiers*, p. 75, fig. 33.

CH. latifrons *vel* latifolia, *Hort.*

SPATHASCAPHE Arenbergiana, *Œrst. Palm. Centramer. in Vidensk. Meddel. Nat. For. Kjöbenhav.* 1858, p. 30, and *L'Amerique centrale*, t. 7, fig. 29–37.

A very elegant Palm, about five and a half feet high, with a crown of leaves composed of numerous regularly pinnated leaflets. It belongs to the large genus *Chamædorea*, which has its headquarters in the hot regions of Central America, very few being found in the Andean region south of it, or in Brazil. *C. Arenbergiana* is nearly allied to *C. Tepejilote*, figured at Plate 6030 of this work, but is a much larger plant, with broader leaflets, a more exserted male spadix, with much longer, thicker and paler branches; this further differs in the distinctly developed calyx and considerably larger flowers.

The Royal Gardens are indebted to Mr. Wendland, of Herrenhausen, for living plants of this beautiful Palm, which were received in 1879; it flowers in the month of March.

DESCR. *Caudex* five and a half feet high, green, ringed at

intervals of two inches. *Leaves* five to six, erecto-patent, pinnate, six to seven feet long; petiole slender, with a long cylindric sheath; leaflets about ten to fifteen pair, drooping, one to one and a half feet long, alternate, oblong-lanceolate from a broad sessile base, gradually narrowed to a very fine point, plicate with about thirty ribs, bright green above, rather pale beneath; petiole nearly terete. *Inflorescence* from below the leaves. *Spathes* many, sheathing, cylindric, six to ten inches long, forming a tube a foot long, which completely conceals the peduncle of the spadix, lightly rolled together with subacute erect tips, the uppermost far exceeding the spadix, green, or the lower brown. *Male spadix* subumbellately branched within the spathes, the branches effuse, pendulous, a foot long and as thick as the little finger, cylindric, pale straw-coloured, dense-flowered, terminated by the naked subulate tip. *Flowers* about one-sixth of an inch diameter; *calyx* very short, three-toothed; *corolla-lobes* rounded, concave, fleshy; *stamens* six, filaments very thick, anther-cells divaricate; pistillode columnar, tip three-lobed. *Female spadix* simple, erect, six inches long, rather stouter than the branches of the male spadix. *Petals* transversely oblong, concave; staminodes none; *ovary* subglobose, three-lobed; stigmas three, minute, sessile, trigonous."—*J. D. H.*

Fig. 1, Reduced figure of the whole plant; 2, leaflet; and 3, male spadix of the natural size; 4, outer, and 5, inner view of male flower; 6 and 7, stamens; 8, pistillode:—*all enlarged.*

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M.S.del, J.N.Fitch lith.

Vincent Brooks, Day & Son Imp

TAB. 6839.

FUCHSIA AMPLIATA.

Native of the Andes of Ecuador.

Nat. Ord. ONAGRARIEÆ.

Genus FUCHSIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 790.)

FUCHSIA *ampliata;* caulibus petiolis pedicellisque puberulis, foliis ternatim verticillatis petiolatis elliptico-oblongis acutis remote denticulatis supra viridibus subtus viridibus v. rufescentibus glabris v. pubescentibus, floribus axillaribus solitariis 2–3-nisve longe pedicellatis pendulis coccineis, ovario oblongo, calycis tubo 1½–3-pollicari attenuato-infundibulari lobis ovato-lanceolatis triplo longiore, petalis calycis lobis brevioribus quadrato-rotundatis oblongisve obtusis, staminibus breviter exsertis, stylo hirto, stigmate globoso.

F. ampliata, *Benth. Plant. Hartweg.* 178.

Fuchsia ampliata is one of three handsome and large and scarlet-flowered very closely allied species, which inhabit the Andes of New Grenada and Ecuador, none of which have hitherto been figured, and only one of them has been introduced into cultivation. They are *F. petiolaris*, H. B. and K., of New Grenada, with lanceolate acute petals; *F. corollata*, Benth., from Columbia (Hartweg), with rounded obtuse petals longer than the calyx-lobes; and the plant here figured, with broad petals shorter than the calyx-lobes. Of these *F. ampliata* is confined to the Andes of Ecuador, where it has been found near Quito, and on the volcanos of Pichincha and Pilzhum, by Jameson, Hall, Spruce (No. 5501), Lobb, and Hartweg, forming a bush three to five feet high, at elevations of 10,000 to 13,000 feet above the sea. *F. corollata* inhabits the woods of Popayan, on the ascent to the Paramo de Guanacas, at 10,000 feet elevation. *F. petiolaris* (of which *F. Quindiuensis* is doubtless a pubescent variety) is confined to New Grenada, being found on the Andes of Ocana, Antioquia and the Paramo of Quindiu, at 7000 to 10,000 feet elevation. All these vary from being nearly glabrous to tomentose, in the size of the flower, and turgescence of the calyx-tube.

The specimen of *F. ampliata*, here figured, has a special

interest as one of the fine series of Andean plants sent to Kew by the late J. A. Henry, Esq., who raised it from seeds sent by his old friend, the late Dr. Jameson, Professor of Botany at Quito. It flowered at Kew in June. It was received in 1877, and flowers in the month of June.

Descr. A small glabrous or pubescent shrub, three to five feet high. *Stem* often decumbent below, with ascending leafy branches. *Leaves* two to three inches long, usually drooping and ternately whorled, elliptic-oblong, acute at both ends, distinctly denticulate, glabrous or nearly so above, glabrous or pubescent beneath, nerves six to eight pair; petiole slender, one-third to one-half of an inch long. *Flowers* solitary or two to three together in axillary clusters, pedicel usually about half as long as the scarlet flower, which is two to three inches long and pendulous. *Calyx* narrowly funnel-shaped, sometimes inflated above the middle; lobes one-fourth as long as the tube, ovate-lanceolate, acuminate. *Petals* shorter than the calyx-lobes, suborbicular, obtusely four-angled, scarlet like the calyx. *Stamens* shortly exserted. *Stigma* globose.—*J. D. H.*

Fig. 1, Portion of leaf; 2 and 3, anthers; 4, pistil:—*all enlarged.*

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M.S. del, J.N. Fitch lith.

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TAB. 6840.

ANEMONE POLYANTHES.

Native of the Himalaya.

Nat. Ord. RANUNCULACEÆ.—Tribe ANEMONEÆ.

Genus ANEMONE, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 4.)

ANEMONE *polyanthes;* erecta, robusta, sericeo-tomentosa v. villosa, rhizomate brevi robusto, foliis radicalibus longe petiolatis cordato-orbiculatis 5–7-lobis, lobis late cuneatis grosse crenatis, caulinis sessilibus, floribus in umbellas simplices v. compositas dispositis longe pedicellatis albis, sepalis 5–6 obovato-rotundatis-oblongisve obtusis glabriusculis, carpellis maturis late oblongis obovatisve compressissimis stylo brevi subulato terminatis.

A. polyanthes, *Don Prodr. Fl. Nep.* p. 194; *Hook. f. et Thoms. Fl. Ind.* p. 24; *Hook. f. Fl. Brit. Ind.* vol. i. p. 9.

A. longiscapa, *Wall. Cat.* No. 4691.

A. scaposa, *Edgew. in Trans. Linn. Soc.* vol. xx. p. 27.

A. villosa, *Royle Ill. Pl. Himal.* p. 52.

A. Govaniana, *Royle l.c.* p. 45 (*not of Wallich and Don*); *Lindl. Bot. Reg.* 1844, *Misc.* p. 45.

A. obtusiloba, *Lindl. Bot. Reg.* 1884, t. 65 (*not of Don*).

Of the fifteen described species of Himalayan Anemones, the only one that has hitherto been figured in any horticultural work is the *A. vitifolia* (Plate 3376), a fact which shows how much still remains to be accomplished in the way of introducing hardy herbaceous plants from that rich region; for many of them are very attractive plants, and eminently worthy of a place in the rock garden. *A. polyanthes* was introduced forty years ago by seeds communicated to the Horticultural Society by the Honourable East India Company. Plants raised and flowered in the Gardens of the Society were rightly referred to the *A. Govaniana* of Wallich (a synonym of *polyanthes*) by Lindley in the Miscellanea appended to the Botanical Register of 1844, but in the body of that work he named it *A. obtusiloba*, which is a very different though also a Himalayan species. Lindley's figure represents a very poor specimen, for the plant grows to a foot and a half in height, with often compound umbels of twenty to thirty flowers, which are sometimes two inches in

diameter. As a species it is very like the European and Siberian *A. narcissiflora*, which is found in Kashmir, but which has more divided leaves with more deeply cut lobes.

A. polyanthes is a very common Himalayan plant, from Kashmir to Sikkim, between the elevations of 10,000 and 12,000 feet, growing in moist places; it flowered in the Royal Gardens in May last.

Descr. Silkily hairy or villous all over, except the flowers and fruit. *Rootstock* as thick as the thumb, short, black, clothed at the top with fibres of old petioles and stems. *Leaves* two to four inches in diameter, orbicular, cordate, five- to seven-lobed, but rarely below the middle, lobes coarsely irregularly crenate; petiole four to ten inches long, very stout; cauline leaves sessile, cuneate, lobed, and cut, forming an involucre. *Flowers* one to two inches in diameter, white, in simple or compound umbels, often very numerous (twenty to thirty); peduncles and pedicels stout. *Sepals* broadly obovate or oblong, obtuse, glabrous or slightly hairy at the back. *Stamens* very numerous, filaments glabrous; anthers short, yellow brown, all perfect. *Carpels* ovoid oblong, erect; styles not prolonged or feathery. *Achenes* half an inch long, almost flat, broadly obovate or oblong, with a small subulate stigma, margin thickened, surface glabrous or with a few glandular hairs.—*J. D. H.*

Fig. 1, Stamen; 2, head of unripe carpels (of the natural size); 3 and 4, carpels; 5, head of ripe carpels; 6 and 7, ripe carpels:—*all but fig. 2 enlarged.*

M.S. del, et J.N. Fitch lith.

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Tab. 6841.

CALLIPSYCHE AURANTIACA.

Native of the Andes of Ecuador.

Nat. Ord. Amaryllideæ.—Tribe Amarylleæ.

Genus Callipsyche, *Herb.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 731.)

Callipsyche *aurantiaca;* bulbo globoso tunicis brunneis membranaceis, foliis post anthesin productis ovatis acutis petiolatis glabris distincte costatis, pedunculo tereti subpedali, umbellis 6–8-floris, spathæ valvis exterioribus lanceolatis parvis, pedicellis brevibus, floribus inodoris aurantiacis, ovario oblongo-trigono, perianthii infundibularis tubo brevi segmentis oblanceolatis flore expanso falcatis, staminibus declinatis longe exsertis antheris linearioblongis parvis, stylo longissimo declinato apice stigmatoso capitato, fructu capsulari profunde trilobato.

C. aurantiaca, *Baker in Saund. Ref. Bot.* t. 167.

This singular Amaryllidaceous plant possesses the leaf and general habit of a *Eucharis* in combination with bright yellow flowers in shape like those of a *Hippiastrum*, but with remarkably long drooping stamens and style. It was first described from specimens that flowered fifteen years ago at Reigate in the collection of the late Mr. Wilson Saunders, who procured it from M. Linden. Since then it has been flowered in England by Mr. William Bull and Sir Charles Strickland, and now again this year with Mr. F. Horsman at Colchester, from whose plant our drawing was made, the flowers in February, and the leaf in June.

Descr. *Bulb* ovoid, an inch in diameter, with brown membranous tunics. *Leaves* not produced till after all the flowers fade, ovate, distinctly petioled, bright green, glabrous, with a distinct midrib and sixteen or eighteen pairs of curved vertical veins on each side of it. *Peduncle* subterete, green, hollow, a foot long. *Flowers* six or eight in an umbel, not scented, greenish in bud, bright yellow when expanded; outer bracts small, green, lanceolate; inner linear; pedicels half an inch or an inch long. *Ovary* oblong-trigonous, green, with numerous superposed horizontal ovules in each of the three cells. *Perianth* infundibuliform, two inches long, with a short tube above the

ovary, and six oblanceolate falcate many-nerved segments a third of an inch or half an inch broad. *Stamens* contiguous, declinate, inserted at the throat of the perianth-tube, protruded finally three inches beyond its tip; anthers small, linear-oblong. *Style* protruded a little beyond the stamens; stigma capitate, minute. *Capsule* deeply three-lobed.—*J. G. Baker.*

Fig. 1, Lower part of the flower cut open; 2, front view of an anther; 3, back view of an anther; 4, stigma and apex of style; 5, horizontal section of ovary:—*all more or less enlarged.*

M.S. del, J.N. Fitch lith.

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TAB. 6842.

PHACELIA PARRYI.

Native of California.

Nat. Ord. HYDROPHYLLACEÆ.—Tribe PHACELIEÆ.

Genus PHACELIA, *Juss.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 827.)

PHACELIA (Whitlavia) *Parryi;* sparse hispida et glanduloso-pilosa, foliis ovatis v. ovato-oblongis grosse inæqualiter crenato-dentatis serratisve, racemis multifloris foliis pluries longioribus, calycis lobis anguste linearibus obtusis, corollæ late breviter campanulatæ tubo calyce breviore, squamis obcordatis, filamentis pilosis, placentis multiovulatis.

PHACELIA Parryi, *Torr. Bot. Mex. Bound.* (*Emory*) *Rep.* p. 144; *A. Gray in Proc. Amer. Acad. Arts and Sc.* vol. x. (1874), ser. 2, p. 322, and *Synopt. Fl. N. Am.* vol. ii. part 1, p. 164.

A very near ally of *P. campanularia*, A. Gray (figured at Plate 6735 of this work), differing in the narrower leaves and much shorter tube of the corolla, as also in the shape of the scales at the base of the corolla-tube within. The flower is in fact nearly flat, or rotate. It is a native of almost the same county as its ally, namely the St. Diego and St. Bernardino counties of Southern California, where it was discovered by Dr. Parry. The plant here figured was raised from seeds sent by Prof. Asa Gray, which flowered in June last.

DESCR. A viscid annual, clothed with spreading simple and gland-tipped hairs. *Stem* one to two feet long, branched, spreading and ascending, sparingly leafy. *Leaves* one to four inches long, petioled, ovate or ovate-oblong, acute, hairy on both surfaces; base acute or rounded; margin coarsely unequally toothed; petiole two to four inches long. *Flowers* in terminal many-flowered cymes much exceeding the leaves; pedicels a half to one inch long, lengthening in fruit. *Calyx* of five very narrow obtuse glandular-hairy sepals much longer than the corolla-tube, spreading and recurved. *Corolla* dark violet blue, an inch in diameter, almost rotate, the tube being very short, and

the limb horizontally expanded; lobes rounded. *Filaments* far exserted, hairy; anthers oblong, golden yellow; staminodes cordiform, sessile, glandular-hairy, golden yellow. *Scales* obcordate, adnate. *Ovary* clothed with long soft hairs; style and its arms capillary; stigmas capitellate; ovules numerous on each placenta. *Capsule* ovoid acute, as long as the persistent calyx segments, tipped with the base of the style.—*J. D. H.*

Fig. 1, Calyx; 2, base of corolla-tube with stamens, staminodes, and scales; 3, stamen; 4, pistil; 5, transverse section of ovary:—*all enlarged.*

M.S. del, J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

TAB. 6843.

NYMPHÆA STELLATA, var. ZANZIBARIENSIS.

Native of Zanzibar.

Nat. Ord. NYMPHÆACEÆ.—Tribe NYMPHÆÆ.

Genus NYMPHÆA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 46.)

NYMPHÆA *stellata*, var. *zanzibariensis*; foliis amplis rotundatis marginibus irregulariter crenato-lobulatis, floribus amplis saturate azureis, sepalis extus viridibus kermesino-marginatis, petalis 18–30 lineari-oblongis obtusis v. subacutis, staminibus 130–240, filamentis brevibus latis, antheris elongatis, carpellis 15–30, apicibus oblongis obtusis incurvis.

N. zanzibariensis, *Caspary in Bot. Zeit.* 1877, p. 202, *and in Wittmark Gartenzeit.* 1882, p. 1, fig. 1, *et Ic. pict.*; *The Garden*, 1884, p. 210, *cum Ic.*

This splendid Waterlily is the subject of two very elaborate articles by Prof. Caspary, of Königsberg, who has made the genus to which it belongs a life-long study. In the first of these, that published in the "Botanische Zeitung," wherein the species is originally described, he contrasts its characters with those of three blue-flowered closely allied plants (referred by some botanists, including myself, to forms of one species), namely, *N. capensis*, Thunb., *N. cærulea*, Savigny (Plate 552 of this work), and *N. stellata*, Willd. (Plate 2058 of this work), and gives the differences between them in parallel columns. The result is very interesting and instructive, as showing in almost all points of structure, size and number of parts, and in many of colour, a gradual passage from *N. stellata* through *N. cærulea* and *N. capensis* up to *N. zanzibariensis*. Of these *N. stellata* is the most reduced form; its largest flowers are one-third smaller than those of average *zanzibariensis*. The number of its floral organs is on the average 73 against 222; of the petals, which are pale blue, 11 to 14 against 18 to 24 of *zanzibariensis*, which are deep blue; of stamens, 33 to 54 against 136 to 242; of carpels, 10 to 17 against 15 to 30; its seeds are smaller and paler, and its leaves smaller also. In all these matters *N. cærulea* comes nearest to *N. stellata*, and *N. capensis* to *N. zanzibariensis*. In some other respects, however, there are remarkable differences between the above forms. Thus,

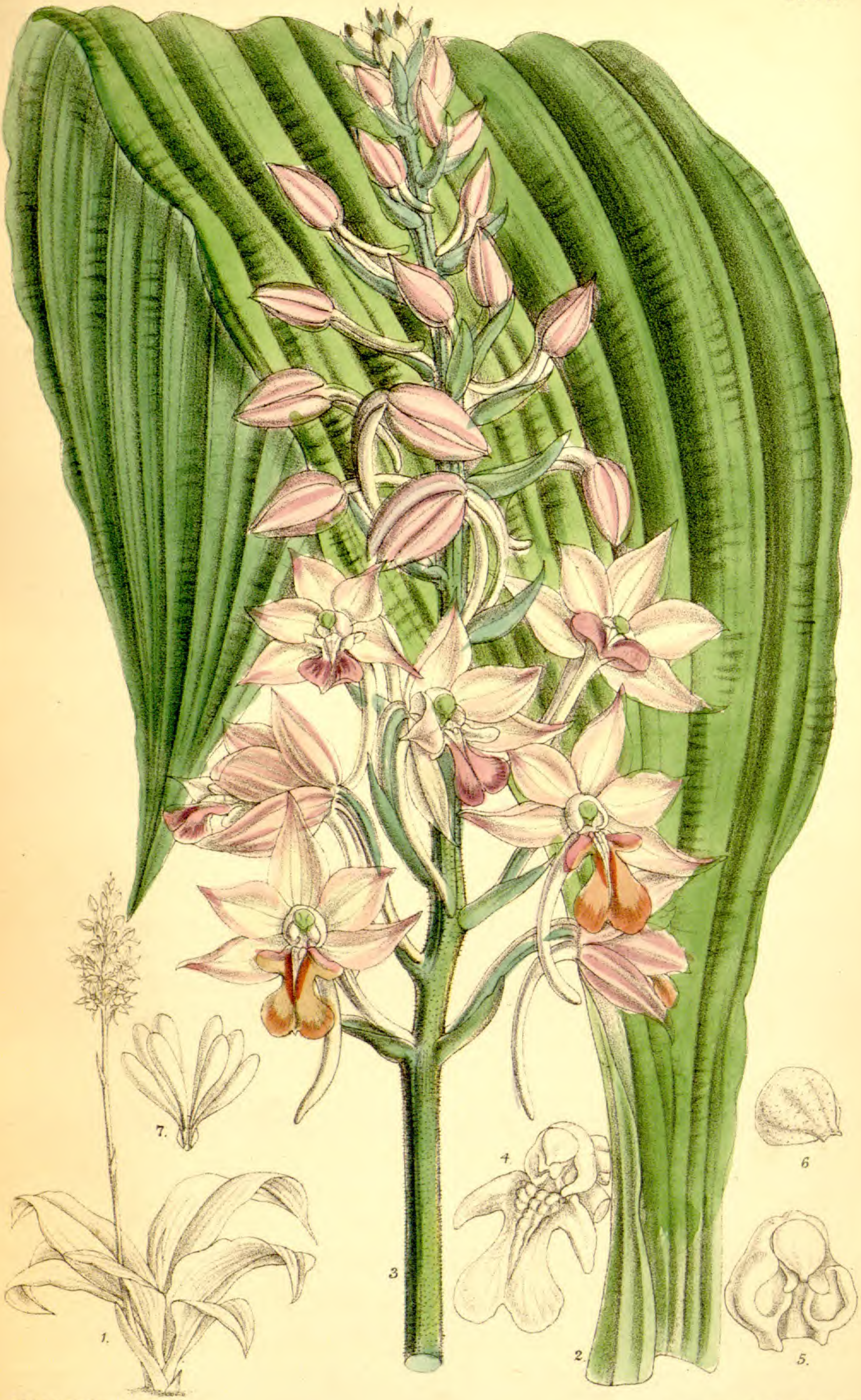
under cultivation with Dr. Caspary, *N. zanzibariensis* flowers only from 11 a.m. to 5 p.m.; the flower expands on five successive days, and cannot fertilize itself. Of *N. capensis* the flower is open from 5 to 7 a.m. till 1 to 3 p.m., expands on five successive days, and cannot fertilize itself. Of *N. cærulea* the flower is open from 8 a.m. till 2 p.m., expands on four successive days, and does fertilize itself. Of *N. stellata* the flower is open from 8 a.m. till 2 p.m., expands on three successive days, and fertilizes itself even in the bud. How far these characters will stand the test of cultivation in other houses (they do not at Kew) of different conditions of light, heat and water, and, above all, how far they will prove constant in plants raised from seeds collected in other localities, remains to be proved. Be this as it may, it is impossible to exaggerate the value of such careful and conscientious observations, which ought to be repeated on plants growing in their native country.

N. zanzibariensis was introduced into Europe in 1877 by Dr. Hildebrandt. The species has no rival except the Australian *N. gigantea* (Plate 4647), the flowers of which are even larger, attaining a foot in diameter, but they are of a much paler blue. As with *N. gigantea*, the flowers of young tubers are small, and enlarge as these gain size and strength.

The plant here figured was raised from a small tuber received from the Berlin Botanical Gardens in 1882, which flowered in 1883. The first flowers were small, as figured in "The Garden." At Kew the flowers open at noon and close at night; are deliciously fragrant, and remain sometimes a fortnight before being submerged for the ripening of the seed.

Descr. *Leaves* orbicular, 10 to 12 inches in diameter, obtusely sinuate-crenate, with 12 to 14 radiating nerves on each side of the mesial line, deep green above, paler beneath. *Flowers* 6 to 8 inches in diameter, deep blue. *Sepals* deep green externally, with a suffused coppery red intermarginal band, dark blue within. *Petals* 18 to 30, oblong, obtuse. *Stamens* 150 to 250; filaments broad, yellow; anthers linear, blue; connective produced into a long point. *Carpels* 15 to 30, free part triangular-oblong.—*J. D. H.*

Fig. 1, Section of peduncle; 2, tuft of hairs from the air-passages; 3 and 4, stamens; 5, ovary and top of peduncle:—*all but fig. 5 enlarged.*



M.S. del. J.N. Fitch lith.

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Tab. 6844.

CALANTHE natalensis.

Native of Natal.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Calanthe, *Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 520.)

Calanthe *natalensis;* foliis petiolatis elliptico-lanceolatis acuminatis plicato-nervosis et corrugatis nervis 5–9, pedunculo valido, racemo plurifloro, floribus pallide lilacinis, sepalis ovato-lanceolatis acuminatis petalis paullo brevioribus latioribusque, labelli lobis lateralibus oblongis obtusis v. fere rotundatis rectis curvisve, lobo intermedio late obcordato, disco verrucoso calcare gracili ovario longiore.

C. natalensis, *Reichb. f. in Bonplandia*, 1856, p. 322; *N. E. Brown in Gard. Chron.* vol. xxiv. (1885) ii. 78 and 136.

C. sylvatica, *var.* β. natalensis, *Reichb. f. in Linnæa*, vol. xix. p. 374.

Apparently a common and certainly a variable plant, in various places of Eastern South Africa, from Natal itself, where Mr. Sanderson and others have found it in the Bush Swamp at the head of the Bay, to boggy hills in the interior ascending to 2000 feet; and Mr. Bolus sends specimens from the Perie forest, near King William's Town. According to drawings made from the living plant by Mr. Bolus, the lip varies much in shape and colour, the lateral lobes being sometimes almost rounded, at others narrowed and curved as in the figure here given. It was at first supposed to be a variety of the Bourbon and Mauritius *C. sylvatica*, to which indeed Dr. Lindley referred it, but that plant is described as having "white flowers changing to bright yellow without fading, so that the upper part of the long spike is pure white, the lowest very yellow, the middle of a delicate cream." It is probably more nearly allied to an undescribed tropical East African species collected by Dr. Kirk in Johanna Island, which has much longer petioles, larger flowers, &c., shorter spur with a hooked or coiled tip. The calli on the disk of the lip are much larger in the Natal plant than in Mr. Bolus' figure of that from Perie bush, in which they are small, and produced nearly to the notch of the mid-lobe of the lip.

Nov. 1st, 1885.

The plant here figured was raised from roots sent by Mr. Leighton, Curator of the King William's Town Botanical Gardens (formerly Foreman of the Herbaceous Collection at Kew), together with several other interesting terrestrial Orchids. It was found in an old decayed Perie wood (whence Mr. Bolus also procured it), and it grows well in the cool orchid house at Kew in a mixture of peat and loam.

Descr. *Roots* of strong stout fibres. *Leaves* five to seven, all radical, eight to twelve inches long by three to five broad, narrowed into a broad concave petiole, elliptic-lanceolate, acuminate, plaited with five to nine nerves, and corrugated here and there between the nerves, membranous, pale green and translucent. *Flowering-stem* longer than the leaves, stout, erect, with a few short acute sheaths; raceme pyramidal, six to eight inches long; rachis robust; bracts lanceolate, herbaceous, green, shorter than the ovary, which is about an inch long and slender. *Flowers* one to one and a half inch in diameter, pale lilac with a darker redder lip, or with the sepals and petals white and suffused with lilac towards the margin only. *Sepals* ovate-lanceolate, acuminate. *Petals* rather shorter and broader. *Lip* about as long as the sepals; lateral lobes basal, small, oblong, obtuse and curved, or almost rounded; mid-lobe broadly obcordate; disk with a cluster of prominent tubercles at the base, and a few smaller ones along the mesial line towards the notch at the end; spur slender, incurved, white, as long as the ovary; column very short, subglobose, with two cavities in front, one on each side.—*J. D. H.*

Fig. 1, Reduced figure of whole plant; 2, leaf; and 3, raceme, both of the natural size; 4, column and lip; 5, column seen in front; 6, anther; 7, pollen-masses:—*all except figs.* 1–3 *enlarged.*

M.S. del, J.N. Fitch lith.

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TAB. 6845.

BORONIA HETEROPHYLLA, var. BREVIPES.

Native of South-Western Australia.

Nat. Ord. RUTACEÆ.—Tribe DIOSMEÆ.

Genus BORONIA, *Sm.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 291.)

BORONIA *heterophylla*; frutex glaberrimus, gracilis, ramis virgatis, foliis v. sessilibus simplicibus et linearibus v. petiolatis pinnatis foliolis 3–5 linearibus acutis petiolo elongato, floribus axillaribus fasciculatis pendulis, pedunculis 2-bracteatis 1-floris, floribus subglobosis, sepalis brevissimis orbiculatis 1-costatis apiculatis, petalis coccineis late ovatis concavis intus puberulis, filamentis 5 majoribus sepalis oppositis elongatis crassis incurvis glabris antheris nigris, 5 minoribus multoties brevioribus antheris flavis, ovario pubescente stylo columnari crasso.

B. heterophylla, *F. Muell. Fragment.* vol. ii. p. 98; *Benth. Fl. Austral.* vol. i. p. 315.

VAR. *brevipes*; pedicellis flore brevioribus.

This differs from the native specimens of *B. heterophylla* in the much shorter peduncles of the flowers, but I can find no other character whereby to distinguish it; and Mueller in his original description of the species describes its peduncle as about equalling the flower. It is a very beautiful plant, allied to *B. elatior* figured at Plate 6285 of this work in many particulars, but differing widely in habit, in the larger leaves with few leaflets, in the brilliant colour of the flowers, in the shape of the sepals and petals, and in the long filaments.

The plant here figured was raised from seeds collected by Miss North in Western Australia in 1881, when engaged in making the beautiful series of paintings of the plants of that country which form so attractive a portion of her gallery. It flowered in a cool greenhouse in April of the present year. It is probably not an uncommon plant near the Swan River, where it was first found by James Drummond, about 1842, and since then in places sometimes inundated on the Kalgee River, by Maxwell and others.

DESCR. An erect much-branched shrub, said to attain the height of a man, with slender erect branches, quite

glabrous, or with a microscopic pubescence on the leaves. *Leaves* very variable, sometimes quite simple, one to one and a half inch long, very narrowly linear, apiculate, at others with one rarely two pair of linear leaflets on a slender petiole, dark green, spreading. *Flowers* whorled at the leaf-axils, usually in fours or sixes, drooping, subglobose, bright scarlet, one-third to one-half inch in diameter; peduncles as long as the flower or longer, minutely bibracteate about the middle. *Calyx* with a turbinate base, and four minute rounded green sepals, each with a strong dorsal keel ending in a mucro. *Petals* broadly ovate, concave, subacute, thick, glabrous without, sparsely pubescent within. *Filaments* eight; the four longer stout, incurved, with dark anthers; the four smaller very short, with yellow anthers. *Ovary* short, pubescent, with a stout short cylindric style contracted at the base.—*J. D. H.*

Fig. 1, Portion of leaf, showing the minute pubescence; 2, peduncle, bracts and flower, with the petals removed; 3, flower with the perianth removed; 4, disk and ovary; 5, vertical section of ovary:—*all enlarged.*

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M.S. del, J.N. Fitch lith.

Vincent Brooks Day & Son Imp.

TAB. 6846.

ANEMONE TRIFOLIA.

Native of Central Europe.

Nat. Ord. RANUNCULACEÆ.—Tribe ANEMONEÆ.

Genus ANEMONE, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 4.)

ANEMONE *trifolia*; erecta, gracilis, glaberrima, rhizomate brevi robusto, foliis involucrantibus petiolatis 3-foliolatis, foliolis subsessilibus oblongo v. elliptico-lanceolatis acuminatis serratis, floribus solitariis gracile pedunculatis albis, sepalis 6 (5–7) ovato-oblongis obtusis, staminibus parvis filamentis filiformibus antheris flavis, carpellis maturis perplurimis lineari-oblongis compressis crasse costatis hirsutis in stylum brevem uncinatum attenuatis.

A. trifolia, *Moris. Hist. Pl.* pars ii. p. 424, sect. 4, tab. 25, fig. 1; *Linn. Sp. Pl.* ed. i. p. 540; *DC. Prodr.* vol. i. p. 20; *Sturm. Deutsch. Fl.* vol. iv. tab. 14; *Reichb. Ic. Fl. Germ.* vol. iv. tab. 48; *Gerard. Herb.* p. 305, fig. 9.

It is remarkable that this plant, though cultivated in England by Gerard as early as 1597, should not have been figured in any English work since the publication of Morison's "Historia Plantarum" in 1680, the citation of which is omitted by Linnæus in the first edition of his "Species Plantarum." It is a native of Central and Southern Europe, from Piedmont and North Italy to Southern Austria and Croatia; De Candolle indeed adds Siberia, but according to Ledebour the plant referred to as Siberian is *A. reflexa*, Steph., an allied but different species.

A. trifolia, though included in the last edition of Aiton's "Hortus Kewensis" (1810) has probably long been out of general cultivation in England. It has, however, been lately reintroduced by Mr. W. Brockbank, of Didsbury, who brought to Kew, in May last, the specimens here figured. It is well worthy of cultivation, and now that the love of herbaceous plants is taking root in the country, it is not likely to be lost again.

DESCR. Quite glabrous. *Rootstock* stout, as in *A. nemorosa*. *Stems* six to ten inches high, slender. *Leaves* all three-foliolate, radical on long petioles; involucral on

shorter petioles; leaflets sessile two to four inches long by one-half to one inch broad, elliptic-oblong or -lanceolate, acuminate, serrate, dark green above, pale beneath. *Flowers* solitary, erect; one to one and a half inch in diameter, pure white; peduncle slender. *Sepals* six (rarely five or seven), oblong, obtuse, spreading, nerves faint. *Stamens* numerous, small; filaments rather short, filiform; anthers minute, yellow. *Carpels* very numerous, slender, pubescent, forming a globose head. *Achenes* linear-oblong, compressed, with three to five obscure thick ribs, gradually narrowed into a short hooked style.—*J. D. H.*

Fig. 1, Stamen; 2, head of carpels; 3, immature carpel; 4, head of achenes; 5, single achene:—*all but fig.* 4 *enlarged.*

M.S. del, J.N.Fitch lith.

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TAB. 6847.

POLYGONUM SPHÆROSTACHYUM.

Native of the Himalaya.

Nat. Ord. POLYGONACEÆ.—Tribe EUPOLYGONEÆ.

Genus POLYGONUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 97.)

POLYGONUM (Persicaria) *sphærostachyum;* glaberrimum, rhizomate robusto, caulibus simplicibus erectis foliosis monocephalis, foliis inferioribus petiolatis lineari-lanceolatis acuminatis crispato-crenulatis subtus glabris glaucis v. pubescentibus, basi attenuatis v. subhastatis et in petiolum decurrentibus, caulinis sessilibus, stipulis laxis, spicis cylindraceis globosisve multi-densi-floris, floribus sanguineis deorsum imbricatis cernuis, perianthii segmentis 5 oblongis obtusis, staminibus 4 longioribus inclusis v. exsertis, glandulis ad basin staminum minutis, ovario 3-gono, stylis basi longe v. breviter connatis.

P. sphærostachyum, *Meissn. Monogr. Polyg.* p. 53; *in Wall. Plant. As. Rar.* vol. iii. p. 52; *et in DC. Prodr.* vol. xiv. pars 1, p. 125.

P. macrophyllum, *Don Prodr. Fl. Nep.* p. 70; *Babington in Trans. Linn. Soc.* vol. xviii. p. 95.

P. tenue, *Don l. c.* (*non Michaux.*)

P. gracillimum, *Spreng. Syst. Veg.; Cur. post.* 154.

P. affine, *var.* angustifolium, *Wall. Cat.* n. 1683.

P. stenophyllum, *Meissn. Monog.* p. 52, *and in DC. l. c.*

P. angustifolium, *Don l. c.* p. 70, *Spreng. l. c.*

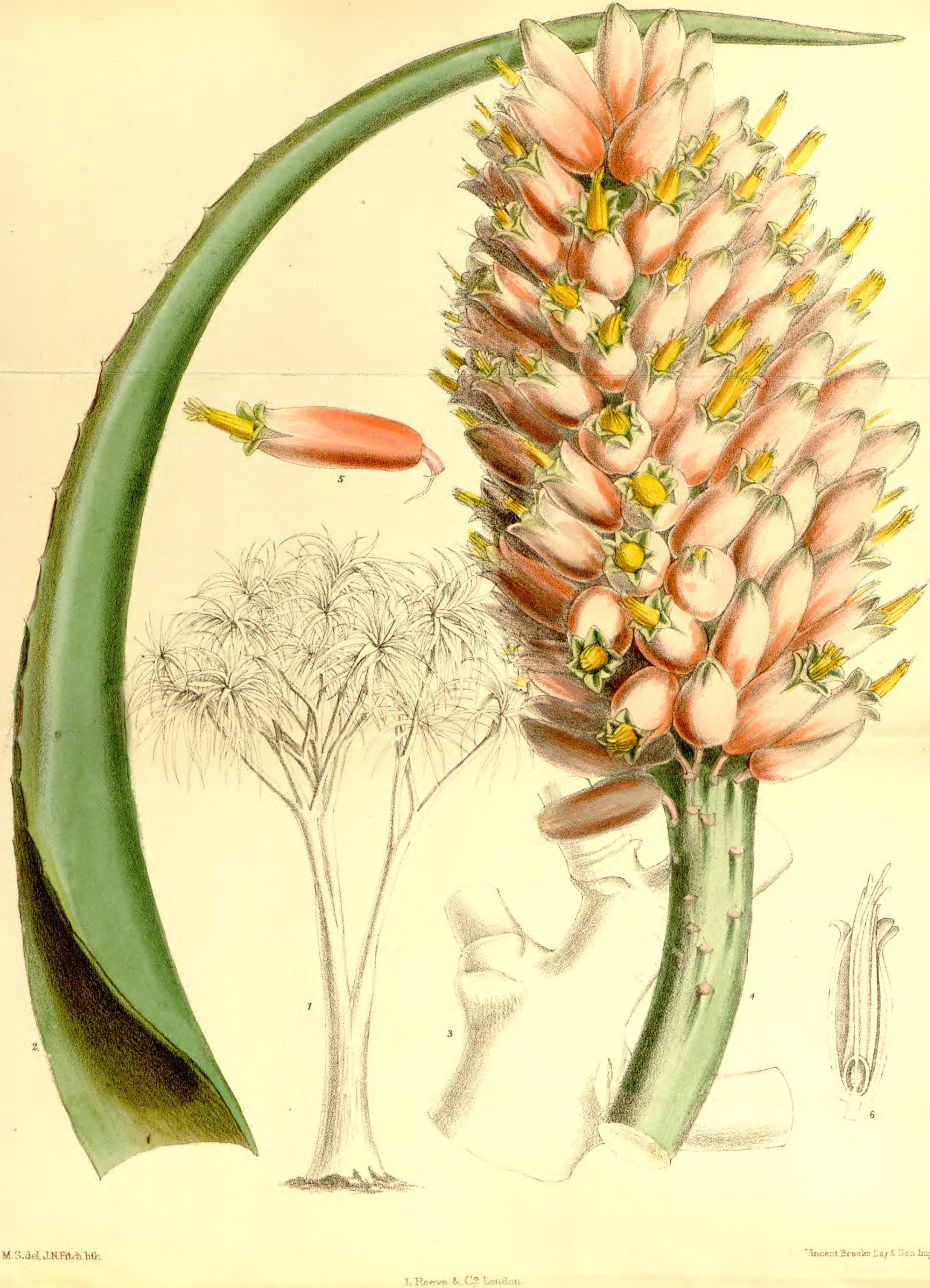
I have had great difficulty when determining the Indian species of *Polygonum* for the "Flora of British India," in unravelling the synonymy of those of the *Bistorta* group, which includes the subject of the present plate. Of these there are three which are very easily confounded, the *P. bulbiferum*, Royle, which I regard as the same as *P. viviparum* of Europe, and the north temperate and Arctic regions generally; *P. paleaceum*, Wall., a native of the Khasia Mountains (a species omitted by Meissner); *P. affine*, Don (which is *P. Brunonis*, Wall.), and the subject of this plate. These, though distinct enough in their normal condition, are not easily distinguished in abnormal ones, and are confounded by Meissner and much mixed in Herbaria; further confusion being entailed from the fact of the nomenclature of Don clashing with that of Wallich, and

from Don having described one of them, *P. sphærostachyum*, from very imperfect specimens, under three names. Of these species, *P. viviparum*, which is probably only an Alpine and Arctic state of *P. Bistorta*, L., may be known by its solitary habit and slender spike, with pink suberect or spreading flowers. *P. paleaceum*, which has not been introduced into cultivation, is a much larger plant, with a dense oblong spike of pink flowers like those of *P. viviparum;* it is very near indeed to *P. Bistorta*. *P. affine* is well figured in this work (Plate 6472); it has a creeping tufted habit, and pink flowers like those of *P. viviparum*. *P. sphærostachyum* differs from all these in the dense broad cylindric or globose spike of blood-red pendulous flowers; it is by far the most beautiful of all as to flowers, though it never forms the great patches that *P. affine* does, and which latter may now be seen in perfection at Sir W. Armstrong's seat (Cragside) in Northumberland, clothing many hundreds of square yards of rocky slopes with a most brilliant autumnal mantle of scarlet, from the colour of the fading leaves.

I am indebted to the Edinburgh Botanical Gardens, for the specimens of *P. sphærostachyum* here figured, which were raised from seeds sent by Mr. Duthie from Saharunpore, and which flowered in June of the present year. It abounds in the Alpine and sub-Alpine regions of the whole Himalaya, at elevations of 11,000 to 15,000 feet. Plants of it, also received from Edinburgh, are still (October 20th) in full flower in the rock garden at Kew.

Descr. *Rootstock* tuberous; stem solitary, erect, leafy, four to ten inches high. *Leaves* three to five inches long, linear, linear-oblong or -lanceolate, acute, crispidly crenulate, glabrous and glaucous or pubescent beneath, radical petioled, cauline sessile; stipules tubular, lax or close, very variable. *Spike* one to one and a half inch long, globose or cylindric; flowers one-third of an inch long, pendulous, blood-red. *Sepals* oblong, obtuse. *Stamens* eight, the four longer exserted or included; anthers small, black. *Ovary* three-gonous; styles three, more or less united below; stigmas capitellate.—*J. D. H.*

Fig. 1, Æstivation of flower; 2, flower; 3, perianth laid open, and stamens; 4 and 5, anthers; 6, ovary:—*all enlarged.*



M.S.del, J.N.Fitch lith.

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TAB. 6848.

ALOE BAINESII.

Native of Natal and Kaffraria.

Nat. Ord. LILIACEÆ.—Tribe ALOINEÆ.

Genus ALOE, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 776.)

ALOE *Bainesii;* arborea, 40–60-pedalis, trunco erecto copiose ramoso crassitie, 4–6-pedali, foliis ad ramorum apices dense rosulatis ensiformibus 2–3-pedalibus viridibus leviter glauco tinctis facie canaliculatis margine acuteis parvis patulis deltoideis corneis armatis, racemis densis oblongis paniculatis, pedunculis brevibus rachibusque valde incrassatis, pedicellis brevissimis apice articulatis, bracteis minutis, perianthio oblongo splendide rubro sesquipollicari, segmentis oblongis valde imbricatis tubo subæquilongis apice patulis viridibus, staminibus styloque conspicue exsertis.

A. Bainesii, *Dyer in Gard. Chron.* 1874, p. 568, figs. 119, 120; *Baker in Journ. Linn. Soc.* vol. xviii. p. 178.

A. Barberæ, *Dyer loc. cit.* fig. 122.

A. Zeyheri, *Hort.* non *Salmdyck.*

This species is distinctly and decidedly the finest of all the one hundred and fifty different kinds of Aloe. Although we have had it at Kew for at least twenty years, its growth is so slow that it is likely to be many years more before it reaches the flowering stage, and we are indebted to Professor Macowan for the materials upon which the present plate is founded, a coloured drawing and a photograph of a fine plant, which is one of the chief objects of interest in the Cape Botanic Garden. For many years we had a young plant at Kew under the unpublished name of *Aloe Zeyheri.* In 1874, Mr. Thiselton Dyer took great pains to work out the neglected subject of the Cape tree-aloes. The result of his investigations was published in a paper, illustrated by a series of woodcuts, in the "Gardener's Chronicle." In this he explained as fully as the material then obtained would allow the differences between the tree-aloe of the eastern provinces and the old well-known *Aloe dichotoma* of the west, of which Paterson gave a figure as long ago as 1789; citing extracts from the letters of Mr. Baines and the Rev. R. Baur as to its habit and localities. At that time we supposed, judging

from very imperfect material, that the Natal and Kaffrarian plants were distinct species, but as further information has accumulated, this view has been abandoned, and our present idea is that there is but one species in the west, *Aloe dichotoma*, and one in the east, for which the name *Aloe Bainesii* has been maintained, both with a wide latitudinal range. Since Mr. Dyer's paper was written, Mr. Roland Trimen sent to England in 1879 a supply of flowers of the two species preserved in spirit; and now we have Professor Macowan's sketch, and may be considered to know the eastern plant quite fully. The entire plant in our plate is copied from a photograph by Mr. Barnard of Cape Town, and the remainder from a coloured drawing by Mr. H. Merstall, both communicated by the director, Professor Macowan.

Descr. A tree, attaining a height of forty or sixty feet. *Trunk*, in a specimen measured by the Rev. R. Baur, sixteen feet in circumference three feet from the ground, forking low down, and dividing into numerous erect branches, with a smooth whitish epidermis, each bearing a rosette of spreading leaves at the tip. Spread of the crown in the plants drawn by Mr. Baines in the painting now over one of the fireplaces in the No. 1 Museum at Kew, fifteen feet. *Leaves* ensiform, two or three feet long in the young plant, much shorter in the rosettes of the mature tree, two or three inches broad a little above the base, narrowed very gradually to the apex, green with only a slight glaucous tinge, channelled down the face, margined with small spreading horny deltoid prickles. *Inflorescence* a panicle of several racemes issuing from the centre of the rosette of leaves, with a short very stout woody peduncle and a corrugated rachis nearly an inch in diameter; pedicels very short, red, articulated at the apex; bracts minute. *Perianth* oblong, bright rose-red, an inch and a half long, half an inch in diameter; segments about as long as the tube, much imbricated, spreading and tinged with green at the tip. *Stamens* exserted half an inch beyond the tip of the perianth; anthers small, oblong. *Style* exserted a little beyond the stamens.—*J. G. Baker*.

Fig. 1, The whole plant, from a photograph taken in the Cape Botanic Garden; 2, a leaf, *about half the natural size;* 3, peduncle; and 4, a raceme, *both rather less than natural size;* 5, a single flower, *natural size.*

M.S. del. J.N. Fitch lith

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TAB. 6849.

RHAPHITHAMNUS CYANOCARPUS.

Native of Chili.

Nat. Ord. VERBENACEÆ.—Tribe VERBENEÆ.

Genus RHAPHITHAMNUS, *Miers;* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1149.)

RHAPHITHAMNUS *cyanocarpus;* arbor spinosa dense foliata, ramis scaberulo-pubescentibus, foliis breviter petiolatis ovato-cordatis acutis v. orbiculatis et apiculatis integerrimis, floribus axillaribus solitariis v. confertis, floribus canis, calyce 5-dentato, corollæ tubo cylindraceo intus villoso, lobis parvis 2 superioribus oblongis, lateralibus latioribus 3-lobis.

R. cyanocarpus, *Miers in Trans. Linn. Soc.* vol. xxvii. p. 96, t. 26.

CITHAREXYLON cyanocarpum, *Hook. and Arn. Bot. Beech. Voy.* 58, t. 11; *Schauer in DC. Prodr.* vol. xi. p. 609; *C. Gay Fl. Chil.* vol. v. p. 34.

DURANTA umbellata, *Miers Trav. Chili,* vol. ii. p. 530.

PŒPPIGIA cyanocarpa, *Bertero in Bull. Sc. Nat.* 1830, p. 109.

A native of Chili, from the central provinces southward to the Island of Chiloe, and apparently common at Valdivia, from whence all collectors send specimens. Mr. Miers, who discovered it as a young man, and lived to create of it a new genus half a century afterwards, describes it as a beautiful evergreen tree, fifteen to twenty feet high, conspicuous for its numerous bright-green leaves, accompanied by golden spines and lilac flowers interspersed with blue shining drupes; he further states that the native name is *Arrayan Espinudo*, or *Prickly Myrtle.* Six species of *Rhaphithamnus* are described by Mr. Miers; four of these are apparently varieties of one, all growing in Chili, and all within the range ascribed to *R. cyanocarpus;* the other two also varieties of one, are from Juan Fernandez. The latter differ in the flowers being an inch long and upwards, and in the young leaves being sharply serrate.

I am indebted to J. Rashleigh, Esq., J.P. of Menabilly, Cornwall, for a specimen in full flower of this fine plant, which he grows in the open air, and which is here figured; the figure of the fruit is taken from a specimen which fruited in the Temperate House at Kew at the same date.

DEC. 1ST, 1885.

Descr. A densely leafy tree, fifteen to twenty feet high, much branched; branches slender, decussate, subscabridly pubescent, very close together; spines placed above the leaves on the old branches only, one-half to three-quarters of an inch long, very slender, rigid. *Leaves* in close decussating pairs, one-half to one and a half inch long, very shortly petioled, spreading and recurved, broadly ovate and acute, or orbicular and mucronate, very coriaceous, above bright deep-green, pale beneath, midrib impressed above, nerves faint; petiole scaberulous. *Flowers* solitary or in pairs, axillary or inserted on the spines, very shortly pedicelled, half an inch long, hoary; pedicel one-sixteenth to one-tenth of an inch, scabrid. *Calyx* very small, shortly toothed. *Corolla* pale blue, tubular, coriaceous, villous within below the middle; limb very small, two upper lobes oblong obtuse, lateral and lower broader unequally three-lobed, all sparsely villous within. *Stamens* four, included, with a filiform rudimentary fifth; filaments papillose; anthers short. *Style* slender, stigma small turbinate. *Drupe* one-third to one-half of an inch in diameter, globose; bright blue; nutlets two, horny, each two-celled.—*J. D. H.*

Fig. 1, Calyx and pistil; 2, flower; 3, corolla laid open; 4, hairs of the corolla-tube; 5, 6, 7, anthers; 8, drupe:—*all but fig.* 8 *enlarged.*

M.S. del. J.N. Fitch lith.

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TAB. 6850.

RHODODENDRON JAVANICUM *var.* TUBIFLORA.

Native of Sumatra and Java.

Nat. Ord. ERICEÆ.—Tribe RHODODENDREÆ.

Genus RHODODENDRON, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 599.)

RHODODENDRON *javanicum;* frutex glaberrimus, foliis verticillatis breviter petiolatis elliptico-oblongis obtusis acutisve utrinque viridibus subtus glanduloso-punctulatis, floribus terminalibus paucis umbellatis, bracteis caducis, pedicellis glabris, calyce obsoleto, corollæ infundibularis kermesinæ ore sanguineo tubo subcylindraceo lobis oblongo-rotundatis paullo longiore, staminibus 10, filamentis gracilibus exsertis rubris, antheris parvis.

R. javanicum, *Benn. Pl. Jav. Rar.* p. 85, t. 19; *DC. Prodr.* vol. vii. p. 721; *Miquel Fl. Ind. Bat.* vol. ii. p. 1057, *and Suppl.* p. 1059, *and Ann. Mus. Lugd. Bat. non Bot. Mag.* t. 4336.

Vireya javanica, *Blume Bijdr.* p. 854.

VAR. *tubiflora;* foliis minoribus costa supra impressa, nervis obscuris, corolla tubo elongato.

At Plate 4336 of this work a *Rhododendron* is figured under the name of *R. javanicum*, which is, I think, unmistakably the *R. Teysmanni*, Miquel (Fl. Ind. Bat. Suppl. p. 251 and 585, and Ann. Mus. Lugd. Bat. vol. i. p. 42, t. 1). It differs from *R. javanicum* in the more robust habit and more numerous very much larger flowers of a citron-yellow colour, with broad corolla-lobes; to which character Miquel adds that of the ovary being covered with white pubescence without lepidote scales; but I find no material difference in this respect, and it is quite possible that *Teysmanni* is a variety of *javanicum*, though for horticultural purposes a most distinct one. The only published plate of the true *R. javanicum* is that given by Bennet in the work quoted above, and he both figures and describes the ovary as pubescent, and says nothing about scales; the flowers he represents as bright red, but I suspect the colouring is not dependable. *R. Teysmanni* and *javanicum* have been found both in Sumatra and Java, according to specimens from the Dutch Herbaria. Of the other Sumatran species of the genus, *R. citrinum* is figured at Plate 4797, *R. retusum* on Plate 4859, *R. malayanum*, Plate 6045, and

R. multicolor, Plate 6769; one only, *R. Lampongum*, Miquel, has not been introduced into cultivation; it has densely lepidote petioles, pedicels, ovary and capsule, and an obvious calyx.

The plant here figured differs from the typical *R. javanicum*, in the more flaccid smaller nerveless leaves, with the midrib on the upper surface so impressed as to be almost invisible, and in the paler flowers and longer corolla-tube.

R. javanicum, var. *tubiflora*, was introduced by Messrs. Veitch's excellent collector, Mr. Curtis, who gave as the localities Dator and Solok in Sumatra, and it flowered in their establishment in June of the present year.

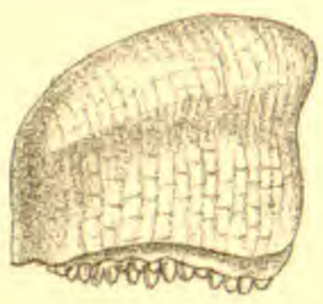
Descr. *Branches* slender, green. *Leaves* four to six in a whorl, two to three inches long by three-quarters of an inch to one inch broad, rather flaccid, shortly petioled, glabrous, elliptic- or oblong-lanceolate, acute, dark green above, paler and gland-clotted minutely beneath, nerves very obscure; petiole one-sixth of an inch long, glabrous. *Flowers* six to eight in a terminal umbel; pedicels stout, one inch long, quite glabrous; outer bracts deciduous, inner more persistent, filiform. *Calyx* obsolete. *Corolla* pale orange-red, scarlet at the mouth, tube narrowly funnel-shaped, one and a half inch long, ten-grooved, base rounded, intruded not inflated; lobes five, rather shorter than the tube, rounded-oblong. *Stamens* ten, filaments slender, exserted, red; anthers small, brown. *Ovary* small, and as well as the stout red style pubescent, not lepidote, stigma entire.—*J. D. H.*

Fig. 1, Portion of leaf; 2 and 3, front and back view of stamens; 4, ovary:—*all enlarged.*

2.

1.

5



4.

3.

M.S. del, J.N. Fitch lith.

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TAB. 6851.

POGONIA PULCHELLA.

Native of Hong Kong.

Nat. Ord. ORCHIDEÆ.—Tribe ARETHUSEÆ.

Genus POGONIA, *Juss.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 615.)

POGONIA (Nervilia) *pulchella;* tubere globoso, foliis 1–2 subsessilibus rotundato-cordatis acutis sinu clauso plicato- 12-nerviis superne e fusco-viridi purpurascentibus pilis sparsis cellulosis conspersis subtus roseis nervis pilosis, scapo gracili bifloro longe nudo spathis paucis lineari-lanceolatis laxis, bracteis linearibus, sepalis petalis consimilibus lineari-oblanceolatis acuminatis flavo-fuscis 3-nerviis, labelli glaberrimi lobis roseis lateralibus brevibus angustis terminali bilobo.

The Island of Hong Kong, or islet it might justly be called, for it boasts of but twenty-nine square miles, is botanically remarkable for the number and variety of orders, genera and species which it contains; and though assiduously botanized by many collectors, its Flora is ever being added to, not by the introduction of foreign plants, but by the discovery of usually undescribed species, which are often confined to very limited areas, and even occur in a small number of specimens. In 1861, Bentham, in the "Flora Hongkongensis," described upwards of a thousand indigenous species of flowering plants and trees, of which no less than 408 were the only representatives of their respective genera; whilst of the 125 families of plants in the island, thirty-six were represented by only a single species. Since the publication of the "Flora Hongkongensis," a good many species have been added to the Flora. I do not know how many, but twenty-five are known to me, several of which were discovered through the industry and acuteness of Mr. Chas. Ford, the indefatigable Superintendent of the Hong Kong Botanical Gardens. Amongst this botanist's latest interesting additions to the Flora are two orchids belonging to genera not previously detected in the island; one is the subject of the present plate, the other is the *Vrydagzynia nuda*, Blume (of Java), a genus near to *Anocetochilus*.

DEC. 1ST, 1885.

Pogonia pulchella was first brought to Mr. Ford in 1878 by an officer's servant, who found it on the coast of the south side of the Island of Hong Kong. It was planted in the Hong Kong Gardens, and flowered in 1879. Tubers sent by Mr. Ford to Kew in 1883, and which he procured on the Lofan Mountains on the coast opposite to Hong Kong, flowered at Kew in April, 1885, and the leaves appeared in the following June.

DESCR. *Tubers* as large as a hazel-nut, white, rather obliquely globose, with three to four raised rings. *Leaves* one or two, two to two and a half inches in diameter, very shortly petioled, orbicular, acute, deeply cordate at the base with overlapping lobes, plaited by about twelve strong nerves, upper surface dull brownish-green and purple, sparsely clothed, especially on the nerves, with crystalline cellular hairs, rose-coloured beneath with the hairs chiefly on the nerves. *Scape* four to five inches high, two-flowered, rather slender, very pale, with three or four imbricating basal sheaths, and one or two lax linear-lanceolate pinkish ones an inch long below the middle. *Flowers* drooping, pedicelled, one and a half inch from the tip of the dorsal sepal to that of the lip. *Sepals* and *petals* similar, linear-oblanceolate, acuminate, dirty-yellowish, with three brown nerves. *Lip* as long as the sepals, quite glabrous, convolute portion white; lobes rose-coloured, lateral short rounded, terminal broadly two-lobed.—*J. D. H.*

Fig. 1, Side, and 2, front view of column; 3, front, and 4, side view of anther; 5, pollen-masses:—*all enlarged.*

A

B

8

7.

5

6

10

10

9.

4

3

1

2

M.S.del, J.N.Fitch lith.

Vincent Brooks Day & Son Imp

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TAB. 6852.

A. CROCUS KOROLKOWI.

Native of Central Asia.

B. CROCUS AERIUS.

Native of Asia Minor.

Nat. Ord. IRIDEÆ.—Tribe SISYRINCHIEÆ.

Genus CROCUS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 693.)

CROCUS *Korolkowi*; cormo depresso-globoso, tunicis brunneis membranaceo-fibrosis, spathâ basali nulla, foliis 8–12 synanthiis anguste linearibus albo-vittatis margine revolutis, spathæ valvis membranaceis lanceolatis, perianthii tubo brunneo spatha duplo longiori, fauce glabro, limbi segmentis oblanceolato-oblongis luteis exterioribus dorso brunneis, antheris magnis aurantiacis filamentis brevissimis, styli aurantiaci ramis elongatis integris.

C. Korolkowi, *Maw and Regel in Regel Descr. Pl. Nov.* fasc. vii. p. 213, fasc. ix. p. 41; *Maw in Gard. Chron.* N.S. vol. xvi. p. 718.

CROCUS *aerius*; cormo parvo globoso tunicis brunneis cartilagineis basi annulatim circumscissis, spathâ basali nulla, foliis 3–8 subsynanthiis anguste linearibus albo-vittatis margine revolutis, spathæ valvis membranaceis lanceolatis, perianthii tubo pallido bipollicari, fauce luteo glabro, segmentis violaceis oblongis vel obovatis antheris aurantiacis filamentis brevibus, styli aurantiaco-rubri ramis integris.

C. aerius, *Herb. in Journ. Hort. Soc.* vol. ii. p. 288; *Baker in Gard. Chron.* 1873, p. 609; *Maw in Gard. Chron.* N.S. vol. xvi. p. 748; *Boiss. Fl. Orient.* vol. v. p. 113.

C. Sibthorpianus, var. stauricus, *Herb. in Bot. Reg.* 1845; *Misc.* p. 5.

These are two spring-flowering Crocuses of the section *Holostigma*, which have flowered with us at Kew this year for the first time. *C. Korolkowi* is closely allied to the common Dutch yellow Crocus, but differs at a glance by having the outer segments of the perianth flushed all over the back with brown. It was found by the Russian explorers growing abundantly on the mountains of Bokhara, Samarcand and Western Turkestan, at an elevation of from 5000 to 7000 feet above sea-level; and very recently it has been sent home by Dr. Aitchison as one of the first fruits of his work as naturalist to the Afghan Boundary Commission. It is the only *Crocus* known to inhabit that region, and the discovery of this and *C. alatavicus* extend

the area of the genus in a western direction very materially. *C. aerius* is closely allied to *C. biflorus*, but it is not feathered on the back of the outer segments of the perianth. It inhabits the mountains of the northern provinces of Asia Minor, at an elevation of 4000 to 7000 feet above sea-level. It was introduced by Dean Herbert, but was never figured, and was soon lost. For our Kew bulbs we are indebted to Mr. George Maw, who communicated them in the spring of the present year.

Descr. C. Korolkowi. *Corm* depresso-globose, an inch in diameter; outer tunics brown, composed of matted parallel fibres. *Basal spathe* none. *Leaves* eight or twelve to a cluster, reaching to the top of the flowers, narrow linear, with revolute margins, and a distinct white central band down the face. *Spathe-valves* two, lanceolate, membranous, an inch long. *Perianth-tube* brownish, twice as long as the spathe; segments of the limb oblanceolate-oblong, an inch or an inch and a half long, bright yellow inside, the three outer tinged with brown all over the back. *Anthers* bright yellow, half an inch long; filaments very short. *Style* orange-yellow; branches entire, reaching to the top of the anthers.

For bulbs of this beautiful species, the Royal Gardens of Kew are indebted to Dr. de Regel of the Imperial Botanical Gardens, St. Petersburg.

C. aerius. *Corm* globose, half or three-quarters of an inch in diameter; tunics brown, cartilaginous, cut round in a ring at the base. *Basal spathe* none. *Leaves* but little developed at the flowering season, narrow linear, with revolute margins, and a distinct white rib down the face. *Proper spathe* of two lanceolate hyaline valves. *Perianth-tube* pale lilac, two inches long; segments of the limb obovate or oblong obtuse, an inch or an inch and a half long, bright lilac; throat bright yellow. *Anthers* bright yellow; filaments short, slightly papillose. *Style* orange-red; branches entire. *Seeds* dark red.—*J. G. Baker.*

Fig. 1, *C. Korolkowi*, part of tunic of corm; 2, cross-section of leaf; 3, anther; 4, style-arms, *all enlarged;* 5, *C. aerius*, part of tunic of corm; 6, cross-section of leaf; 7, anther; 8, style-arms, *all enlarged;* 9, seed, *natural size;* 10, the same, *enlarged.*

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