CURTIS'S

BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

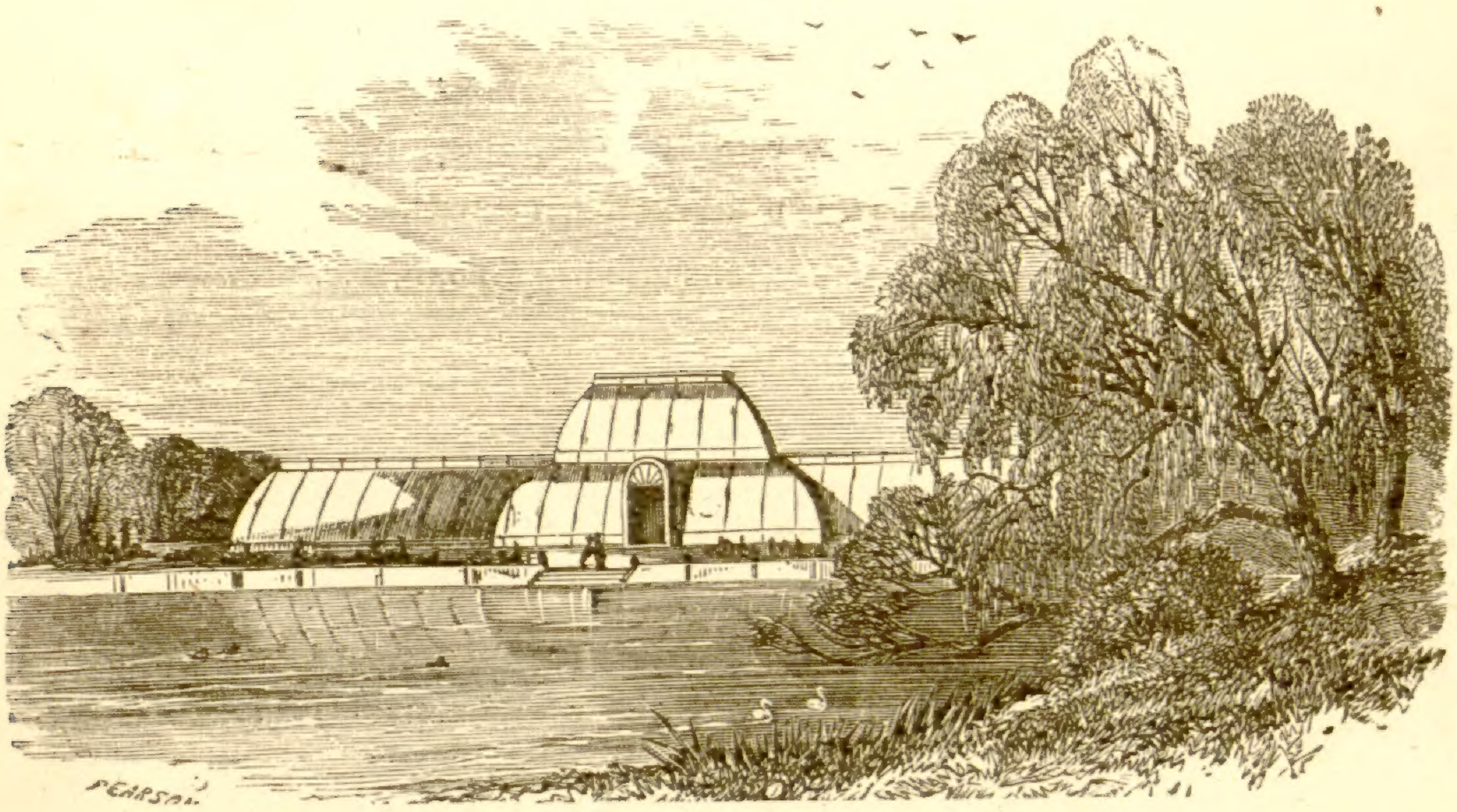
AND

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

BY

SIR JOSEPH DALTON HOOKER, M.D., C.B., K.C.S.I.,
F.R.S., F.L.S., ETC.,
D.C.L. OXON., LL.D. CANTAB., CORRESPONDENT OF THE INSTITUTE OF FRANCE.

VOL. XLIII.
OF THE THIRD SERIES.
(Or Vol. CXIII. of the Whole Work.)



"I will nat long hold you in fable
Of all this garden delectable,
I mote my tongue stinten nede,
For I ne may withouten drede
Naught tellen you the beautie all,
Ne halfe the bountie therewithall."—CHAUCER.

LONDON:
L. REEVE & CO., 5, HENRIETTA STREET, COVENT GARDEN.
1887.

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Mo. Bot. Garden,
1897.

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TO

SIR JOHN KIRK, G.C.M.G., F.R.S., F.L.S., &c., &c.

LATE H.M. AGENT AND CONSUL-GENERAL AT ZANZIBAR.

My dear Kirk,

For many years past the volumes of the Botanical Magazine have annually been enriched by figures of new, rare, and interesting plants, introduced by you from Zanzibar into the Royal Gardens of Kew.

These represent, and but feebly, a mere fraction of the great services which you have rendered,—to Science by extending our knowledge of the Natural History (especially the Botany) and the Geography of Eastern Tropical Africa, and to mankind by the development of new industries (such as the Indiarubber trade) in that country.

That these services should have been performed under the pressure of arduous political duties, and in a trying climate, has always appeared surprising to me; and I hope that you will accept the dedication of the volume of the Botanical Magazine which contains the Indiarubber plant (sent by yourself), as a token of the value I attach to your contributions, and of my admiration of your zeal and enlightenment as a public officer.

Believe me,

Sincerely yours,

JOS. D. HOOKER.

The Camp, Sunningdale,

December 1*st*, 1887.



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

Vincent Brooks Day & Son Imp.

TAB. 6913.

HEDYCHIUM GARDNERIANUM.

Native of the Himalaya.

Nat. Ord. SCITAMINEÆ.—Tribe ZINGYBEREÆ.

Genus HEDYCHIUM, *Kœnig ;* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 642.)

HEDYCHIUM *Gardnerianum ;* elatum, robustum, glabrum, caulibus fastigiatis, foliis ellipticis v. elliptico-oblongis acuminatis subtus furfuraceo-glaucis, bracteis convolutis 1–2-floris, floribus aureis, labello suborbiculato v. subquadrato integro v. 2-lobo, filamento robusto longissime porrecto, fructibus aurantiaco-coccineis.

H. Gardnerianum, *Roscoe Monandr. Pl.* t. 62 ; *Bot. Reg.* t. 774 ; *Reichb. Ic. Exot.* t. 183 ; *Wall. in Hook. Kew Journ.* vol. v. (1853), p. 369 ; *Masters in Gard. Chron.* vol. iii. (1875), p. 461, figs. 92, 93.

H. speciosum, *Wall. in Roxb. Fl. Ind. Ed. Carey and Wall.* vol. i. p. 13, and *Plant. As. Rar.* vol. iii. p. 51, t. 285 ; *Wall. Cat. Herb.* No. 6550.

H. aurantiacum, *Wall. Cat. Herb.* No. 6551.

This very striking plant was introduced about the year 1823 from India, where it was discovered by Wallich in Nepal, in the Valley of Katmandoo. It has subsequently been gathered in the Sikkim Himalaya by myself at elevations of 4000 to 7000 feet, and in the Khasia Mountains at about the same altitude. Dr. Wallich, in a valuable monograph of the genus quoted above, justly commends it to cultivators in the following terms :—" This is the queen of the genus, if not of the whole order, both as regards the general aspect, the stature and the foliage, and the exquisite elegance as well as fragrance of the ample inflorescence. While I write this, several large patches of the typical form are in full bloom at the Horticultural Society's Garden at Chiswick, thriving luxuriantly in a temperate glass-house, without any extraordinary supply of water ; and last year I saw it in equal perfection. What can be the reason that a plant so charming and desirable as this is not more frequently seen in the stoves of the great and wealthy ? Surely there exists not an Orchidea which exceeds it in any respect, especially in facility of cultivation." It commemorates in its specific name one of Dr. Wallich's most

JAN. 1ST, 1887.

zealous contributors of living plants, of whom he says:—"During a number of years in which the Hon. Edward Gardner (son of the late distinguished Admiral Lord Gardner) lived in Nipal, as the Hon. East India Company's Resident at the Court of Katmandu, he contributed greatly to the riches of the Botanic Garden at Calcutta, and through it, to the gardens and herbariums of England. It was through his local influence, and afterwards also of the late Mr. Robert Stuart's, the officiating Resident, that I was permitted to send permanent collecting parties into that country, where they enjoyed his unceasing support and encouragement; and afterwards to visit it myself during a whole year, which I spent under his friendly and hospitable roof. Would that the cause of Natural History could boast many such Mæcenases in India and everywhere else!"

Though a well-marked species, *H. Gardnerianum* is subject to a good deal of variation in the form and size of the lip, from orange to lemon colour, and almost white with a pinkish centre. The specimen here figured flowered in the Palm House of the Royal Gardens in August, 1885, and fruited in the following February. In the Temperate House it also does well.—*J. D. H.*

Fig. 1, Stamens; 2, ovary and staminodes; 3, stigma; 4, transverse section of ovary; 5, fruiting spike; 6, cluster of seeds; 7, single seed and aril; 8, seed with aril removed; 9, vertical section of seed, showing embryo:—*all but fig.* 5 *enlarged.*



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TAB. 6914.

SOLANUM WENDLANDII.

Native of Costa Rica.

Nat. Ord. SOLANACEÆ.—Tribe SOLANEÆ.

Genus SOLANUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 888.)

SOLANUM *Wendlandii*; fruticosum, scandens, glaberrimum, sparse aculeatum, foliis longe petiolatis, superioribus simplicibus oblongis acuminatis basi cordatis, v. varie 3-lobis, v. 3-foliolatis, foliolis lateralibus nunc parvulis nunc terminali æqualibus, inferioribus multo majoribus 6–8 pollicaribus pinnatifidis v. basi pinnatis segmentis pinnisve oblongis ellipticisve, cymis amplis, calycis parvi lobis oblongis erectis ciliolatis apicibus rotundatis obtuse apiculatis, corolla ampla pallide lilacino-purpurea, antheris linearibus erectis.

Living plants of this beautiful *Solanum* were sent to the Royal Gardens in 1882 by Dr. Wendland, Director of the Royal Gardens at Herrenhausen, Hanover, with the information that it is a native of the cold regions of Costa Rica, where it climbs trees. This habit it has retained at Kew, where it ascends to the rafters of the Water Lily House, and flowers profusely. I can find nothing like it described, or in the Kew Herbarium, though it clearly belongs to the same set as *S. lanatum*, Dunal, figured in "The Botanist," vol. ii. tab. 58. That, however, is an erect plant clothed with rusty tomentum, and has almost free lanceolate acuminate calyx-segment. The corolla is exactly the same in form, size and colour in both species.

S. Wendlandii flowered in the month of August at Kew, and bears the name of the distinguished head of the long and deservedly celebrated Botanical Gardens from whence our specimen came, one who has himself, both by his travels and writings, done so much for the Natural History of Central America, and for the whole Order of Palms, of which he is the sole master.

DESCR. A climbing glabrous shrub, with terete green stems and branches; prickles on the stems branches and petioles few, scattered, short, hooked. *Leaves* very variable, two to ten inches long by one and a half to four inches

broad, uppermost simple, oblong, acuminate with a cordate base, or three-lobed, with the lobes subequal or unequal, and sometimes lobed at the sides, or trifoliolate, with equal or unequal leaflets; lower leaves on the branches six to ten inches long, pinnate below and pinnatifid above with four to six pairs of lobes or leaflets which are ovate or oblong, entire and acuminate; all bright green, rather membranous and quite glabrous; petiole one to three inches long, naked or with one or two prickles. *Cymes* six inches across and more, terminating pendulous branches; pedicels one-half to one inch long, terete. *Calyx* small, five-lobed to the middle; lobes oblong, tip rounded, ciliolate, and with an obtuse mucro. *Corolla* two and a half inches in diameter, very pale lilac-blue. *Stamens* nearly erect, filaments very short; anthers linear, yellow. *Fruit* (unripe) globose.—*J. D. H.*

Fig. 1, Calyx and stamens; 2, section of calyx; 3, transverse section of ovary:—*all enlarged.*

6

2

5

7

3

1

4

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Tab. 6915.

AMASONIA calycina.

Native of British Guiana.

Nat. Ord. Verbenaceæ.—Tribe Verbeneæ.

Genus Amasonia, *Linn. fil.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1147.)

Amasonia *calycina*; foliis petiolatis oblongo-lanceolatis acuminatis grosse irregulariter serratis dentatisve basi in petiolum angustatis glaberrimis, racemis gracilibus elongatis nutantibus villoso-tomentosis foliaceo-bracteatis, bracteis petiolatis elongato-lanceolatis acuminatis rubris, floribus breviter pedicellatis, calycibus amplis rubris 5-partitis, segmentis $\frac{2}{3}$-pollicaribus e basi lata lanceolatis tenuiter acuminatis, corollæ extus laxe pilosæ flavæ tubo calyce ter longiore subcylindraceo, lobis brevibus late ovatis obtusis recurvis, filamentis exsertis basi pilosis, stylo piloso, bacca globosa calyce rubro suffulta.

A. punicea, *Hort. non Vahl.*

The genus *Amasonia* contains ten or a dozen imperfectly characterized species of South American herbaceous or suffruticose plants, chiefly natives of Brazil and Guiana, though some extend to the Andean provinces of Peru, Bolivia, and Equador. That here figured approaches nearest to an Amazonian one collected by Spruce (No. 2030) on the Rio Negro, and which is referred by Bentham to a variety of *A. angustifolia*, Mart., but that differs from *A. calycina* in having pubescent entire leaves, a much smaller calyx, and bracts that widen upwards; its calyx and fruit too are very much smaller. From *A. punicea* it differs in the very differently shaped bracts and large calyx.

A. calycina was introduced by Messrs. Veitch from British Guiana, whence it was sent by their collector, Mr. D. Burke. Our drawing was made from a specimen presented by that firm to the Royal Gardens in 1885, which flowered in Sept. 1886, and fruited, but did not ripen seed, in the following November. It is a truly splendid plant, and has the rare advantage of remaining in flower for two months at a time.

Descr. A tall shrub or undershrub. *Leaves* six to twelve inches long, elliptic or oblong-lanceolate, acuminate,

coarsely irregularly toothed or sinuate, narrowed into a petiole one to two inches long, quite glabrous except the upper floral ones, which are often variegated with bright red. *Racemes* six to ten inches long, nodding, copiously leafy, softly tomentose with spreading red-purple hairs; bracts or floral leaves pubescent, falcately recurved, petioled, the lower often flowerless or with imperfect flowers; in some racemes all are bright red, one to one and a half inch long and secund, in others they are all foliaceous and narrowly lanceolate, long-acuminate, two to three inches long, and green mottled with bright red, or scarlet tipped with green. *Flowers* shortly pedicelled, drooping, one and a half to two inches long. *Calyx* nearly an inch long, pubescent, bright red; tube short, subglobosely campanulate; segments lanceolate from a broad base, finely acuminate. *Corolla* pale sulphur-yellow, subcylindric, slightly recurved, sparsely hairy except the short contracted portion of the tube within the calyx; lobes short, broadly ovate, obtuse, recurved. *Filaments* exserted, then contorted, and recurved, hairy at the base; anthers oblong, yellow. *Ovary* obovoid; style slender, hairy; arms very slender. *Fruit* globose, seated on the spreading scarlet calyx, three-quarters of an inch in diameter; epicarp shining, papery; sarcocarp thin, enclosing two crustaceous pyrenes.—*J. D. H.*

Fig. 1, Calyx; 2, corolla and stamens; 3, base of corolla laid open, showing the insertion of the stamens; 4, anthers; 5, ovary and base of calyx; 6, top of style and its arms:—*all enlarged.*

A8

A2

A4

A1

B2.

B1.

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TAB. 6916.

A. PRIMULA EROSA.

B. PRIMULA CAPITATA, *var.*

Natives of the Himalaya Mountains.

Nat. Ord. PRIMULACEÆ.—Tribe PRIMULEÆ.

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

PRIMULA *erosa*; glabra v. puberula, foliis floribus coætaneis efarinosis patentibus obovato-spathulatis v. oblanceolatis acutis v. obtusis in petiolum latum angustatis marginibus erosis et denticulatis submembranaceis pallide viridibus reticulatim nervosis, scapo gracili elongato, floribus umbellatis plus minusve farinosis breviter pedicellatis, bracteis parvis appressis basi non gibbosis nec deorsum productis, calycis subcampanulati tubo brevi, lobis acutiusculis, corollæ tubo calycem excedente, limbo planiusculo, lobis obcordatis purpureis.

P. erosa, *Wall. Cat. Herb.* No. 661; *Regel in Bot. Zeit.* 1853, p. 333, and in *Gartenflora*, vol. ii. t. 51; *Hook. f. Fl. Brit. Ind.* vol. iii. p. 486.

P. denticulata, *var.* erosa, *Duby in DC. Prodr.* vol. viii. p. 45.

P. capitata, *var.* crispa, *Hort.*

P. erosa belongs to a common type of Himalayan Primulas, that of which *P. denticulata* is the prevalent form, and *P. capitata* the rarer. In their usual states they are distinguished as follows: *P. denticulata* by having sparingly mealy or glabrous finely toothed leaves, that are not fully developed till after flowering, and which are surrounded at their bases by fleshy scales, formed by the arrested outer leaves on the crown of the rootstock; it bears a large or small depressed globose head, the flowers of which are lilac or purple, and all open together. Plate 3959 of this work is an excellent representation of it, showing well the fleshy arrested leaves on the crown of the rootstock. The figure in the Botanical Register (1842, t. 47) is also characteristic, though the arrested leaves are concealed.

P. erosa differs from *denticulata* in its much slenderer habit, in always (except on young parts) wanting the meal on the leaves, which are developed at flowering time, are translucent with strongly erose and denticulate margins,

and have a strongly reticulated surface, and the petioles are often red; the umbels are loose or dense-flowered, and the flowers in our garden specimens are of a far deeper purple than is usual in *denticulata*.

P. capitata differs greatly in habit from both the above; it is confined to the Eastern Himalaya, has finely denticulate leaves, often snow-white with meal beneath, but sometimes not so, a tall also mealy scape and globose densely crowded head of sessile flowers which open slowly, and the uppermost unexpanded ones are depressed and imbricate over one another like the tiles of a house. The corolla is of a very deep purple blue, the tube and calyx both short. Tab. 4550 of this work gives an excellent figure of the extreme form of *capitata*.

Now, though these distinctions are so well marked in extreme forms, they all disappear in innumerable intermediate ones. As an instance I have figured on the same plate (at B.) with *P. erosa*, a leaf and head of a form of *P. capitata*, which happened to be flowering in the Royal Gardens at the same time with it. Comparing this with the figure at Tab. 4550, the difference will be seen to be very great; the leaves indeed are similar, but the head is far looser, the flowers three times as large; the calyx is nearly the same, but the corolla-tube is much longer and inflated above the middle. The herbarium shows many intermediates between this form and that figured at Tab. 4550; and in like manner there are many intermediate forms between *P. denticulata* and *erosa*. Lastly, some of these forms of *denticulata* appear to approach states of the Siberian and European *P. altaica*, Lehm., and *P. farinosa*, L.

P. erosa is found throughout most parts of the Himalaya, but I did not observe it in Sikkim. It is known in gardens as *P. capitata*, var. *crispa*. Both it and the *P. capitata* here figured were raised from seeds sent by Dr. King, of the Calcutta Botanical Gardens.—*J. D. H.*

Fig. A. *P. erosa*, of the natural size; **A 1**, portion of leaf; **A 2**, calyx; **A 3**, corolla laid open; **A 4**, ovary:—*all enlarged.*

Fig. B. Form of *P. capitata*; **B 1**, leaf, of the natural size; **B 2**, flower, *enlarged.*


1
2

Tab. 6917.

NYMPHÆA FLAVA.

Native of Florida.

Nat. Ord. Nymphæaceæ.—Tribe Nymphææ.

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

Nymphæa *flava;* rhizomate oblongo v. cylindraceo, foliis ellipticis late oblongis rotundatisve subtus rubris marginibus integerrimis v. subrepandis lobis subacutis obtusisve, floribus flavis, sepalis oblongo-lanceolatis petalis concoloribus intimis sensim minoribus, filamentis exterioribus medio dilatatis antheris obtusis multo longioribus, intimis linearibus brevioribus, stigmatis radiis 8 brevibus incurvis obtusis inappendiculatis.

N. flava, *Leitner in Chapman Flora of the Southern United States Suppl.* p. 604; *W. Watson in "The Garden,"* vol. xxvii. (1885), p. 439 and 599.

This is a very rare plant, having been comparatively recently made known to Botanists by the researches of Dr. Leitner in Florida, though it was much earlier recognized by a Naturalist; for, according to Chapman's "Flora," it is figured in Andubon's great work on the Ornithology of the United States, published upwards of half a century ago. As a species it is quite unlike any other, though belonging to the northern section *Castalia*, and not very far removed from the American *N. odorata*, from which the colour of the flowers at once distinguishes it.

N. flava is a very elegant plant; it was flowered in the Water Lily House of the Royal Gardens in July of this year. The Kew plants were received from Prof. Sargent, of Brooklin, Boston, in 1877, and again in 1880 from Mr. Sturtevant. The plant flowered for the first time in the Water Lily House at Kew in July, 1882. Mr. Watson, in his excellent remarks on this species, notes especially the form of the elongated rootstock, which becomes covered with scale-like tubercles, and forms successive apical crowns of foliage and flowers subtended by a ring of roots, whilst the lateral tubercles develop stolons from which the plant is reproduced. Mr. Watson further remarks that it has

been established in ponds and lakes in Kent, and there flowered freely for several years in succession.

The figure of the rootstock here given is taken from Herbarium specimens collected in the St. John's River by Mr. Curtiss. It has also been found in the Miami by Mr. Garber, and in a few other localities, all in Florida.

Descr. *Rootstock* cylindric or oblong, apparently not creeping. *Peduncles* and petioles dark green. *Leaves* two to six inches in diameter, orbicular elliptic or broadly oblong, green often blotched with dark red, margin entire or waved; basal lobes subacute or obtuse, parallel, with a narrow sinus. *Flowers* four inches in diameter, pale yellow, opening at noon and remaining expanded till sunset. *Sepals* linear-oblong or oblong-lanceolate, subacute, rather darker yellow than the petals, with a faint rosy tinge externally towards the margin; nerves very slender. *Petals* of the same form as the sepals, but rather paler, the inner shorter and broader. *Stamens* numerous, suberect; filaments of the outer dilated in the middle, and much longer than the anther; of the outermost short, broad, concave, and petaloid; of the innermost narrower and linear; anthers linear, connective hardly produced, tip rounded; cells parallel. *Stigmatic rays* about eight, short, broad, obtuse, incurved, inappendiculate.—*J. D. H.*

Fig. 1, Inner, and 2, outer stamens; 3, ovary and stigmatic rays:—*all enlarged.*



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Tab. 6918.

SILPHIUM albiflorum.

Native of Texas.

Nat. Ord. Compositæ.—Tribe Helianthoideæ.

Genus Silphium, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 350.)

Silphium *albiflorum*; robustum, scabridum, caule tereti simplici, foliis alternis petiolatis ambitu late ovatis pinnatifidis v. bipinnatifidis rigidis, lobis linearibus acutis v. pungentibus reticulatim venosis, floralibus linearibus capitatis amplis sessilibus v. crasse pedunculatis, involucri scabridi bracteis crasse coriaceis e basi late ovata in rostrum recurvum productis infimis subfoliaceis, floribus radii pollicaribus pallide stramineis, disci concoloribus, achæniis pubescentibus, alis superne productis.

S. albiflorum, *A. Gray in Proc. Amer. Acad.* vol. xix. p. 4, and *Synopt. Flora of N. Amer.* vol. i. pt. ii. p. 242.

This is one of two species of the North American genus *Silphium* which Gray includes under the "Compass Plants," and of which the original, *S. laciniatum*, L., was figured at Plate 6534 of this work. *S. albiflorum* is not nearly so handsome a plant as *S. laciniatum*, being comparatively a dwarf, of robust rigid habit, with nearly white flowers. The cultivated specimens are much less scabrid, as might be expected, than the native, and have longer points to the involucral bracts, giving a squarrose look to the unopened heads; these latter, too, are much longer peduncled, and indeed Mr. Thompson sends a specimen in which the stem is terminated by a solitary long-peduncled flower-head. There is a further difference in the achenes; those of the native plant have the wings produced upwards into somewhat triangular teeth which are often adnate to a pair of subulate and more or less projecting rigid awns; in the garden plant the upward continuation of the wings are rounded at the tips, and there are no awns, in a young state at any rate.

I am indebted for living specimens of this very interesting plant to my old and valued correspondent, Mr. Thompson, of Ipswich, who has for so many years contributed objects of value and interest to this work; he sent it in September

of last year, and informs me that his plants are seven or eight years old. Its native country is Reverchon in Texas.

Descr. Whole plant more or less scabrid, with short white persistent prickles. *Stem* simple, two to four feet high, very robust, terete, but channelled when dry. *Leaves* alternate, lower long-petioled, sixteen inches long, broadly ovate in outline, pinnatifid or bi-pinnatifid, coriaceous, bright green, strongly reticulately nerved beneath when dry, uppermost linear; lobes linear, two to five inches long by one-half to three-quarters of an inch broad, tips acute and pungent, when bi-pinnatifid the lobes are shorter, often triangular; petiole of lower leaves four to five inches long. *Heads* sessile in the axils of the floral leaves or stoutly peduncled, three and a half inches across the rays, the terminal head often produced in a naked peduncle three to four inches long. *Involucre* subglobose, one to one and a quarter inch in diameter; bracts very rigid, broad, scabrid and ciliate, acuminate or produced into long rigid pungent recurved beaks. *Ray-flowers* twenty to thirty, ligules narrowly oblong, two-fid, rather concave, pale straw-coloured or cream-white, young tipped with red-brown; style-arms revolute. *Disk-flowers* very narrow, with a long slender cylindric pubescent obscurely notched style. *Receptacle* scaly, scales ciliate, outer oblong mucronate, inner linear-spathulate. *Achenes* broad, flattened, broadly winged, the wings produced upwards.—*J. D. H.*

Fig. 1, Portion of leaf and prickles; 2 and 3, scales of receptacle; 4, ray-flower; 5, disk-flower; 6, stamens; and 7, style from the same:—*all enlarged.*



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Tab. 6919.

GLADIOLUS Watsonioides.

Native of Mount Kilimanjaro.

Nat. Ord. Irideæ.—Tribe Gladioleæ.

Genus Gladiolus, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 709.)

Gladiolus *Watsonoides*; foliis linearibus firmis glabris basalibus productis pedalibus vel sesquipedalibus, caule elongato foliis paucis reductis instructo, floribus 4–10 in spicam laxam unilateralem dispositis, spathæ valvis lanceolatis foliaceis magnis, perianthio splendide rubro tubo curvato anguste infundibulari, segmentis oblongis acutis subconformibus tubo distincte brevioribus, staminibus arcuatis perianthio brevioribus, styli ramis stigmatosis magnis patulis, capsulæ valvis oblongis, seminibus late alatis.

G. Watsonioides, *Baker in Journ. Linn. Soc.* vol. xxi. p. 405.

This is one of the most interesting of the petaloid monocotyledons which have been discovered during the recent exploration of the regions round Mount Kilimanjaro by Messrs. Thomson and Johnston. In botanical characters it is nearly allied to well-known Cape species, *Gladiolus Watsonius* of Thunberg (figured Bot. Mag. tab. 450), but it is quite different in leaf and stature. From Mr. Johnston's notes it appears to begin at a height of 8500 feet above sea-level in ascending the mountain, and to continue in considerable plenty up to 11,000 feet; and he collected at a height of 13,000 feet a dwarfed form with smaller flowers than in the type and narrow leaves with convolute edges. The seeds (by means of which it was brought into cultivation) have a very broad wing. Our drawing was made from a plant that flowered at Kew in June, 1886.

Descr. Produced basal *leaves* about four, linear, erect, firm in texture, glabrous, strongly ribbed, a foot or a foot and a half long. *Stem* erect, terete, two or three feet long, bearing about a couple of much-reduced leaves below the inflorescence. *Flowers* four to ten in a very lax unilateral spike; spathe-valves curved, foliaceous, lanceolate, green margined with red, the outer valve larger than the inner, in the lower flowers two inches or more long. *Perianth*

bright scarlet; tube curved, narrowly funnel-shaped, an inch and a half long, a quarter of an inch in diameter at the throat; segments oblong or ovate, acute, an inch long, nearly uniform in shape, size, and direction. *Stamens* arcuate, reaching half-way up the perianth-limb; anthers lanceolate, sagittate at the base. *Stigmatic lobes* large, oblanceolate, entire, spreading. Valves of the *capsule* oblong, an inch long. *Seeds* discoid, brownish, with a small nucleus and a very broad wing.—*J. G. Baker.*

Fig. 1, An anther; 2, apex of style, with stigmatic branches :—*both enlarged.*



TAB. 6920.

HEMIPILIA CALOPHYLLA.

Native of Tenasserim.

Nat. Ord. ORCHIDEÆ.—Tribe OPHRYDEÆ.

Genus HEMIPILIA, *Lindl.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 628.)

HEMIPILIA *calophylla*; folio sessili recurvo elliptico-oblongo v. rotundato acuto v. acuminato brunneo marmorato, scapo gracili uni-vaginato, racemo erecto paucifloro, floribus remotis breviter pedicellatis, bracteis triangulari-ovatis lanceolatisve ovario brevioribus, sepalis triangulari-ovatis obtusis albis medio pallide viridibus, petalis sepalis dimidio minoribus, labello purpureo oblongo-quadrato v. subobcordato undulato utrinque unilobato apice emarginato v. bifido, calcare brevi obtuso, rostello elongato uncinato adscendente, stigmatis cruribus brevibus.

H. calophylla, *Parish and Reichb. f. in Lond. Journ. Bot.* vol. xii. (1874) p. 197; *Reichb. f. in Otia Bot. Hamburg.* p. 38.

Hemipilia is a very curious little Indian genus, of which only two species have hitherto been discovered, that here figured, and the type, *H. cordifolia*, Lindl., which was found in Nepal by Wallich upwards of half a century ago, and has since been collected in the North-Western Himalaya by Falconer, Strachey and Winterbottom, and others, at an elevation of 7000 feet; it differs from *H. calophylla* in the subcordate base of the leaf, stout scape, more numerous and more crowded flowers, with a longer spur and smaller lip. The genus is closely allied to *Habenaria*, differing however a good deal in habit, and remarkably in the long upcurved rostellum.

H. calophylla is a native of Moulmein, in Tenasserim, where it was discovered by Mr. Gilbert, whose specimens were, however, too imperfect for determination and description. The indefatigable Rev. C. Parish rediscovered it in August, 1873, growing in limestone rocks, and forwarded specimens and a drawing to Kew, which enabled Prof. Reichenbach to refer it generically to the previously monotypic *Hemipilia*, and to describe it with completeness. Probably other species of the genus occur in the Eastern Himalaya, for such plants, with lurid leaves and flowers,

growing close to the ground amongst other herbage, in jungles and forests, are with difficulty detected. Mr. Parish observes that the flowers are sometimes wholly purple. The specimens here figured were sent to the Royal Gardens by Mr. Peché of Moulmein, and flowered in July, 1886.

Descr. *Root* a tuber. *Leaf* two to three inches long by one and a quarter to one and a half inch broad, quite sessile on the tuber, and with the acute base sunk in the ground, from elliptic ovate to nearly orbicular, acute or acuminate, membranous, very dark green mottled with brown. *Scape* five to seven inches high, very slender, green spotted with red-brown, naked except for one narrowly lanceolate erect green and spotted sheath about the middle. *Raceme* six- to eight-flowered; flowers distant, nodding, half an inch broad across the sepals and three-quarters of an inch from the top of the upper sepal to that of the lip. *Sepals* triangular-ovate, obtuse, white and green, rarely purple. *Petals* similar, but much smaller. *Lip* half an inch broad, dark vinous purple, puberulous, from cuneately obcordate to quadrately oblong, with rounded angles and a small rounded lobe on each side, and a notched or two-lobed tip. *Spur* shorter than the sepals, obtuse. *Column* short, with short inflexed sides; rostellum tongue-shaped, upcurved, with reflected sides projecting as high as the top of the column, puberulous. *Ovary* slender, decurved.—*J. D. H.*

Figs. 1 and 2, Side and front views of column and base of lip; 3 and 4, pollinia:—*all enlarged.*



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

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Tab. 6921.

ADESMIA balsamica.

Native of Chili.

Nat. Ord. Leguminosæ.—Tribe Hedysareæ.

Genus Adesmia, *DC.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 517.)

Adesmia *balsamica*; frutex diffuse ramosissimus glabrescens glandulosus, ramis gracilibus, foliorum rache compresso denticulato, foliolis parvulis 10–13-jugis ellipticis cuneato-obovatisve crassiusculis integris v. serrulatis rugulosis medio canaliculatis, racemis copiosis terminalibus laxifloris, floribus longe gracile pedicellatis, calycis tubo campanulato v. hemispherico dentibus triangulari-ovatis patulis, corolla aurea, vexillo orbiculari, legumine 6–8-articulato puberulo.

A. balsamica, *Bertero in Mem. Acad. Torin.* vol. xxxvii. p. 59, t. x.; *Hook. and Arn. Bot. Beech. Voy.* 20, *in note, excl. syn. Molini*; *C. Gay, Flor. Chil.* vol. i. p. 180.

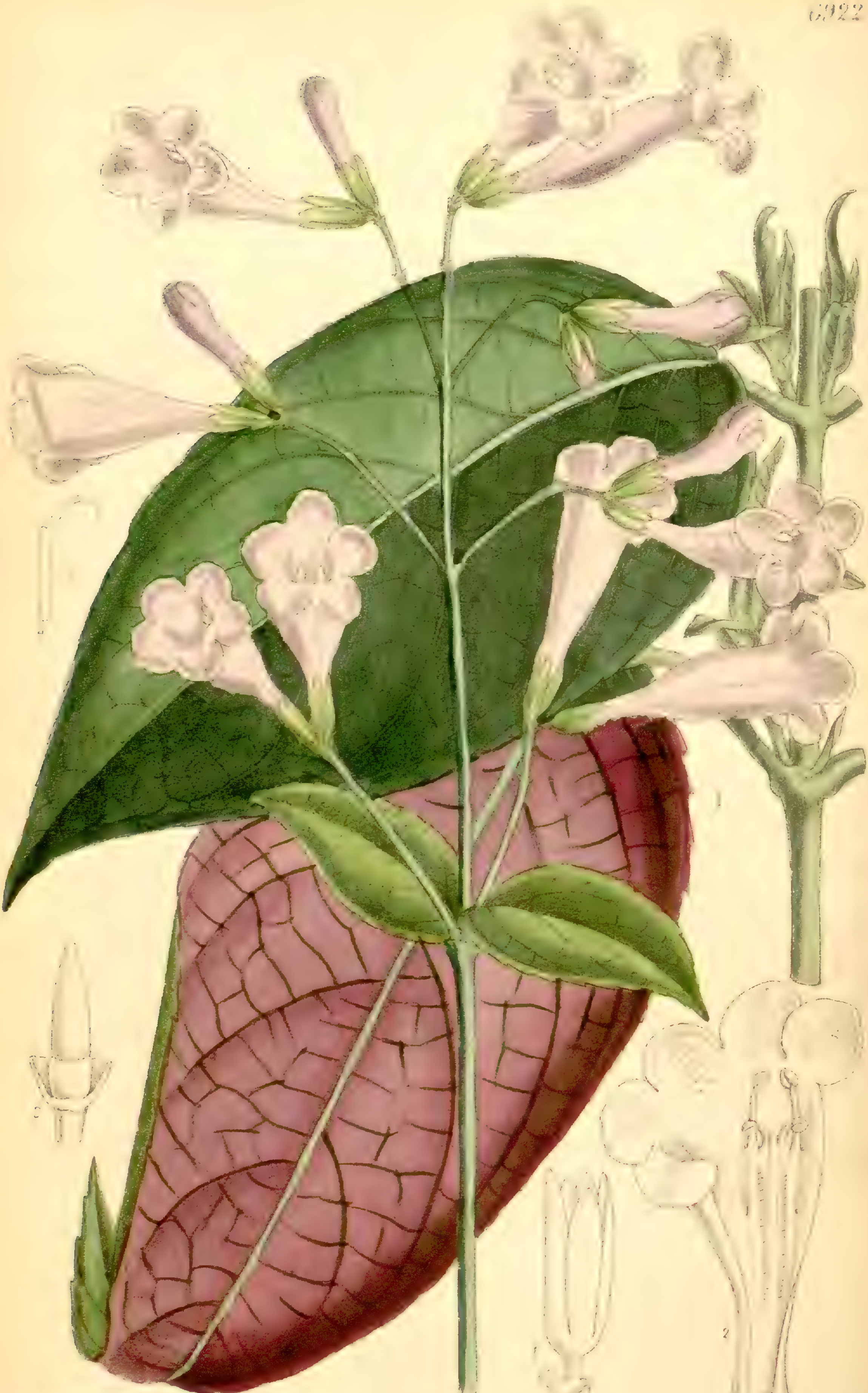
The genus *Adesmia*, though containing upwards of eighty species of shrubs, has not hitherto found favour in the eyes of horticulturists, and indeed the few species hitherto figured in British horticultural works (Bot. Reg. t. 1720; Sweet, Brit. Fl. Gard. Ser. 2, t. 222, 230, 322) have nothing to recommend them to cultivators. To these the subject of our plate forms a striking contrast, for *A. balsamica* is both a graceful and very beautiful shrub; its balsamic odour, delicate ramification and foliage, and abundant golden flowers together render it a most attractive shrub for the green-house, if not for the open air, in at any rate the milder parts of England and Ireland. It is a native of Chili, and appears to be abundant on the hill-sides near Valparaiso, from whence there are specimens in the Herbarium from numerous contributors. Claude Gay describes it as the most valuable of all the *Adesmias* on account of its exquisite balsamic odour, which in its native country can be perceived at a great distance, and it is also a reputed medicine.

Specimens of this beautiful plant were sent for figuring in the Botanical Magazine by Sir George MacLeay, K.C.M.G., who flowered it in his rich conservatory at

Pendel Court, Kent, in March of last year. The balsamic odour is very perceptible even when dry, but doubtless it is much more developed on hill-sides under the bright skies of a Chilian summer, than in an English green-house in the month of March.

Descr. A nearly glabrous, excessively branched, copiously-flowering shrub, covered with balsamic glands; branches very slender, leafy. *Leaves* one to one and a half inch long, shortly petioled, pinnate, rachis flattened and denticulate, leaflets ten to thirteen pairs, very small, one-eighth to one-sixth of an inch long, sessile, dark green, oblong or cuneately obovate, subentire or serrulate, rugose and channelled down the middle. *Racemes* terminating the branches, effuse, three- to eight-flowered, sparsely puberulous; rachis and pedicels very slender, the latter one-half to three-quarters of an inch long; bracts minute. *Flowers* two-thirds of an inch in diameter, golden yellow. *Calyx-tube* from broadly campanulate to subglobose, minutely hispid, teeth small, triangular, acute. *Standard* orbicular. *Wings* obtuse, rather shorter than the obtuse keel. *Ovary* pubescent. *Pod* about one inch long, very shortly stipitate, somewhat pubescent; joints six to eight, semicircular.—*J. D. H.*

Fig. 1, Portion of rachis and leaflets; 2, calyx and young pod; 3, wings; 4, keel; 5, stamens; 6, pod (from dried specimen):—*all but fig. 6 enlarged.*



M.S. del. J.B. Fritsch lith.

Imp. Lemercier Degoti & Cie, Paris.

Lilacées à Fr. Sessiles

Tab. 6922.

STROBILANTHES COLORATUS.

Native of Assam and the Eastern Himalaya.

Nat. Ord. Acanthaceæ.—Tribe Ruellieæ.

Genus Strobilanthes, *Blume;* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1086.)

Strobilanthes (Paniculatæ) *coloratus;* suffrutex glabrescens, ramis teretibus, foliis 4–7-pollicaribus ovatis ellipticisve acuminatis serratis, paniculis erectis multifloris, bracteis ellipticis caducis, ramis gracilibus strictis, sepalis subæqualibus linearibus obtusis glabris, corollæ sesquipollicaris tubo ventricoso glabro pallide azureo-purpureo, lobis rotundatis, capsula late ovata acuta 4-sperma, seminibus ovatis pubescentibus vix areolatis.

S. coloratus, *T. Anders. in Journ. Linn. Soc.* vol. ix. p. 481; *Clarke in Hook. Fl. Brit. Ind.* vol. iv. p. 473.

Goldfussia colorata, *Nees in Wall. Plant. As. Rar.* vol. iii. p. 89; and in *DC. Prodr.* vol. xi. p. 176.

Ruellia colorata, *Wall. Cat.* No. 2388.

This is a very handsome species of the enormous Asiatic genus *Strobilanthes*, of which there are upwards of 150 species in British India alone, and this is its head-quarters, for indeed only one species has been found beyond the limits of tropical Asia, and that one in tropical Africa. *S. coloratus* is an ally of *S. Wallichii*, which was figured in this work under the name of *Goldfussia Thomsoni* (Tab. 5119), which has, however, much fewer flowers, with a curved deep red-purple corolla. *S. coloratus* is a native of the Eastern Himalaya, at elevations of 2000 to 5000 feet, in Sikkim and Bhotan, where it has been gathered by C. B. Clarke, and it is abundant in the Khasia Mountains, south of Assam, whence Wallich's collectors first procured it, and where I found it abundantly at elevations of 3000 to 4000 feet, attaining 10 feet in height, with a panicle two to three feet long, and nearly as broad. The specimen here figured was raised at Kew from seeds sent by Dr. King, of the Royal Botanical Gardens, Calcutta, and flowered in January of last year.

Descr. A tall glabrous undershrub, four to six feet

high, copiously branched, the branches ending in large erect panicles. *Stem* and *branches* terete, green. *Leaves* five to seven inches long, ovate or elliptic, acuminate or produced into a long tail, serrate, base very acute and produced on the petiole, which is one to three inches long; nerves eight to ten pairs, slender; upper surface dark green, under red-purple. *Panicles* six to twelve inches high, widely spreading, and profusely branched; branches very slender, strict, some forming filiform pedicels, others bearing two very shortly pedicelled flowers; bracts elliptic, caducous. *Flowers* one and a half inch long, pale blue purple. *Calyx* narrow, half an inch long, of erect linear obtuse green sepals. *Corolla* with a ventricose tube and short rounded lobes, which are hardly wrinkled. *Stamens* small, included. *Capsule* scarcely longer than the calyx, broadly or narrowly ovate, acute, four-seeded. *Seeds* ovate, pubescent, obscurely areolate.—*J. D. H.*

Fig. 1, Calyx; 2, corolla laid open; 3, ovary and disk:—*all enlarged.*



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

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Tab. 6923.

XANTHOCERAS SORBIFOLIA.

Native of North China.

Nat. Ord. Sapindaceæ.—Sub-order Sapindeæ.

Genus Xanthoceras, *Bunge*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 408.)

Xanthoceras *sorbifolia*; frutex glaber, foliis deciduis alternis pinnatis, pinnis multijugis lineari-oblongis lanceolatisve acutis inciso-serratis, floribus racemosis, racemis axillaribus ramulosque terminantibus multifloris albis roseo-pictis, fructibus magnis globosis v. pyriformibus tarde dehiscentibus, pericarpio crasso, seminibus globosis.

X. sorbifolia, *Bunge, Enum. Pl. Chin. Bor.* p. 11; *Hance in Journ. Bot.* vol. viii. (1870), p. 313; *Franchet, Plant. David.* p. 75; *Flore des Serres*, ser. 2, vol. viii. (1870), t. 1899; *Rev. Hortic.* 1872, p. 291, *cum Ic.*; *Ill. Hortic.* vol. xxiv. (1877), t. 295; *Gard. Chron.* N.S. vol. v. (1876), p. 567, fig. 101, and vol. xxvi. (1886), p. 204, fig. 42.

This is one of the most attractive and interesting hardy garden shrubs that has been introduced for many years, and though introduced nearly twenty years ago, is rarely seen except in the botanical establishments or the gardens of those in search of novelties. It was discovered by the now venerable Dr. Bunge, formerly Professor of Botany at Dorpat, near Pekin, some sixty years ago, on the occasion of his accompanying an overland mission to that capital from St. Petersburg; but was not introduced till Father David, the most laborious and successful of all explorers of the Chinese Flora, sent seeds to the Jardin de Plantes at Paris about twenty years ago. According to a statement in the "Gardener's Chronicle," Father David sent the plant in 1868, and as it flowered and was figured in the "Flore des Serres" in 1872, it must have been transmitted to Paris in a living state.

Xanthoceras sorbifolia is a beautiful free-flowering bush, with the habit of the Bladder-nut (*Staphylea pinnata*), to which it is allied. I am indebted to Mr. Lynch, of the Cambridge Botanical Gardens, for the fine specimens here figured, with flowers of both sexes, and where it blossomed in May, 1886, the females appearing a few days after the

males. The leaves were fully developed in July. For the fine fruits I am indebted to the kindness of continental correspondents; the apple-shaped ones were received in August of last year from M. Max Cornu, of Paris, and were ripened in the Jardin de Plantes. The pyriform ones were received in October from M. J. Van Volxem, of Brussels. The seeds are described as being eaten by the Chinese.

Descr. A deciduous glabrous or puberulous shrub or small tree, copiously leafy. *Leaves* opposite, eight to twelve inches long, pinnate; petiole short and rachis slender, nearly terete; leaflets alternate, sessile, linear-oblong or oblong-lanceolate, acute, coarsely serrate, the tips of the leaflets and serratures apiculate, dark green above and glossy, paler beneath. *Flowers* in copious lateral racemes, eight to ten inches long, from shoots at the sides of the branches, appearing before the leaves, at first suberect, then drooping; peduncle short; rachis stout; bracts oblong, obtuse or subacute; pedicels a quarter to one-third of an inch long, rather stout. *Sepals* five, oblong, obtuse, green. *Petals* spreading and recurved, spathulately obovate, white with blood-red streaks at the base. *Disk* with five cylindric suberect obtuse horns that are curved outwards and alternate with the stamens. *Stamens* eight, filaments slender, erect; anthers gland-tipped, oblong; in the female flower they are shorter, imperfect, and surround the ovary. *Ovary* in the female flower ellipsoid, narrowed into a short grooved style with three connate stigmas, three-celled; ovules about eight in each cell. *Fruit* a globose or pyriform capsule, with very thick walls, tardily splitting into three valves, with a spongy white inner surface. *Seeds* globose, of a fine purple-brown colour.—*J. D. H.*

Fig. 1, Flower-bud; 2, male flower with perianth removed; 3, stamens; 4, ovary; 5, female flower with perianth removed; 6, section of ovary; 7, fruit from the Jardin de Plantes; 8, fruit from M. Van Volxem; 9, the same dehisced, showing the seeds:—*figs.* 1–8 *enlarged.*

M S del. J N Fitch lith.

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Tab. 6924.

LAPEYROUSIA GRANDIFLORA.

Native of East Tropical Africa.

Nat. Ord. Irideæ.—Tribe Ixieæ.

Genus Lapeyrousia, *Pourr.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 705.)

Lapeyrousia (Anomatheca) *grandiflora*; cormo parvo globoso tunicis fibrosis, foliis 6–8 distichis subbasalibus confertis linearibus glabris membranaceis, pedunculo elongato simplici vel furcato folio unico reducto instructo, spicis 4–10-floris laxis subsecundis, spathæ valvis lanceolatis membranaceo-herbaceis, perianthii tubo elongato cylindrico apice infundibulari, segmentis splendide rubris oblongis vel oblongo-lanceolatis 3 superioribus ascendentibus 3 inferioribus brevioribus deflexis basi rubro saturatiori maculatis, staminibus erectis elongatis, stylo staminibus eminente ramis 6 divaricatis stigmatosis, fructu parvo globoso.

Lapeyrousia grandiflora, *Baker in Journ. Bot.* 1876, p. 337; *Journ Linn. Soc.* vol. xvi. p. 154.

The present plant is a native of the Zambesi country, where it was discovered by Sir John Kirk, whilst travelling with Dr. Livingstone in 1858. It has since been sent home in a dried state by Dr. Meller and Mr. John Buchanan, and in 1883 we received living corms from Mrs. Monteiro. It is a near ally of the well-known *Anomatheca cruenta* of Natal, but the flowers are much larger. Mr. Bentham has now reduced Ker's genus *Anomatheca* to *Lapeyrousia*, and here again we get a large characteristically Cape genus, represented in Angola and the mountains of Tropical Africa by a few distinct specific types. Our drawing was made from a plant that flowered at Kew in October, 1886.

Descr. *Corm* small, globose; outer tunics formed of fine brown nearly parallel fibres. Produced *leaves* six or eight in a distichous nearly basal rosette, linear, membranous, green, glabrous, half a foot or a foot long. *Peduncle*, including the inflorescence, a foot long, simple or forked, bearing only a single reduced leaf. *Spikes* lax, subsecund, four- to ten-flowered; spathe-valves lanceolate, unequal, between membranous and herbaceous. *Perianth-tube* cylindrical, with a short funnel-shaped apex, an inch

long, nearly white; limb bright scarlet, two inches in diameter; segments oblong or oblong-lanceolate; three upper ascending, concolorous; three lower shorter, deflexed, marked with a large spot of darker scarlet at the base. *Stamens* erect, rather shorter than the perianth-segments; filaments filiform; anthers linear. *Style* overtopping the stamens, bearing six divaricated stigmatose branches. *Capsule* small, globose, umbilicate at the apex.—*J. G. Baker*.

Fig. 1, Front view of anther; 2, back view of anther; 3, style and stigmas; 4, capsule:—*all more or less enlarged*.



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

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TAB. 6925.

CORYDALIS KOLPAKOWSKIANA.

Native of Western Turkestan.

Nat. Ord. PAPAVERACEÆ.—Tribe FUMARIEÆ.

Genus CORYDALIS, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 56.)

CORYDALIS (Bulbocapnos) *Kolpakowskiana*; bulbosa, glaberrima, glauca, caule ramoso gracili paucifolioso, foliis longe petiolatis bipinnatisectis, pinnis 2-3-jugis petiolulatis late ovatis, pinnulis paucis cuneatis 2–3-sectis, lobis linearibus **obtusis pallide viridibus, racemo elongato laxiflоro, bracteis** oblongis integris obtusis viridibus, floribus breviter pedicellatis, sepalis minimis, corollæ labiis **subæqualibus breviusculis ovatis explanatis, superiore emarginato, inferiore basi gibbo calcare limbo fere duplo longiore leviter arcuato apice decurvo obtuso, capsulis elliptico-oblongis pendulis.**

C. Kolpakowskiana, *Regel, Gartenfl.* vol. xxvii. (1878), p. 261, t. 948.

The expeditions sent by the Russian Government to the regions of Central Asia have resulted in the discovery and introduction into the gardens of St. Petersburg of an astonishing number of hardy herbaceous plants, which have been most liberally distributed to all European gardens; and to none of the intrepid explorers of these inhospitable regions are we more indebted than to Dr. Albert de Regel, the talented son of the excellent and able Director of the Imperial Botanical Gardens of St. Petersburg. Amongst these novelties the genus *Corydalis* holds a conspicuous place, and as most of the species are early spring flowers, when there is little else to grace the garden, they are welcome to horticulturists. Dr. Regel, who describes this plant in the "Gartenflora," says of it that it is allied to *C. longiflora*, which latter may be distinguished by the more simple stem, by the bracts equalling or exceeding the pedicels of the flower, by the boat-shaped tips of the corolla, which are not spread out, by the subulate acute spur, and by the linear-oblong pods.

C. Kolpakowskiana was found in 1877 by Dr. Albert de Regel in Western Turkestan, near the town of Wernoje, near the river Almatiuka, and is stated to vary in the

colour of the flowers from white to pale rose-colour, variegated with purple, and a white throat. In the figure given in the "Gartenflora," the flowers are represented of a rather muddy rose-colour, much deeper than in the figure here given, and a white flower is also represented. The foliage, too, is far more luxuriant in the St. Petersburg than in our specimen. The specific name is that of the Military Governor of the province where the plant was found. Mr. Elwes gave me the specimen here figured, which flowered in a frame with him in April, 1867.

DESCR. A low glaucous, quite glabrous succulent tuberous herb. *Stem* four to eight inches high, sparingly branched from the base, and sparingly leafy. *Leaves* alternate, pale green, four to five inches long, bipinnate; petiole long and rachis slender; pinnæ petiolulate, three-quarters of an inch long, ovate in outline; pinnules cuneiform, two-to-five lobed; lobes linear, obtuse. *Racemes* four to six inches long, erect, slender, lax-flowered; bracts green, oblong, obtuse, shorter than the slender pedicels. *Sepals* very minute and of irregular form. *Corolla* gibbous at the base, three-quarters of an inch long from the tip of the lips to that of the spur, white or pink with a purple throat; lips short, equal, spreading, ovate, concave, but with the margins expanded or slightly reflexed; spur ascending, slightly curved, about twice as long as the limb of the corolla; tip more or less decurved, obtuse. *Stigma* orbicular, stellately crenate. *Capsule* elliptic-oblong, pendulous.—*J. D. H.*

Fig. 1, Flowers; 2, sepals; 3, ovary:—*all enlarged.*

M.S.del.; N.Fitch lith.

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TAB. 6926.

BEGONIA CYCLOPHYLLA.

Native of South China.

Nat. Ord. BEGONIACEÆ.

Genus BEGONIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 841.)

BEGONIA *cyclophylla*; tuberosa, folio solitario amplo membranaceo rotundato-cordato obtuso palmatim 7–9-nervi, lobis basi incumbentibus supra et infra ad nervos reticulatis sparse hirtello, petiolo hirto, stipulis oblongis fimbriato-ciliatis, scapo gracili, cyma pluriflora, floribus roseis odoris, masc. sepalis rotundatis, petalis obovato-spathulatis, filamentis in columnam brevem connatis, antheris capitatis parvis obovatis apice rotundatis, fl. fem. minoribus, sepalis 2 semicircularibus, petalo solitario multo minore oblongo concavo, stylis 3 2-fidis, lobis fascia continua spiraliter torta circumdatis, capsula trigona 3-loculari ala majore triangulari, minoribus linearibus.

I have advanced this as a new species with much hesitation, because it was sent by Mr. Ford from the Hongkong Botanical Gardens under the name of *B. fimbristipula*, Hance (in Lond. Journ. Bot. 1883, p. 202), and because it agrees with the character of that plant in so many particulars that it appeared to me possible that it might be a gigantic form of it, with characters acquired under cultivation. On referring, however, to the Kew Herbarium, I find authentically named specimens of *B. fimbristipula* from Lofaushan (on the coast opposite to Hongkong) which show it to be a diminutive very slender little species, two to three inches high, with an ovate cordate acuminate sharply doubly-toothed leaf of a deep red purple colour, and a one- or two-flowered scape. The Lofaushan specimens agree very well with Hance's description, except that I do not find the under surface of the leaf to be lepidote, and that the outer male sepals are orbicular rather than oblong, and that the petiole is sometimes longer than the limb of the leaf. Specimens from Tingushan, on the Canton river, also in the Kew Herbarium, and cited as *B. fimbristipula* by Hance, are many times larger than the above, with a branched cyme as in *B. cyclophylla*, but the leaves are of the same

form and toothing as *fimbristipula*. Another difficulty is to determine the section of the huge genus to which this species should be referred. It agrees with none in De Candolle's monograph (*Prodr.* v. xv. pars. i.). According to his Clavis (p. 403) it should fall into *Dysmorphia*, with two Peninsular Indian species (*B. crenata*, Dryandr., and *B. canarana*, Miq.); but these are described as having anthers dehiscing by pores, four to five sepals in the female flower, connate styles, and inflated capsules.

Hance supposes his *B. fimbristipula* (with which this must go) to be most nearly allied to *B. parvuliflora*, A. DC., which belongs to the section *Parvibegonia*, and which should have four to five segments in the female flower, and deciduous styles. According to the grouping of the species sketched out in the "Genera Plantarum," it falls into the fourth series, and would be included in an enlarged view of *Platycentrum* (inclusive of *Knesebeckia*). Its nearest ally in floral structure appears to me to be *B. sinensis* of A. DC., a caulescent species of very different habit, referred by A. de Candolle to *Knesebeckia*.

A similar species to *B. fimbristipula*, of which leaves are preserved in the Kew Herbarium, is extensively used by the Chinese as a drug. The leaves are of a brilliant red-purple colour.

Our specimens were raised from tubers sent by Mr. Ford from the Hongkong Botanical Gardens in 1885, and flowered in April, 1886. The flowers are sweet-scented, like roses.

Descr. *Root* tuberous. *Leaf* solitary, attaining six inches in breadth, orbicular-cordate with overlapping basal lobes, obtuse or subacute, palmately seven- to nine-nerved, obscurely denticulate, sparsely hirtellous on the upper surface and on the nerves beneath, deep green above, pale inclining to red beneath; petiole rather stout, shorter than the blade, sparsely hirsute; stipules oblong, fimbriately ciliate. *Scape* six inches high, slender, glabrous, bearing a trichotomous cyme of rose-coloured and -scented flowers of both sexes; bracts at the fork like the stipules. Male fl. one to one and a quarter of an inch in diameter. *Sepals* two, orbicular. *Petals* two, obovate. *Anthers* small in a globose head on a short slender column, obovate, tip rounded. Fem. fl. smaller than the males. *Sepals* two, semicircular. *Petal*

one, very much smaller, oblong, concave. *Styles* three, each two-fid, with a twisted papillose band, persistent in fruit. *Capsule* triangular-deltoid in outline, larger wing trigonous, upper margin horizontal, smaller linear; placenta bipartite, all surfaces seed-bearing. —*J. D. H.*

Fig. 1. Stipule; 2. anther; 3. styles; 4, transverse section of ovary:—*all enlarged*



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

Vincent Brooks Day & Son Imp.

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Tab. 6927.

CEROPEGIA Monteiroæ.

Native of Delagoa Bay.

Nat. Ord. Asclepiadeæ.—Tribe Ceropegieæ.

Genus Ceropegia, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 779.)

Ceropegia *Monteiroæ*; glaberrima, caule volubili, foliis carnosulis breviter petiolatis ovato-oblongis obtusis margine undulatis, floribus ad apicem pedunculi crassi paucis erectis breviter crasse pedicellatis, sepalis parvis lanceolatis, **corolla 2½–3 pollicari, tubo basi oblongo-inflato dein anguste infundibulari, lobis abrupte in laminam inflexam basi ciliatam horizontalem dilatatis laminibus in umbraculam convexam albam purpureo-maculatam 5-sulcatam connatis, coronæ staminææ lobis exterioribus nullis, interioribus** elongatis incurvis in columnam 5-sulcatam conniventibus apicibus recurvis obtusis.

Those who frequent the Succulent House at Kew have long been familiar with the *Ceropegia Sandersoniæ* (Bot. Mag. t. 5792), which, growing in a pot, was trained up a rafter on the left-hand side on entering, and which attracts attention by its curious long green flowers, expanding into the form of a trumpet, surmounted by a fringed green spotted canopy, supported on five short legs. No second species at all like it of the extensive genus to which it belongs was ever known till 1884, when the tubers of that here figured were sent to the Royal Gardens by Mrs. Monteiro, of Delagoa Bay, widow of that able naturalist J. Monteiro, the author of the best books ever written on the Natural History of Tropical Africa.*

C. Sandersoniæ, just referred to, is a native of Natal, and was named in honour of a lady who, and whose husband (the late J. Sanderson, Esq.), were active contributors to the Royal Gardens. It seems, therefore, appropriate that its near ally should bear the name of the lady to whom the horticultural world is indebted for this singular plant.

C. Monteiroæ was received in 1884, and flowered in July, 1886. It comes from Delagoa Bay, a locality a good way

* "Angola and the River Congo," by Joachim J. Monteiro. 2 vols. Macmillan & Co. 1875.

north of Natal, and the plant consequently requires tropical heat, which *C. Sandersoniæ* does not.

Descr. A glabrous climber, probably attaining a considerable height; branches terete, as thick as a goose-quill, white mottled with brown, in minutely warted patches. *Leaves* opposite, two to three inches long, shortly stoutly petioled, oblong-ovate, subacute or obtuse, succulent, pale green with undulate margins that are purplish on the extreme edges. *Flowers* about three, at the top of short stout lateral peduncles one-half to two-thirds of an inch long, shortly pedicelled; bracts minute. *Sepals* small, erect, lanceolate, acute, glandular at the base within. *Corolla* two to three inches long; inflated base narrowly oblong, green, about two-thirds of an inch long; tuber above the bulb narrowly funnel-shaped, dull green below, striped white and dull brown above; mouth trumpet-shaped; lobes five, clawed, claws separated by a semicircular sinus, each lobe suddenly dilated into a broad triangular flat plate that arches over the mouth of the corolla, white spotted with purple brown, and with purple filaments at the base on each side; these five coalesce, and form a low, pointed, five-angled, five-furrowed canopy over the opening of the corolla, supported by the five claws. *Column* at the base of the bulb; outer lobes none, the inner arching inward and meeting form a five-grooved column, above which three short free recurved obtuse tips spread outwards.—*J. D. H.*

Fig. 1, Portion of stem; 2, sepal seen from within; 3, base of corolla and staminal column; 4, pollen-masses:—*all enlarged.*



M.E. del. J.N.Fitch lith.

Vincent Brooks Day & Son lmp.

L. Reeve & Co. London.

Tab. 6928.

CLAVIJA Ernstii.

Native of Caraccas.

Nat. Ord. Myrsineæ.—Tribe Theophrasteæ.

Genus Clavija, *Ruiz & Pav.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 649.)

Clavija *Ernstii*; glaberrima, caule robusto, foliis longe petiolatis coriaceis elliptico-oblongis oblongo-lanceolatis v. oblanceolatis integerrimis basi acutis sæpe inæquilateralibus in petiolum decurrentibus, nervis perplurimis tenuissimis horizontalibus, racemis brevibus axillaribus nutantibus multifloris, bracteis minutis, floribus breviter pedicellatis, calycis tubo infundibulari-companulato lobis orbiculatis integerrimis, corollæ disco crasso radiato crenulato processubus brevibus corollæ lobis alternantibus instructo, antheris late ovatis, ovario minuto.

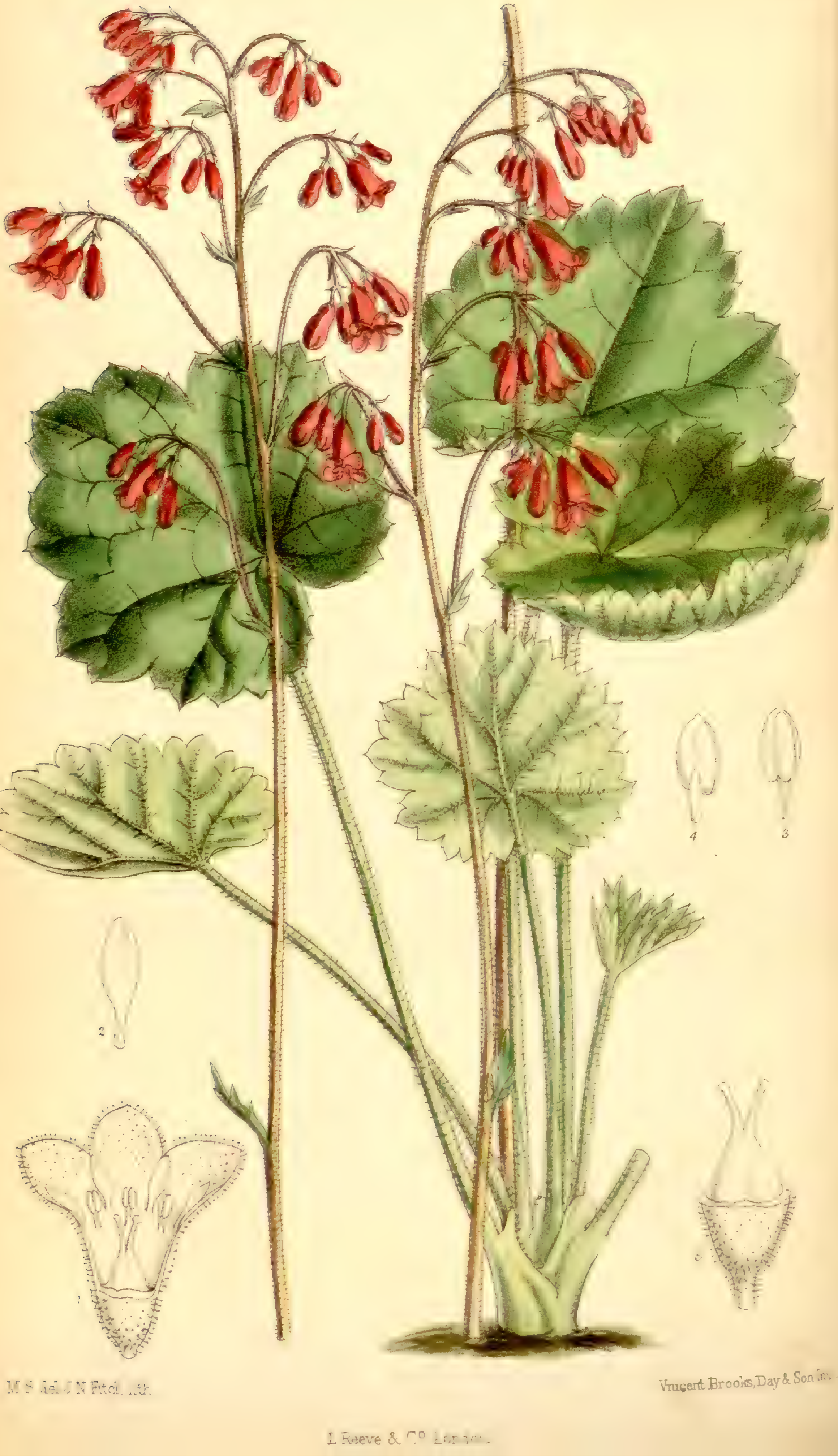
Of the South American genus *Clavija*, some twenty-five species are described, but with none of them does the plant here figured agree. It comes near to a Venezuelan one collected in Ocaña (New Grenada) by Purdie, which differs in the shorter petioles and strongly serrated reticulatedly veined leaves; and to the *C. Hookeri*, Alph. DC. (*C. spathulata*, Hook. Ic. Pl. t. 140, not of R. and P.), of Peru, which is a much more slender plant with very small flowers. From all the three species already figured in this Magazine it differs widely; there are *C. ornata*, Don (Tab. 4922), *C. fulgens*, Hook. (Tab. 5626), and *C. macrophylla*, Miquel (*C. Riedeliana*, Regel Gartenfl. t. 663) (Tab. 5829).

I have named it after the excellent botanist who sent seeds of it to Kew in 1879, Prof. Ernst, of Caraccas. Plants raised from these flower annually in the Palm House in July, where they have attained a height of sixteen to twenty-four inches.

Descr. *Trunk* in native specimen four to five feet high, very robust, as thick as the thumb, covered with brown smooth bark, and with here and there a few short subulate prickles. *Leaves* clustered at the ends of the branches, long-petioled, coriaceous, twelve to sixteen inches long by four to six inches broad, bright green, paler beneath, elliptic-

oblong or oblong-lanceolate or oblanceolate, acute or subacute, quite entire, base often unequal-sided, acute and decurrent on the petiole; midrib beneath stout, rounded, nerves very many, very slender, horizontal, inconspicuous, petiole as thick as a goose-quill, three to six inches long, terete, smooth, slightly thickened towards the base, green. *Racemes* short, axillary, two to four inches long, drooping, many-flowered; peduncle short and rachis slender, yellow; bracts minute; pedicels very short; flowers pendulous, three-quarters of an inch long, and nearly as broad across the corolla. *Calyx* campanulate, green; lobes orbicular, quite entire. *Corolla* fleshy, lobes nearly orbicular, concave, incurved disk apricot yellow, margins crenulate. *Disk* (incorrectly figured) closing the mouth of the corolla, broad, fleshy, ten-lobulate, with twenty radiating low ridges, and five hemispheric low fleshy processes projecting from under its margin and alternating with the corolla-lobes. *Stamens* five, erect, inserted within the disk, filaments very short, fleshy; anthers broadly ovate, conniving, connective thick, produced into an obtuse point. *Ovary* minute, ovoid, narrowed into a short style with a minute capitate stigma; ovules few, inserted in a whorl round the base of the conical placenta.—*J. D. H.*

Fig. 1, Flower; 2, the same with the corolla-lobes cut off (disk incurved in both); 3 and 4, stamens; 5, ovary; 6, vertical section of ditto:—*all enlarged.*



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

Vincent Brooks, Day & Son lith.

L. Reeve & Co. London.

Tab. 6929.

HEUCHERA SANGUINEA.

Native of New Mexico and Arizona.

Nat. Ord. Saxifragaceæ.—Tribe Saxifrageæ.

Genus Heuchera, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 638.)

Heuchera *sanguinea*; gracilis, parce patentim pilosa, foliis longe petiolatis orbicularibus profunde cordatis margine 5–7-lobatis lobis late crenato-dentatis, scapo elongato gracillimo, panicula laxiflora glanduloso-pubescente, floribus breviter pedicellatis sanguineis.

H. sanguinea, *Engelmann Bot. Wislizenus's Expedition*, p. 23; *Gray Plant. Wright.* pt. ii. p. 63; *Walp. Ann.* vol. iii. p. 897.

This, as Gray observes, is by far the handsomest species of the genus, which is itself, I may add, a very unpretending one, and in which so really pretty a plant as this was not to have been expected, especially as, except in *Escallonia*, the bright reds are rare in the Order to which it belongs. It is curious, and a further instance of the unattractive features of the *Heucheras*, that though no fewer than fifteen species, all North American, and all presumably hardy, are enumerated in Watson's "Index of North American Botany," and though several have been cultivated in this country, one only had been, previous to this, figured in a horticultural work; this one is *H. cylindrica*, Dougl. (Botanical Register, t. 1924). The original species, however, the Linnæan *H. americana*, appears in a plate of Hill's "Vegetable System," vol. xiii. t. 43, f. 1, as the Dingy Wellwood, published so long ago as 1761.

There is another species which from its specific name may be supposed to deserve the attention of horticulturists; it is the *H. rubescens*, Torrey, a native of California; its flowers are described as pale pink. *H. sanguinea* is a native of rocky places on the Pacific slope of the South-Western United States of America, Arizona, and New Mexico. It was introduced into Europe by Mr. Ware, of Tottenham, and the specimen here figured flowered in the Rock Garden at Kew in June, 1886.

April 1st, 1887.

Descr. *Rootstock* stout, woody. *Leaves* sparsely pilose with long spreading hairs, petiole three to six inches long, very slender, hirsute towards the base; limb two to two and a half inches in diameter, membranous, orbicular, deeply cordate at the base with a narrow sinus and rounded lobes, pubescent on both surfaces, margin shallowly five- to seven-lobed, lobes with three to five very broad mucronate teeth, deep green above, paler beneath. *Scape* twice as long as the petioles or more, very slender, pilose below, glandular-pubescent above, as is the panicle, naked or with a minute narrow entire or pinnatifid leaf. *Panicle* with the top and slender branches drooping and often secund; bracts small, the lower green and pinnatifid, the upper slender entire and coloured. *Flowers* four to six at the ends of the branches, half an inch long, pendulous from short slender pedicels, scarlet, glandular-pubescent; bracteoles slender, linear. *Calyx* campanulate; lobes short, rounded, glandular-pubescent without and within. *Petals* minute, almost included, linear-spathulate. *Stamens* short. *Ovary* half-superior; styles short.—*J. D. H.*

Fig. 1, Calyx laid open; 2, petal; 3 and 4, stamens; 5, ovary:—*all enlarged.*

6930.

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

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Tab. 6930.

CRYSANTHEMUM MULTICAULE.

Native of Algeria.

Nat. Ord. Compositæ.—Tribe Anthemideæ.

Genus Chrysanthemum, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 424.)

Chrysanthemum (Glossopappus) *multicaule;* annuum, glabrum, multicaule, carnosum, caulibus robustis ascendentibus suberectisve, ramis monocephalis, foliis breviter petiolatis aliis spathulatis grosse dentatis aliis pinnatisectis segmentis paucis divaricatis anguste linearibus acutis integris, involucri bracteis oblongis extimis inappendiculatis intimis appendice orbiculari hyalina terminatis, ligulis late oblongis aureis, acheniis radii obovoideis tubo hyalino coronatis facie interiore 2–3 alatis, disci squama brevi rotundata ventrali terminatis.

C. multicaule, *Desfontaine Flor. Atlant.* vol. ii. p. 182, t. 236; *Pers. Synops.* vol. ii. p. 462.

Pyrethrum multicaule, *Willd. Sp. Pl.* vol. iii. p. 2158; *Spreng. Syst. Veg.* vol. iii. p. 587; *DC. Prodr.* vol. vi. p. 61.

Coleostephus multicaulis, *Durieu in Duchart. Rev. Bot.* vol. i. p. 364, and *Bot. Alger.* t. 58, f. 7–10.

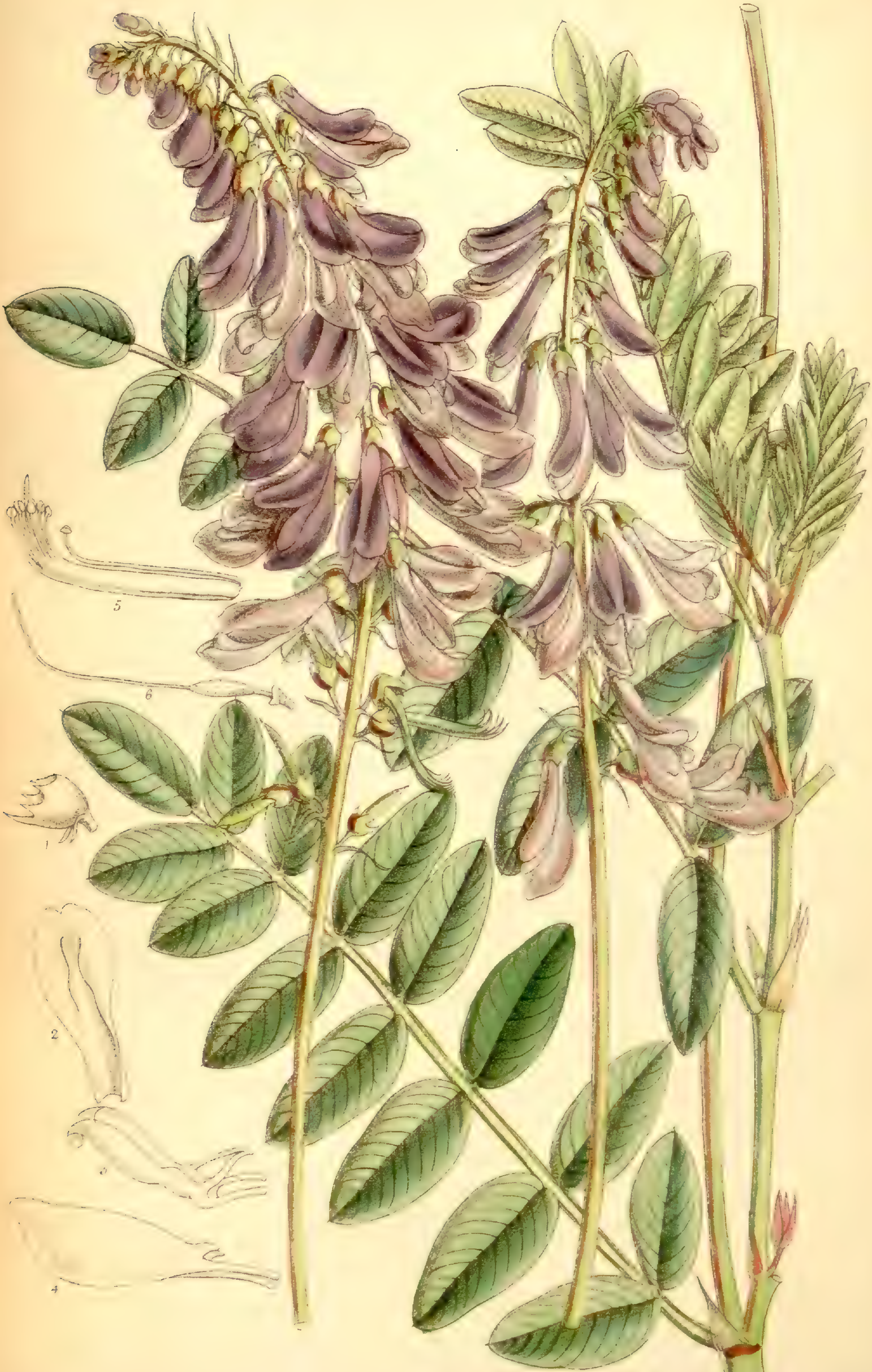
The vast genus *Chrysanthemum*, including as it now does *Pyrethrum* and a host of monotypic or oligotypic genera, contains upwards of 120 nominal species, of which Bentham considers that about 80 may be regarded as well established. The dividing these into sub-genera and sections is a great difficulty, founded as such divisions are chiefly on the varying form of the pappus. The subject of the present plate has been referred to *Coleostephus*, of which the type is *C. Myconis*, L., and also to another genus *Glossopappus*, which hardly differs. *C. multicaule* is a native of various parts of Algeria; it was first found in the Oran province by Desfontaines, and has since been collected at Biskra and elsewhere growing in sandy fields, &c. Judging from a rather insufficient example, it extends to Marocco, whence a specimen collected at Tangier by Broussonet is in the Hookerian Herbarium at Kew.

I am indebted to Mr. Lynch, of the Cambridge Botanical Gardens, for the fine specimen figured here, which is much

larger, more branched and succulent than are native ones in the Herbarium. It flowered in July and August.

Descr. A glabrous glaucous annual, with many simple or branched stout, terete, erect or ascending stems six to twelve inches high. *Leaves* succulent, very variable, sometimes linear-spathulate, one to three inches long and one-half to three-fourths of an inch broad, and coarsely toothed or lobulate, at others much shorter and trisect or pinnatisect with few very narrow linear acute entire segments about a line broad. *Heads* solitary at the ends of the stems or branches, long-peduncled, one and a half to two and a half inches broad, golden-yellow. *Involucre* hemispheric, outer bracts oblong, green, with hyaline margins, inner with very large rounded hyaline appendages. *Ray-flowers* twelve to twenty, tube very short; limb very broadly oblong, obscurely crenate at the tip. *Disk-flowers* very numerous, outer shortly flagon-shaped, base almost cordate, contracted at the minute five-toothed mouth, innermost smaller, nearly tubular. *Achenes* of the ray short, very broad, dorsally deeply furrowed, and with three or four ventral thick wing-like ribs crowned by a hyaline truncate and obliquely cleft tube;—of the disk shorter, with two oblong parallel ventral swellings crowned with a scale or annular corona.—*J. D. H.*

Fig. 1, Flower of the ray; 2, achene and corona of the same; 3, outer flower of the disk; 4, stamens; 5, style-arms; 6, innermost disk-flower:—*all enlarged.*



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TAB. 6931.

HEDYSARUM MICROCALYX.

Native of the Himalaya.

Nat. Ord. LEGUMINOSÆ.—Tribe HEDYSAREÆ.

Genus HEDYSARUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 510.)

HEDYSARUM (Eleutherotium) *microcalyx*; glabrum, caule robusto ramoso folioso, foliis pinnatis, pinnis 9–13-jugis obovato-oblongis v. ellipticis acutis, nervis numerosis tenuissimis, stipulis membranaceis in unam 2-fidam connatis, racemis longe pedunculatis puberulis multifloris, floribus breviter pedicellatis, bracteis parvis linearibus membranaceis, calyce parvo hemispherico ore obliquo minute 5-dentato corolla pluries breviore, vexillo anguste obovato-spathulato apice 2-lobo, alis angustis vexillo æquilongis apicibus recurvis basi longiuscule calcaratis, carina alis et vexillo multo majore dimidiato-oblonga obtusa, legumine 2-articulato articulis oblongis late marginatis plano-compressis reticulatis.

H. microcalyx, *Baker in Flor. Brit. Ind.* vol. ii. p. 147.

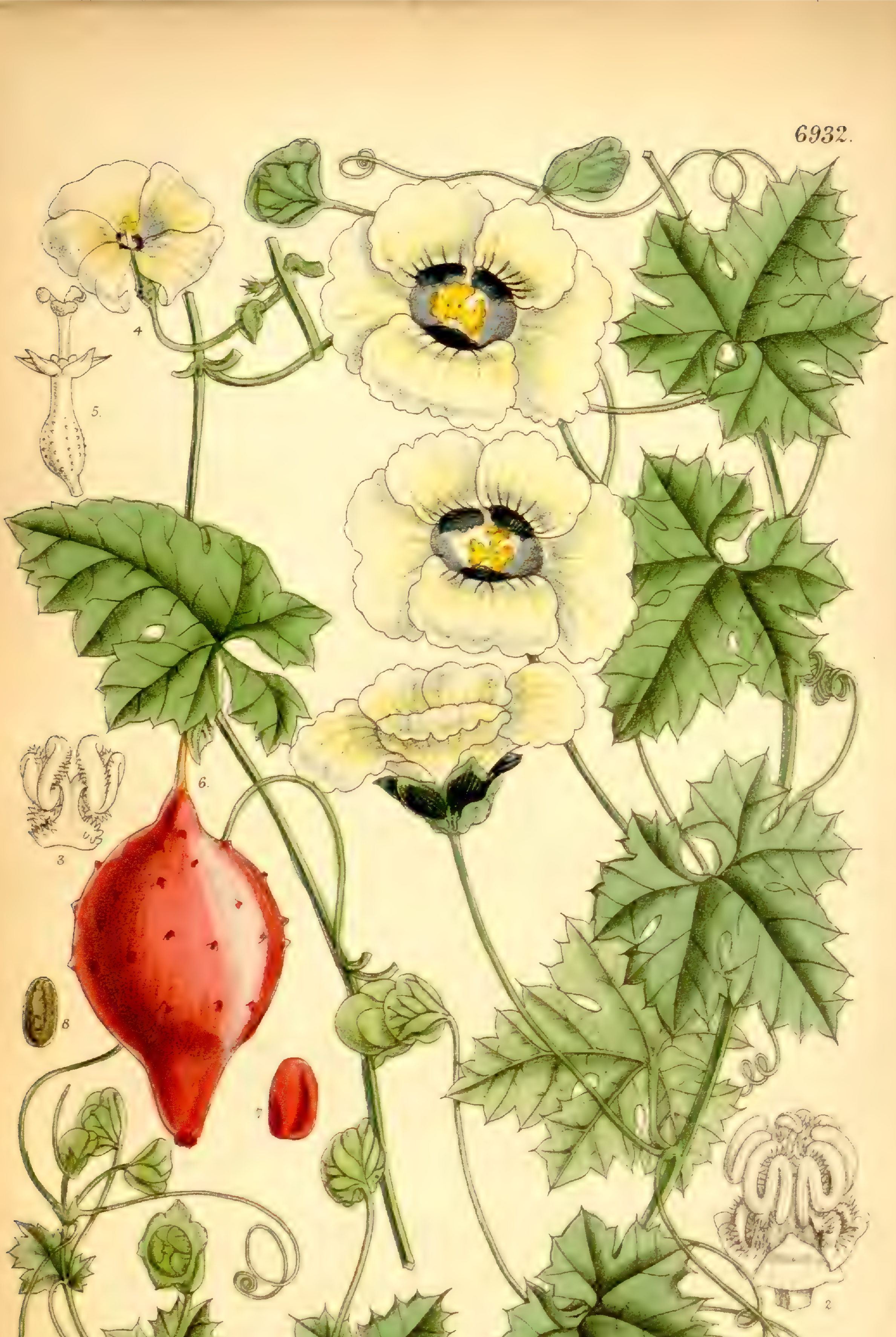
This very handsome plant is a near ally of the common Sainfoin, *Hedysarum coronarium*, L., but is a far more beautiful species, a very free flowerer, and well adapted for the climate of Great Britain. It is confined to the Western Himalaya, where it extends from Garwhal, the province west of Kumaon, to Cashmere, at elevations of 11,000 to 13,000 feet. It was discovered by Falconer half a century ago, but remained long unpublished. The plant was raised from seed and flowers in June.

DESCR. A tall nearly glabrous leafy shrub; branches stout, herbaceous, fistular. *Leaves* a foot long and under, rachis slender; pinnæ eight to ten pairs, three-quarters to one and a half inch long, opposite, petiolulate, oblong or ovate-oblong, obtuse or acute, when mature glabrous or sparsely hairy beneath, young softly appressedly hairy, nerves very many, slender; stipules connate in pairs, membranous, sheathing, simple or bifid, the lobes sometimes elongate, uppermost on the young shoots sometimes two inches long, sheathing the young leaves and racemes. *Racemes* axillary, a foot long and under, very long-peduncled, many-flowered; bracts membranous, subulate;

flowers shortly pedicelled, an inch long, bright violet-red. *Calyx* hemispheric, minutely bibracteolate, obliquely truncate, five-toothed, the lower tooth rather the longest. *Standard* narrowly oblong-obovate, emarginate, equalling the narrow linear wings which have decurved points and long spur-like basal lobes; keel-petals much larger and longer than the wings and standard, dimidiate-oblong, obtuse. *Filaments* glabrous; anthers minute. *Ovary* lanceolate, stipitate, glabrous; style filiform; stigma minute. *Pod* stipitate, biarticulate, joints quite flat, oblong, one-half to two-thirds of an inch long, with a thin flat margin and reticulately nerved faces; pericarp very thin. *Seeds* flattened, reniform, much smaller than the cell.

Fig. 1, Calyx and bracteoles; 2, standard; 3, keel-petals; 4, wings; 5, stamens 6, ovary :—*all enlarged.*

6932.



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MOMORDICA involucrata.

Native of Natal.

Nat. Ord. Cucurbitaceæ.—Tribe Cucumerineæ.

Genus Momordica, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 825.)

Momordica *involucrata*; glaberrima, caulibus gracillimis, foliis petiolatis ambitu orbicularibus v. late ovatis palmatim 5-lobis, lobis repando-dentatis dentibus aristatis, pedunculis 1-floris, masculis elongatis apice bractea lata orbiculari florem involucrante instructis, calycis segmentis rotundatis viridibus purpureo- v. brunneo-striatis, corollæ flavidæ tubo brevi, lobis obovato-rotundatis, tribus basi atro-purpureis, pedunculis fœmineis masculis brevioribus, infra medium bractea parva instructis, ovario lageniforme subtuberculato, calycis segmentis parvis ovato-lanceolatis, corolla maris sed minore maculis 3 basi minutis, stylo columnari, stigmatibus 3 capitellatis, fructu coccineo rhombeo-ovoideo tuberculis sparsis, testa extus carnosa.

M. involucrata, *E. Meyer in Herb. Drege; Harv. and Sonder Fl. Cap.* vol. ii. p. 491; *Baker in Saunder's Refug. Bot.* vol. iv. t. 223.

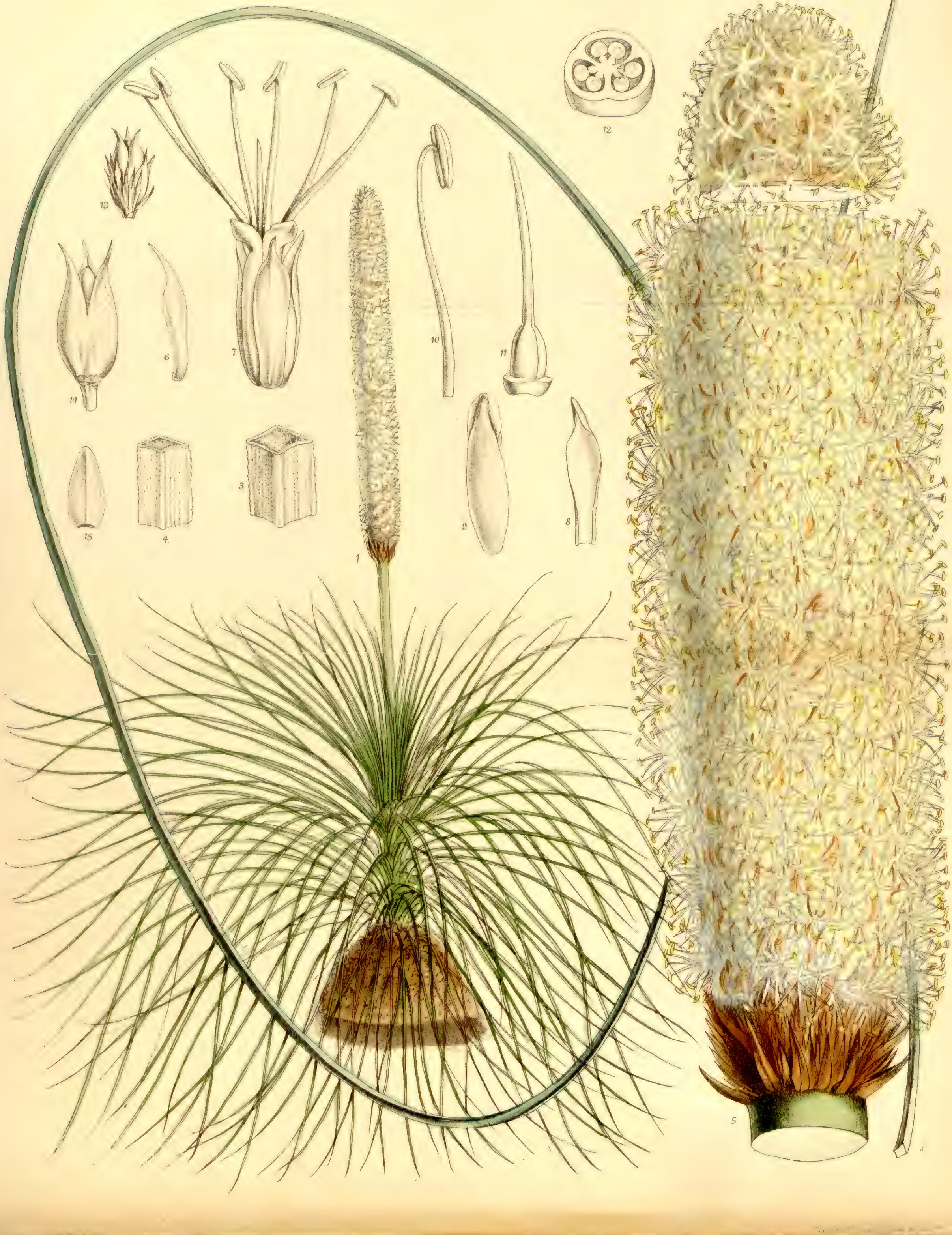
This elegant climber seems to be a common plant in the neighbourhood of Durban, where it was discovered by the German collector Drege, and has since been found by many collectors. It was introduced into cultivation by Mr. Thomas Cooper, a collector for the late W. Wilson Saunders, Esq., F.R.S., who raised it from seeds in his celebrated garden at Reigate in Surrey about twenty years ago, and figured the plant in his "Refugium."

The specimen here figured flowered in the Water Lily House at Kew in July, 1886, and fruited profusely, forming a very attractive feature in the house.

Descr. An extensive glabrous climber; stem very slender, copiously branched and festooning bushes and buildings with its annual growths; branches almost filiform. *Leaves* one and a half to two inches in diameter, nearly orbicular in outline, or very broadly ovate with a deeply cordate base, membranous, bright green, five-lobed, lobes ovate with a rounded sinus and a few broad apiculate teeth, the terminal lobe sometimes again three-lobed, petiole one-fourth to one inch, slender; tendrils simple, capillary, sometimes six inches long. *Male flowers* solitary in all the

upper axils; peduncle one to four inches long, slender, bearing an orbicular white bract, one-half to an inch in diameter, veined with green beneath the flower. *Male flower* sessile in the bracts, nearly two inches in diameter. *Calyx-lobes* orbicular, green. *Corolla* pale yellowish with three broad greenish spots on the short tubes and extending as broad veins on to the base of the five large orbicular crenate rounded lobes. *Anther-head* subsessile, anther-cells sinuous, connective hairy. *Female flowers* few, axillary, peduncle shorter than the male, bracteate below the middle. *Calyx-tube* (or ovary) narrowly pitcher-shaped, muricate; lobes small, ovate, acute. *Corolla* an inch in diameter, lobes revolute; epigynous glands green; style columnar, with three short spreading arms which bear capitate stigmas. *Fruit* two inches long, rhomboidal oblong, contracted at the base and apex, scarlet, fleshy; surface with a few soft low tubercles. *Seeds* oblong; testa brown, rough, covered with a thick fleshy scarlet coat.—*J. D. H.*

Fig. 1, Male branch; 2, staminal column; 3, anther from ditto; 4, portion of female branch and flower; 5, ovary and calyx; 6, branch with fruit; 7, seed with axil; 8, seed removed from aril:—*all but figs.* 2, 3, *and* 5 *of the natural size, the rest enlarged.*


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Tab. 6933.

XANTHORRHÆA Preissii.

Native of South-Western Australia.

Nat. Ord. Juncaceæ.—Tribe Xeroteæ.

Genus Xanthorrhæa, *Smith*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 865.)

Xanthorrhæa *Preissii*; caudice arboreo, foliis e basi latiuscula longissimis gracilibus 3–4-quetris lævibus rigidulis junioribus fragilibus, scapo robusto 3–8 pedali, spica scapo æquilonga elongato cylindracea obtusa basi zona **bractearum rigidarum instructa, bracteis extimis alabastra vix excedentibus,** bracteolis lineari-spathulatis v. lanceolatis perianthio paulo brevioribus, peri-**anthii segmentis exterioribus anguste oblongis concavis siccis 3–5-nerviis,** interioribus paulo latioribus 5–7-nerviis apice obtusis membrana angusta alatis.

X. Preissii, *Endlicher in Plant. Preiss.* vol. ii. p. 39; *Benth. Flor. Austral.* vol. vii. p. 117.

X. Brunonis, *Endl. l. c.*

X. Drummondii, *Harv. in Hook. Kew Journ. Bot.* vol. vii. p. 57.

X. pecoris, *F. Muell. Fragment. Fl. Austral.* vol. iv. p. 110.

This is the fourth species of the remarkable Australian genus of "Grass Gum-trees" that has flowered in the Royal Gardens of Kew, and been figured in this Magazine, the others being *X. quadrangulata* (Tab. 6075), *X. hastilis* (Tab. 4722), and *X. minor* (Tab. 6297). It is confined to the Swan River Colony, and is the only species certainly known to grow there, except *X. gracilis*, which differs in its flat leaves and the broad wings at the tips of the inner segments of the perianth. I say certainly, however, for Bentham, who includes under *X. Preissii*, *X. Brunonis*, *Drummondii* and *pecoris*, says, "I may be wrong in uniting the above supposed species, but I am quite unable to distinguish them by dried specimens." That he was right, however, may be inferred from the fact that none of them are taken up by Fred. Mueller in his last enumeration of all known Australian plants.

Of these three, *X. Brunonis* has no differential characters of importance assigned to it by its author. *X. Drummondii* was described by Harvey, who supposed it to be

distinguishable from *Preissii* by the far less brittle and square instead of rhomboidal leaves (a variable character). He describes it as the finest of the genus, and producing the most valuable gum. *X. pecoris*, again, was characterized by the very fragile compressed tetragonal leaves and shortness of the scape. It is described as attaining fifeeen feet in height, with disagreeably scented flowers, and as being of the greatest use in the colony from its forming the principal food of the sheep and cattle throughout a great part of the year.

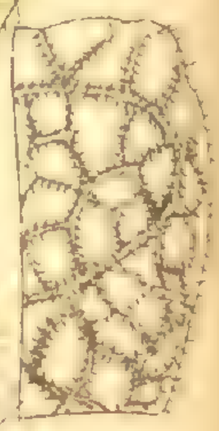
X. Preissii flowered in the Succulent House at Kew in June of last year, the trunk being hardly formed, and not reaching a foot above the ground; it was one of two specimens received in the same year from the West Australian Commissioners of the Indo-Colonial Exhibition. Other specimens had been previously received from the same source, through the representations of Baron von Mueller.

Descr. *Trunk* (in its native country) ten to fifteen feet high, robust. *Leaves* three to four feet long, very slender from a short broad base, sharply three- to four-angled, brittle when young, margins nearly smooth, light green. *Scape* one to eight feet long; spike as long, and two to two and a half inches in diameter, surrounded at the base by a zone of rigid lanceolate imbricating bracts half to three-quarters of an inch long; outer bracts short, not produced beyond the fully developed flowers; bracteoles shorter than the perianth, narrowly oblong or subspathulate. *Perianth* one-third of an inch long; outer segments narrowly linear-oblong, concave, acute; inner longer, broader, with a narrow scarious wing round the tip. *Stamens* about twice as long as the perianth. *Capsule* half an inch long, valves acuminate.—*J. D. H.*

Fig. 1, Whole plant, *reduced;* 2, leaf, *nat. size;* 3, section of leaf at one-third distance from base; 4, ditto at two-thirds; 5, inflorescence, *nat. size;* 6, bracts; 7, flower; 8, outer perianth-segment; 9, inner ditto; 10, stamen; 11, pistil; 12, section of ovary; 13, fruit of nat. size; 14, fruit; 15, seed:—*all but figs.* 1, 2, 5, *and* 13 *enlarged.*



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

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Tab. 6934.

ARISTOLOCHIA RIDICULA.

Native of Brazil.

Nat. Ord. Aristolochieæ.

Genus Aristolochia, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 123.)

Aristolochia (Gymnolobus) ***ridicula*** ; scandens, suffruticosa, caule gracili petiolis pedunculis perianthioque extus pilis elongatis patentibus hispidissimis, foliis petiolatis membranaceis reniformi-rotundatis basi cordatis quintuplinerviis supra laxe setulosis subtus tomentellis reticulatis, nervis gracilibus, pedunculis axillaribus 1-floris, ovario gracillimo, perianthii flavi brunneo-irrorati utriculo oblongo inflato, tubo curvo æquilongo cylindraceo, limbi ore rotundato, lobis 2 posticis lineari-oblongis deorsum spectantibus glandulis longe stipitatis submarginalibus ornatis, marginibus recurvis, fauce pilis inflexis farcta, antheris 6 linearibus lobis columnæ oppositis, stigmatibus brevibus obtusis.

A. ridicula, *N. E. Brown in Gard. Chron.* vol. xxvi. (1886), p. 360, fig. 73.

This most singular-looking plant was introduced from the Brazils by Mr. Bull, and is well figured and described by Mr. Brown in the "Gardener's Chronicle" referred to above. It belongs to a large South American section of the genus, of which 105 species are described by Duchartre in De Candolle's Prodromus, and to a hexandrous division of it, to which Klotzsch gave the generic name of *Howardia*. To the same division belong, of species figured in this work, *A. macroura*, Gomez (*A. caudata*, Booth., Tab. 3769), *A. anguicida*, Lin. (Tab. 4361), and others; but none of them have the grotesque disposition of the lobes of the perianth that has suggested to Mr. Brown the apt trivial name of *A. ridicula*. Its nearest ally, and it is a very near one, is, as he indicates, *A. eriantha*, Mart. and Zucc. (Nov. Gen. et Sp. vol. i. p. 78, t. 53), a widely distributed Brazilian species, identical in foliage and size and general form of flower, and differing chiefly in the spathulate tips of the lobes of the corolla, to which the stipitate glands appear to be confined. There is also a different disposition of the corolla-lobes, which spread forward horizontally in *A. eriantha*, but backwards and downwards in

A. ridicula. The species are otherwise so near, that as regards the disposition of the corolla-lobes these may represent an analogous case to that of the right- and left-handed spiral of univalve shells.

I am indebted to Mr. Bull for the specimen here figured, which flowered in September, 1886, in his establishment.

Descr. A very slender climber; stem, petioles, peduncles and surface of perianth clothed with stiffish very long horizontally-spreading hairs. *Leaves* four to five inches in diameter, membranous, orbicular-reniform with a cordate base, bright green, pale beneath, pubescent above with scattered short rather stiff hairs, finely tomentose, with closely reticulate nerves beneath; nerves very slender, pedately spreading, with a few stiff long bristles towards the base; petiole one to two inches long; stipular leaf orbicular, recurved. *Flowers* axillary, solitary, about two inches long exclusive of the limb; sac at the base obliquely oblong and tube of about equal length, the latter very slightly swollen above the base upwards, pale yellow with broken veins of dull brownish purple; limb with reflexed margins, bright yellow spotted with red purple, produced dorsally into two divaricate deflexed linear-obtuse lobes about an inch long and half an inch broad; these lobes bear scattered clavellate glands on capillary stalks; mouth and throat of the tube stuffed with deflexed white hairs; sac within villous and with the mouth deeply inflexed. *Staminal column* short, very shortly stipitate, produced into six triangular obtuse stigmatic lobes, with thickened margins, and bearing six linear anthers. *Ovary* very slender.—*J. D. H.*

Fig. 1, Portion of under surface of leaf; 2, sac of perianth laid open; 3, staminal column:—*all enlarged.*



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Tab. 6935.

DISPORUM Leschenaultianum.

Native of South India and Ceylon.

Nat. Ord. Liliaceæ.—Tribe Uvulariæ.

Genus Disporum, *Salisb.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 831.)

Disporum *Leschenaultianum;* glaberrimum, caulibus dichotome ramosis acute angulatis, foliis breviter petiolatis ellipticis utrinque acutis v. acuminatis plicato-6–9-nerviis, floribus in axillis superioribus 2–5-nis cernuis crassiuscule pedicellatis albis, perianthii segmentis oblongis obtusis basi vix saccatis costa crassiuscula subcarinatis, staminibus brevibus, antheris oblongis, ovario obovoideo, stylo erecto, stigmatibus revolutis, bacca depresso-globosa cærulea oligosperma, seminibus globosis.

D. Leschenaultianum, *D. Don in Trans. Linn. Soc.* vol. xviii. p. 528; *Kunth Enum. Plant.* vol. iv. p. 207; *Wight Ic. Pl. Ind. Or.* t. 2048; *Baker in Journ. Linn. Soc.* vol. xiv. p. 590; *Thwaites Enum. Pl. Ceylan.* p. 338.

Uvularia Leschenaultiana, *Wall. Cat.* No. 5089; *Royle Ill. Plant. Himal.* t. 96, f. 2.

D. ceylanicum and D. mysorense, *Wight Ic.* t. 1049.

The genus *Disporum* offers a singular case of geographical distribution. It contains only five described species, or eight including *Prosartes*, which is doubtfully distinct, and confined to Western North America. Of the five typical species, one, *D. smilacinum*, A. Gray, is Japanese and Eastern Siberian; a second, *D. sessile*, Don, is confined to Japan; a third, *D. calcaratum*, Don, is Eastern Himalayan; and the fourth, *D. pullum*, Salisb. (*Uvularia chinensis*, Bot. Mag. t. 916), extends from Japan and China to the Central and Eastern Himalaya, Bengal, Sumatra, and Java; whilst the fifth, the subject of the present plate, is confined to the southern mountains of the Western Peninsula of India and of Ceylon. *D. Leschenaultianum* is a native of the Nilghiri Hills, and probably of other mountain ranges at the southern extremity of the Peninsula of India, for it reappears in Ceylon, where it reaches an elevation of 4000 to 7000 feet.

The plant here figured was raised from seed sent to Kew a good many years ago by the late G. H. K. Thwaites,

may 1st, 1887.

F.R.S., then Director of the Botanical Gardens of Peradenyia. It flowers annually in a cool greenhouse in the spring months. It is a variable plant in the size and length of the leaves, size of the flower, and length and acuteness of the perianth-segments; but the three species founded by Wight on dried specimens of it depend on characters due to withering or pressure rather than to natural ones.

Descr. A rather rigid herb, one to two feet high; root-stock creeping, stem dichotomously branched above, and branches acutely angled; base of stem with broad sheathing foliaceous scales; branches leafy. *Leaves* rather rigid, one to four inches long by one to two inches broad, narrowed into a distinct petiole, from elliptic to elliptic-lanceolate and almost orbicular, cuspidate acute acuminate or almost caudate, usually five-nerved and with as many shallow folds; cross-nervules distinct. *Flowers* half to three-quarters of an inch in diameter, subcampanulate, white, from two to five together in the axils of the uppermost leaves; peduncle one to one and a half inch long, stout, angular, decurved. *Sepals* six in two series, oblong or linear-oblong, obtuse or subacute, hardly saccate at the three-ribbed base, rather thick, almost keeled by the midrib. *Stamens* six, shorter than the sepals; filaments stout, subulate, about equalling the oblong anthers. *Ovary* obovoid; style stout, with three revolute stigmas. *Berry* three-quarters of an inch in diameter, depressed globose, dark blue, few-seeded. *Seeds* globose.—*J. D. H.*

Fig. 1, Petal; 2 and 3, stamens; 4, pistil; 5, transverse section of ovary; 6, ripe fruit; 7 and 8, seeds:—*all but figs.* 6 *and* 7 *enlarged.*



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Tab. 6936.

PLEUROTHALLIS INSIGNIS.

Native of Caraccas?

Nat. Ord. Orchidaceæ.—Tribe Epidendreæ.

Genus Pleurothallis, *Br.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 488.)

Pleurothallis (Acuminatæ) *insignis*; folio lineari-oblongo obtuso basi angustato crasse coriaceo, scapo 2-floro, sepalis 2 e basi ovato-oblonga concava in caudas longissimas angustatis inferiore 4- superiore 3-nervi, petalis e basi parva oblonga apice biloba cauda filiformi sepalis æquilonga instructis, labello trilobo, lobis lateralibus falcato-incurvis obtusis hyalinis, intermedio lineari-oblongo brunneo-purpureo apice barbato dimidio brevioribus.

P. insignis, *Rolfe in Gard. Chron.* Ser. 3, vol. i. p. 477.

P. glossopogon, *Nicholson in Gard. Chron.* vol. i. p. 283, *not of Rchb. f.*

A very near ally of *P. glossopogon*, Rchb. f., and at first sight it resembles a gigantic form of that plant; but besides the difference in size, which is more than double, *P. insignis* wants the pubescence on the sepals, which is even described by Lindley as velvetiness, though puberulous appears a better suited term. Other characters are that the leaf of *P. glossopogon* is described as narrowed at both ends, the lip is narrower in proportion, and has three lines of papillæ. On the other hand the forms of the sepals, petals, and lip are almost identical, and it is more than probable, in my opinion, that intermediates between these two species will be found to unite them.

The native country of *P. insignis* is not recorded, but it may with much confidence be predicted to be Venezuela *P. glossopogon*, *biserrula* and *Sorine* being all indigenous to the Caraccas province of that country, at elevations of about 7000 feet. All, as Lindley remarks, are remarkable for their large dull-coloured flowers, long sepals and weak bristle-like petals.

The plant figured was received from Messrs. Veitch in 1884, under the name of *P. glossopogon*; it flowered in the Cool Orchid House in the month of February of this year.

Descr. *Stems* tufted. *Leaf* three-quarters by one inch,

linear-oblong, narrowed at the base, obtuse with a recurved tip, thickly coriaceous. *Scape* shorter than the leaf, stout; bract sheathing with an obliquely truncate membranous tip, two-fld. *Flowers* very large for the genus. *Sepals* two, three inches long, dull creamy white with purple-brown veins, lower (that at the back of the lip) formed of two confluent sepals, base ovate-oblong concave, narrowed into a tail three times the length of the base, which latter has four coloured nerves; upper sepal as long, but narrower, with three coloured nerves. *Petals* creamy white, basal part shortly oblong, a quarter of an inch long, three-nerved, toothed at the tip, and with a filiform tail as long as the sepals inserted between the teeth. *Lip* three-quarters of an inch long, three-lobed; lateral lobes basal, linear, ascending, and falcately incurved with obtuse hooked tips, colourless and hyaline; midlobe twice as long as the lateral, linear-oblong, red-brown, obscurely papillose, grooved down the centre, bearded at the darker tip. *Column* short, obtuse, with two tumid villous prominences at the base in front. *Ovary* short, grooved.—*J. D. H.*

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

6937.



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BILLBERGIA DECORA.

Native of the Amazon Valley.

Nat. Ord. Bromeliaceæ.—Tribe Bromelieæ.

Genus Billbergia, *Thunb.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 664.)

Billbergia (Helicodea) *decora*; acaulis, foliis 8–10 loratis dense rosulatis acutis sesquipedalibus vel bipedalibus facie albo-lepidotis dorso fasciis albo-lepidotis transversalibus percursis margine aculeis crebris parvis brunneis ascendentibus armatis, pedunculo cernuo subpedali furfuraceo, foliis bracteiformibus pluribus magnis oblongo-lanceolatis rubellis, floribus 20–30 in spicam densam pendulam aggregatis, ovario oblongo lepidoto sulcato, calycis segmentis parvis ovatis, petalis elongatis lanceolatis viridibus spiraliter revolutis, staminibus petalis brevioribus antheris linearibus basifixis, styli ramis stigmatosis linearibus spiraliter contortis.

Billbergia decora, *Poepp. et Endlich. Nov. Gen.* p. 42, tab. 57; *Beer Brom.* p. 124; *E. Morren in Belg. Hort.* 1875, p. 221, tab. 13, 14.

B. Baraquiniana, *Lemaire in Ill. Hort.* 1864, tab. 421; *K. Koch Wochen.* 1865, p. 141.

This is one of the very finest for horticultural purposes and most curious of all the Bilbergias. It belongs to the subgenus *Helicodea*, which has green petals, which curl up spirally soon after the flower expands. Its nearest ally is *B. zebrina*, Lindl. (*Bromelia zebrina*, Herbert in Bot. Mag. t. 2686), which is well known in cultivation. The present plant differs from *zebrina* by its longer petals, much shorter denser spike, longer coloured bracts and less deeply sulcate ovary. It was first discovered by Poeppig in the year 1831 in the virgin forests of Yurimagues, but it was not introduced into cultivation until 1864, when it was sent by M. Baraquin to M. Verschaffelt of Ghent. Our drawing was made from a plant that flowered last January in the collection of Sir George Macleay at Pendell Court, which was forwarded to Kew for identification.

Descr. Acaulescent. *Leaves* eight or ten in a rosette, lorate, acute, one and a half or two feet long, two inches broad at the middle, three inches at the dilated clasping base, firm in texture, thinly mealy all over the face, furnished with irregular transverse mealy bands on the back,

margined with small close brown horny ascending spines. *Peduncle* a foot long, cernuous, green, slightly furfuraceous; lower bract-leaves distant, lanceolate; upper eight to nine aggregated towards the base of the spike, large, oblong-lanceolate, bright red. *Spike* dense, pendulous, simple, three to four inches long, almost hidden by the large bracts; rachis mealy. *Ovary* oblong, mealy, shallowly sulcate, pale green, finally half an inch long; calyx-segments small, ovate, greenish. *Petals* lanceolate, green, two inches long, curling up spirally from the base. *Stamens* shorter than the petals; anthers linear, basifixed, yellow. *Style* reaching to the tip of the anthers; stigmatose forks linear, twisted spirally.—*J. G. Baker.*

Fig. 1, Complete flower, *life-size;* 2, base of petal, showing the insertion of a stamen; 3, anther and upper part of filament; 4, stigmas and top of style:—*all more or less enlarged.*

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

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TAB. 6938.

OXERA PULCHELLA.

Native of New Caledonia.

Nat. Ord. VERBENACEÆ.—Tribe VITICEÆ.

Genus OXERA, *Labill.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1155.)

OXERA *pulchella*; frutex glaberrimus scandens, ramis teretibus, foliis oppositis breviter petiolatis oblongis v. ovato- v. oblongo-lanceolatis obtusis v. acutis integerrimis v. grosse crenatis basi acutis v. obtusis, cymis axillaribus multifloris, floribus gracile pedicellatis pendulis, sepalis ellipticis acutis punctatis pallide viridibus trinerviis, corolla 2-pollicari alba infundibulari campanulata lobis late oblongis, staminibus longe exsertis, ovario 4-lobo disco crasso inserto, staminodiis brevibus filiformibus.

Oxera pulchella, *Labill. Sertum Austro-Caledon.* p. 23, t. 28; *Schauer in DC. Prodr.* vol. xi. p. 676; *Fenzl in Denksh. Naturf. Versamml. Bericht.*, 1843, t. 2, 3; *Boquill Rev. Verben.* p. 124, t. 19, and in *Adansonia*, vol. ii. p. 294, and vol. iii. p. 220; *Vieillard in Bull. Bot. Soc. Normand.* vol. vii. p. 98.

Oncoma pulchellum, *Spreng. Syst. Veg., Cur. Post.* 18.

This very handsome climber is the type of Labillardiere's genus *Oxera*, discovered in New Caledonia during the Voyage à la Recherche de La Pérouse, and well described and figured in that author's "Sertum Austro-Caledoniæ." For many years it was the only species of the genus known to exist, but the late French botanical explorations of their penal settlement in the Pacific, have added nine others. The genus is closely allied to *Clerodendron*, of the climbing species of which it has the habit, but differs in having only two stamens and a deeply-divided drupe. The genus is confined to New Caledonia. *O. pulchella* was flowered by Sir George McLeay, K.C.M.G., in his fine garden at Pendell Court, Bletchingley, Surrey, in December of last year, and he kindly forwarded to Kew the specimen from which the accompanying drawing was made.

DESCR. A woody climber, quite glabrous; branches slender, terete, smooth. *Leaves* two to five inches long, opposite, petioled, bright green, upper on the branches oblong obtuse or subacute, lower larger, oblong-lanceolate, obtusely acuminate, quite entire or with broad shallow

crenatures, finely reticulate beneath, base rounded or acute, nerves six to eight pair, slender; petiole one-half to three-quarters of an inch, terete. *Flowers* large, pendulous, in sessile axillary branched many-fld. cymes; branches and pedicels very slender, green, bracts minute. *Calyx* of four free or connate, elliptic, membranous, three-nerved, subacute, pale green, punctate, sepals one-half to three-quarters of an inch long. *Corolla* two inches long, between funnel- and bell-shaped, pale yellowish or faintly greenish white, tube curved terete, lobes broadly oblong. *Stamens* two, inserted about the middle of the tube, filaments exserted for half their length; anthers small, bright-yellow; staminodes between the stamens short, filiform. *Ovary* deeply four-lobed, seated on a broad fleshy disk; style filiform, stigma minute.—*J. D. H.*

Fig. 1, Portion of leaf; 2, section of calyx and ovary; 3, corolla-tube laid open, with stamens and staminodes; 4, anthers; 5, upper part of style and stigma:—*all enlarged.*



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Tab. 6939.

ÆCHMEA MYRIOPHYLLA.

Native of Tropical America.

Nat. Ord. Bromeliaceæ.—Tribe Bromelieæ.

Genus Æchmea, *Ruiz et Pavon.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 663.)

Æchmea (Platyæchmea) *myriophylla*; acaulis, foliis 30–40 dense rosulatis ensiformibus rigidis falcatis bipedalibus et ultra facie obscure viridibus canaliculatis dorso tenuiter albo-lepidotis, pedunculo centrali erecto rubello subpedali deorsum foliis arcte imbricatis viridibus occulto, floribus permultis confertis in paniculam laxam oblongo-deltoideam ramis multis brevibus patulis distichis subsessilibus dispositis, bracteis late ovatis obtusis cuspidatis apice solum liberis, ovario oblongo, calycis segmentis ovato-lanceolatis cuspidatis, petalis oblongo-spathulatis rubellis calycis segmentis duplo longioribus, staminibus styloque petalis brevioribus.

Æ. myriophylla, *Hort. Morren.*

This is a very distinct unpublished species of Bromeliad, which belongs to a small section of the genus *Æchmea*, which is characterized by the distichous arrangement of the flowers, a plan very common in the Tillandsieæ, but very unusual in the genera with an inferior ovary. The only species of this series which has already been figured in the Botanical Magazine is *Æchmea distichantha*, Lemaire (Bot. Mag., tab. 5447), but besides these two, nine species are now known, most of which inhabit the open tracts of the southern provinces of Brazil. The flowers, though not large, are bright in colour and remain in good condition for a long time. Our drawing was made from a plant that flowered at Kew in October, 1886, which was purchased from the collection of the late Professor Morren. We have no exact information as to its native country.

Descr. Acaulescent, densely cæspitose. *Leaves* thirty or forty in a dense rosette, ensiform, rigid in texture, falcate, two or two and a half feet long, an inch broad at the middle, tapering gradually to a long point, channelled all the way down the dull-green face, thinly argenteo-lepidote on the back, neither spotted nor banded, margined with moderately close ascending brown horny prickles.

Peduncle erect, central, a foot long, bright red, hidden, except at the top, by the erect imbricated green bract-leaves. *Panicle* oblong-deltoid, bipinnate, half a foot long; branches numerous, spreading, distichous, subsessile, an inch or an inch and a half long; flower-bracts broad ovate, pink, a quarter of an inch long, adnate to the rachis except at the cuspidate tip. *Ovary* as long as the bract; calyx-segments horny, ovate-lanceolate, cuspidate. *Petals* oblong-spathulate, connivent, twice as long as the calyx-segments, pink fading to lilac. *Stamens* and style not protruded beyond the petals.—*J. G. Baker.*

Fig. 1, An entire flower; 2, a petal and stamen; 3, back view of a stamen; 4, pistil:—*all more or less enlarged.*

6940.



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

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Tab. 6940.

CAREX scaposa.

Native of South China.

Nat. Ord. Cyperaceæ.—Tribe Cariceæ.

Genus Carex, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 1073.)

Carex *scaposa*; "glaberrima, foliis radicalibus longe petiolatis lanceolatis acuminatis planis latissimis 1–1½ poll. latis, culmo florigero subaphyllo elongato, pedunculis axillaribus remotis apice composite corymbiferis, bracteis angustis erectis, spicis subsessilibus densis multifloris apice masculis, utriculis ovoideis trigonis glabris in rostrum cylindricum subito angustatis, stylo trifido."—*C. B. Clarke.*

The singular plant here figured is of more botanical than horticultural interest, though a well-grown pot of it may well compare with any of the *Cyperi* now so commonly grown for decorative purposes. Mr. C. B. Clarke, who is now engaged upon the family of *Cyperaceæ*, has kindly named and given a diagnosis of it for this Magazine. He informs me that it belongs to a subsection "*Scaposæ*" of the huge genus *Carex* (which numbers upwards of 500 species), and of which the *C. pandanophylla*, Kurz, a Burmese plant, was the first-known Indian representative. There are, however, several American allies of the scapose section, of which one has been long cultivated in gardens; namely, the curious *C. Fraseri*, Andr. (Bot. Mag. t. 1391), of the Southern United States. *C. Fraseri*, however, differs notably from the Indian "Scaposæ" in the characters of the spike, which is simple. Unlike as *C. scaposa* and *pandanophylla* are in habit to the ordinary Indian types of *Carex*, Mr. Clarke informs me that in India, as in America, there is a gradual transition from these to the leafy culmed species, so that it is impossible to separate them definitely.

C. scaposa is a native of the Lo-fau-shan Mountains on the coast of China, opposite to the Island of Hong Kong, where it was discovered growing at an elevation of 3200 feet by Mr. Chas. Ford, of the Hong Kong Botanical

Gardens, who sent living plants to Kew in 1883, which flower in the winter months.

Descr. *Rootstock* stout, short, creeping; young stolons clothed with sheathing scales. *Radical leaves* a foot long and upwards by one to two inches broad, elliptic-lanceolate, acuminate at both ends, flat, striated and three-nerved, quite smooth, bright green, narrowed into a distinct petiole which is sometimes three to four inches long, at others much shorter, margins, nerves, and slender midrib perfectly smooth. *Flowering scapes* longer or shorter than the leaves, stout, erect, obtusely trigonous, naked or with one or more acuminate appressed sheaths bearing three or more superposed erect peduncled rounded brown cymes one to two inches broad, with divaricate branchlets; bracts very slender, erect, hardly sheathing below, longer or shorter than the peduncles of the cymes. *Spikelets* one-sixth to a quarter of an inch long, each with terminal male flowers, and female flowers below, sessile on the short branchlets of the cymes, divaricate; bract at the base of the spikelet gibbously ampulliform, with a narrow neck and small truncate mouth, smooth, terete, punctate. *Glumes* ovate-lanceolate, subacute, nerves very faint, quite smooth. *Stamens* three; anthers slender, as long as the filaments. *Utricle* elliptic-ovate, trigonous, perfectly smooth, narrowed into a slender beak half as long as itself; mouth minute, truncate. *Nut* trigonous, rhomboidly ovate, perfectly smooth; stigma filiform, as long as the slender style.—*J. D. H.*

Fig. 1, Section of scape; 2, portion of cyme; 3, spikelets with bract; 4, glume of fem. fl.; 5, male fl. and glume; 6, utricle and stigmas; 7, nut with style and stigmas:—*all enlarged.*



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

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Tab. 6941.

PULTENÆA ROSEA.

Native of Victoria.

Nat. Ord. Leguminosæ.—Tribe Podalyrieæ.

Genus Pultenæa, *Sm.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 470.)

Pultenæa (Cœlophyllum) *rosea;* frutex ericoideus, ramulis virgatis, foliis confertis patentibus anguste linearibus acutis rigidis aspero-tuberculatis dorso convexis marginibus incurvis supra canaliculatis, novellis sericeo-villosis, stipulis aciculari-subulatis, floribus roseis in capitula terminalia sessilia dispositis, bracteolis calyci appressis lineari-lanceolatis, calycis sericei lobis ovato-lanceolatis tubo æquilongis, corolla calyce duplo longiore, vexillo rotundato unguiculato, alis oblongis apice rotundatis, carina alis paullo minore et angustiore, ovario villoso, stylo filiformi, legumine acuminato.

P. rosea, *F. Muell. Fragment. Fl. Austral.* vol. ii. p. 15, and *Plants Indigenous to Victoria, Suppl.* Pl. xiii.; *Benth. Fl. Austral.* vol. ii. p. 128; *Masters in Gard. Chron.* N. S. vol. vii. (1887), p. 431, fig. 67.

Burtonia subalpina, *F. Muell. in Trans. Phil. Inst. Vict.* vol. i. p. 39; and in *Hook. Kew Journ. Bot.* vol. viii. (1856), p. 41.

The opportunity of figuring a species of *Pultenæa* recalls the fact that it belongs to a class of very beautiful Australian flowering shrubs, that were, with the South African, the staple furniture of the greenhouse in the early part of the century. In evidence of this, it is only necessary to turn to the first volumes of this Magazine, wherein no less than ten species are figured. These were all published upwards of half a century ago; the first, *P. stipularis*, Sm. (Tab. 475), in the year 1800; and the last, *P. cordata*, Grah., a var. of *juniperina*, Labill. (Tab. 3443), in 1835. Since the latter period none have appeared in the Magazine, and not half-a-dozen in all other European works dedicated to Horticulture. No doubt the time will come when a corner, at any rate, of the greenhouse will be devoted to plants of this class, and when this does come there are few genera that can supply more ornamental species than *Pultenæa*, of which seventy-five species are described in Bentham's "Flora Australiensis."

P. rosea is a native of the summit of Mount William, in the Grampian range of Victoria, where it was discovered

by Baron von Mueller at an elevation of 5000 feet; and to that eminent Botanist the Royal Gardens are indebted for the seeds from which the plant here figured was raised. It is one of the very few species of the genus with rose-coloured flowers, which appear in the month of April.

Descr. A heath-like shrub, with erect twiggy branches, naked and scarred below. *Leaves* close set, uniform in size and form, spreading horizontally, about half an inch long, sessile, narrowly linear, rigid, acute, bark convex and rough with raised points, margins incurved, leaving a deep channel on the upper surface; young leaves silkily villous; stipules minute, subulate or acicular. *Flowers* in a terminal sessile head, of a bright rose-colour; bracts obscure; bracteoles linear-lanceolate, appressed to the calyx. *Calyx* five-lobed, silky, lobes ovate-lanceolate, twice the length of the tube, acute, erect. *Corolla* twice as long as the calyx; standard with rather a long claw, orbicular; wings oblong, rounded at the tip, about as long as the standard; keel rather smaller and narrower than the wings. *Ovary* lanceolate, silky; style filiform; ovules two.—*J. D. H.*

Fig. 1, Portion of branch and leaves seen on the upper side; 2, section of leaf; 3, calyx, stamens, and pistil; 4, standard; 5, wing petal; 6, keel; 7, pistil; 8, section of ovary, showing the ovules; 9, ovule:—*all enlarged.*

6942.

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

Vincent Brooks Day & Son Imp

Tab. 6942.

IRIS (Xiphion) Vartani.

Native of Palestine.

Nat. Ord. Irideæ.—Tribe Moræeæ.

Genus Iris, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 686.)

Iris (Xiphion) *Vartani;* bulbis anguste ovoideis dense cæspitosis tunicis exterioribus fibroso-cancellatis pallide brunneis, foliis rudimentariis paucis linearibus scariosis, productis 2 tetragonis viridibus angulis acutis faciebus leviter excavatis, pedunculo brevissimo hypogæo, spathæ valvis lanceolatis membranaceis pallidis inæqualibus, perianthio tubo pallido 2½-pollicari, limbo lilacino segmentis exterioribus oblongo-spathulatis multilineatis flore expanso e medio patulis e basi supra medium cristâ lutea crispata præditis, interioribus paulo brevioribus erectis oblanceolato-unguiculatis, antheris lilacinis filamento brevi, styli appendicibus pulchre lilacino lineatis lamina longioribus.

I. Vartani, *Foster in Gard. Chron.* N. S. vol. xxiii. (1885), p. 438.

This very interesting new bulbous Iris, which has lately been introduced into cultivation from the north of Palestine by Professor M. Foster, forms, with *I. reticulata* (Bot. Mag., tab. 5577) and *I. Histrio* (Bot. Mag., tab. 6033), a group very different in habit and leaf from anything else. The present plant is easily distinguished from the two species known previously by the very large appendages of the stigma, and by the outer segments of the perianth having a distinctly-raised crisped carinal crest, like that of an *Evansia*. It has not the delightful violet fragrance of *reticulata*, and the colour is much duller. The bulbs were sent to Dr. Foster about 1883, by Dr. Vartan, of the Medical Mission stationed at Nazareth, after whom it is named. A full account of it will be found in the paper in the "Gardener's Chronicle" which I have cited. With Dr. Foster it has flowered in October. The plants from which our drawing was made were sent up last Christmas by the Rev. H. Ewbank, of Ryde.

Descr. *Bulbs* narrow ovoid, densely cæspitose, sending out copious root-fibres; outer tunics formed of parallel fibres, with narrow areolæ between them; rudimentary

leaves linear, scariose. *Produced leaves* usually two to a bulb, tetragonal, eight or nine inches long at the flowering time, finally more than a foot, dark green, with raised angles and slightly excavated sides. *Peduncle* very short, hidden; spathe-valves lanceolate, pale, membranous, unequal. *Perianth-tube* nearly white, two inches and a half long; limb one and a half or two inches long, very shortly united at the base, pale slaty-lilac; outer segments oblong-spathulate, half an inch broad, copiously veined with lilac on a pale ground, spreading from about the middle when the flower expands, furnished from above the middle down to the base with a raised yellow crisped carinal crest; inner segments rather shorter, oblanceolate-unguiculate, erect, a sixth of an inch broad. *Anthers* lanceolate, dark lilac, longer than the filaments. *Style* cleft more than half-way down; appendages acuminate and conspicuously veined with lilac on a whitish ground.—*J. G. Baker.*

Fig. 1, Horizontal section of leaf; 2, flower, complete, *life-size;* 3, face of stamen; 4, back view of stamen; 5, stigma and appendages of the style:—*more or less enlarged.*

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M.S. del. J.N.F. sc. et lith.

Vincent Brooks, Day & Son Imp

Tab. 6943.

LONCHOCARPUS Barteri.

Native of Tropical Africa.

Nat. Ord. Leguminosæ.—Tribe Dalbergieæ.

Genus Lonchocarpus, *H. B. et K.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 548.)

Lonchocarpus (Fasciculati) *Barteri;* alte scandens, foliis gracile petiolatis, foliolis 5–7 elliptico-oblongis acuminatis glabris, racemis elongatis subpaniculatis gracilibus tomentellis, floribus fasciculatis breviter pedicellatis roseis, calyce hemispherico 5-crenato, vexillo orbiculari tenuiter sericeo breviter unguiculato, alis carinaque rectiusculis, ovario sericeo, stylo brevi, ovulis 6–8, legumine lineari-oblongo acuto basi angustato, seminibus orbicularibus compressis.

L. Barteri, *Benth. in Journ. Linn. Soc.* vol. iv. *Suppl.* p. 99.

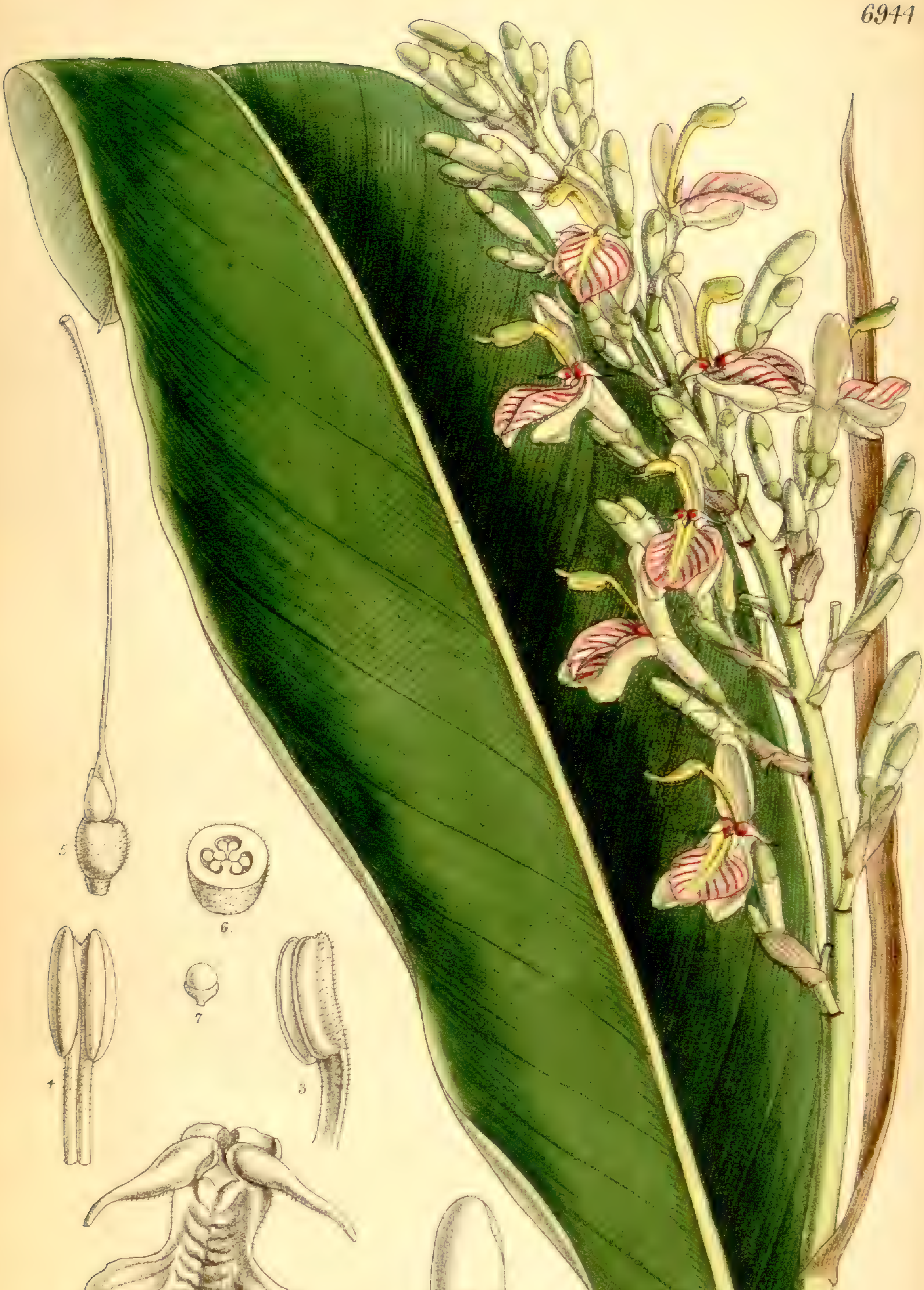
A very beautiful climber, belonging to a genus numbering nearly fifty species, all, with the exception of six African, natives of Central and South America. It is hence a representative in the Old World of a genus that is characteristic of the New. Of this representation there are various examples, of which the Cocoa-nut is the most notable, all the other species of *Cocos* being confined to South America, where *C. nucifera* is not known to be indigenous. *Derris*, again, the very next genus of *Leguminosæ* to *Lonchocarpus*, offers an example of the distribution in the opposite direction. It has five-and-thirty species, all Asiatic except three tropical American; but what is most curious in the case of *Derris* is, that it has not been discovered either in Africa or Polynesia; hence, in migrating from Asia to America, it appears to have skipped over the Dark Continent.

L. Barteri was discovered by Mr. Barter, an indefatigable collector from Kew, who accompanied Dr. Baikie's Niger Expedition in 1856-7, and contributed a great number of plants to the Garden and Herbarium at Kew. It is probable, however, that *Lonchocarpus Barteri* was introduced by Gustav Mann, also an *élève* of Kew, and the most successful of all botanical explorers of western tropical

Africa; and who in the years 1860-63 contributed a prodigious number of seeds and living plants to Kew, as this MAGAZINE testifies. The specimen from which our drawing was taken is an immense climber in the Palm stove, which never flowered till some of its shoots, getting beyond the reach of the pruning-knife, reached the roof, and there blossomed profusely in September of last year.

DESCR. A tall slender climber, with filiform whip-like extremities of the branches; branchlets finely pubescent. *Leaves* a foot long or more, with two to three pairs of leaflets and an odd terminal one; petiole and rachis very slender, the former with a cylindric thickening at the base; leaflets four to seven inches long, shortly petiolulate, elliptic-oblong, acuminate or caudate-acuminate, base rounded, smooth and bright green above, paler beneath with sometimes a few appressed hairs on the midrib and nerves beneath; stipules small, broadly ovate. *Racemes* twelve to sixteen inches long, subpaniculate, or with one or two long flowering branches at the base; rachis tomentose, with two small recurved stipular bracts at the base. *Flowers* in clusters of eight or ten, shortly pedicelled, three-quarters of an inch long. *Calyx* hemispheric, red-brown; mouth with five broad crenatures. *Corolla* rose-pink; standard orbicular, shortly clawed, finely silky externally; wings dimidiate oblong, obtuse, as long as the linear-oblong nearly straight keel. *Ovary* pubescent, six- to eight-ovuled; style short, incurved. *Pod* two to three inches long, linear-oblong, flat, acute, base narrowed, tomentose, few-seeded. *Seeds* orbicular, compressed.—*J. D. H.*

Fig. 1, Filiform top of a branch; 2, leaf; 3, inflorescence;—*all of the natural size;* 4, calyx and ovary; 5, standard; 6, wing petal; 7, keel petal; 8, stamens; 9, section of ovary; 10, pods; 11, seed:—*all but figs.* 1, 2, 3 *and* 10 *enlarged.*


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Tab. 6944.

ALPINIA ZINGIBERINA.

Native of Siam.

Nat. Ord. Scitamineæ.—Tribe Zingibereæ.

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

Alpinia *zingiberina*; glaberrima, foliis breviter petiolatis lineari-oblanceolatis apiculatis basi acutis, racemo suberecto contracto, bracteis brevibus latis obtusis scariosis, floribus breviter pedicellatis parvis erectis, corollæ tubo cylindraceo calyce æquilongo, corollæ lobis 3 pallide viridibus lineari-oblongis obtusis, dorsali lateralibus paullo majore, staminodiis corniformibus patentibus basi rubris, labello late ovato obtuso crenulato basi in unguem latam constricto, disco undulato sanguineo striato, antheræ loculis lineari-oblongis connectivo dorso incrassato puberulo longioribus, ovario globoso puberulo, stylodiis erectis, stylo filiformi puberulo, stigmate minuto.

In the "Gardener's Chronicle" for July, 1886 (vol. xxvi. ii., p. 150), Mr. Watson, of the Royal Gardens, Kew, drew attention to the fact of a so-called Ginger, a native of Siam, having been exhibited in the Siamese department of the Health Exhibition of 1884, and which differed altogether from the ginger of commerce. At the close of that Exhibition, the collection of Siamese fruits, &c., was presented by the Commissioners for that Empire to the Museum of the Royal Gardens, when it was observed that the rhizomes sent as ginger were very much thicker and less branched than those of the officinal plant of that name, and some being so fresh as to warrant the hope that they would grow, they were transferred to the propagating pits under Mr. Watson's care. These in July, 1886, produced flowering stems five feet high, from one of which the accompanying drawing was made. On being taken to the Herbarium it was examined by Mr. Baker, who identified it with an unnamed species of *Alpinia* sent by the late Sir Robert Schomburgk from Siam, but without any reference to its properties, or even to its being a cultivated plant. This is really all that is known of the history of the so-called Siam Ginger, and we are still in ignorance as to whether it is a wild or cultivated plant, and if the latter, whether it is

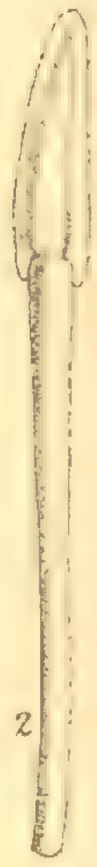
cultivated (as *A. Agallocha* is in Siam) for its seeds, or like the true ginger, for its rhizomes. The latter are very aromatic, and smell and taste a good deal like the officinal plant; they are, however, very much larger, at least three times as thick, are much more shortly and irregularly branched, and the branches are thickened in the middle.

Descr. *Rhizomes* an inch and more in diameter, irregularly branched; branches short, slightly flattened, tumid in the middle; internodes about half an inch apart, colour pale yellowish-brown; odour of common ginger. *Stems* four to five feet high, about as thick as a swan's quill at the base, leafy throughout. *Leaves* ten to twelve inches long by about three inches broad, oblanceolate-oblong, narrowed from above the middle to the base, acute and abruptly cuspidate, quite glabrous, perfectly smooth, base acute, contracted into a very short petiole above the sheath; ligule of the sheath short, obtuse, ciliate; deep green above with a pale broad midrib, yellowish-green beneath. *Panicle* ten to twelve inches long, nearly erect; rachis green, puberulous; basal sheath very long and narrow, equalling the panicle, rather persistent; side branches erecto-patent, an inch long, three- to five-flowered; floral bracts short, scarious; pedicels one-sixth to a quarter of an inch long, puberulous. *Flowers* erect, an inch long from the ovary to the stigma. *Calyx* cylindric, obtusely three-lobed, as long as and appressed to the corolla-tube, about one-third of an inch long. *Corolla* with the lateral and dorsal lobes linear-oblong, obtuse, concave, pale green, the dorsal rather the largest. *Lip* as long as the lobes, broadly ovate, obtuse, contracted into a short broad claw, crenate, surface undulate transversely, white with crimson veins radiating from a broad yellow-green midrib. *Staminodes* of two horn-like processes, with scarlet bases projecting at right angles from the base of the lip. *Filament* exserted, puberulous; anther-cells linear, rather longer than the connective, which is thickened and puberulous at the back. *Ovary* globose; style very slender, puberulous, stigma minute.—*J. D. H.*

Fig. 1, Flower-bud; 2, lip and staminodes; 3, side, and 4, front view of anther; 5, ovary, stylodes and style; 6, transverse section of ovary; 7, ovule:—*all enlarged.*



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M & N Hanhart lith.

Vincent Brooks, Day & Son Imp.

J. Reeve & Co. London.

Tab. 6945.

TILLANDSIA Jonghei.

Native of Brazil.

Nat. Ord. Bromeliaceæ.—Tribe Tillandsieæ.

Genus Tillandsia, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 669.)

Tillandsia (Vriesea) *Jonghei*; acaulis, foliis 30–50 dense rosulatis loratis recurvatis pedalibus vel sesquipedalibus vix lepidotis facie viridibus dorso pallide viridibus deorsum brunneo tinctis, pedunculo robusto subpedali foliis bracteiformibus multis parvis ovatis imbricatis, floribus 12–20 magnis horizontaliter patulis in spicam disticham dispositis, bracteis ovatis acutis calyce viridulo glutinoso distincte brevioribus, sepalis oblongis obtusis, petalis albidis brunneo tinctis calyce subduplo longioribus, staminibus petalis brevioribus alternis basi squamis magnis appendiculatis, stylo brevi, fructu calyce paulo longiori.

Tillandsia Jonghei, *K. Koch in Wochen.* 1868, p. 91; *E. Morren in Belg. Hort.* 1874, p. 291, t. 12, 13.

Encholirion Jonghei, *Libon; K. Koch in Berl. Allgem. Gartenzeit*, 1857, p. 22.

Vriesea Jonghei, *E. Morren in Belg. Hort.* 1878, p. 257; *Antoine, Brom.* p. 24. t. 16.

This has nothing whatever to do with the genus *Encholirion* of Martius, under which it and one or two of its neighbours were originally published, and under which they still usually appear in trade catalogues. *Encholirion* is closely allied to *Dyckia*, and has long hard leaves, like those of a *Bromelia*, with spiny edges. It belongs really to *Vriesea*, which in the Genera Plantarum is classed as a sub-genus of *Tillandsia*, from which it differs only by having the petaloid stamens appendiculate with a pair of scales at the base. By discoveries and introductions during the last twenty years the number of species of *Vriesea* has been largely increased, and now upwards of fifty are known, most of which have been brought into cultivation. The present plant was sent from Central Brazil to Belgium by M. Libon in the year 1856. Our drawing was made from a plant that flowered at Kew last winter, which was purchased at the sale of the collections of the late Professor Morren.

Descr. Acaulescent. *Leaves* thirty to fifty in a dense rosette, lorate, flexible, glabrous, a foot or a foot and a

half long, an inch and a half broad at the middle, three inches at the dilated base, deltoid-cuspidate at the apex, plain green on the face, without either bands or spots, pale green on the back, tinged, especially towards the base, with claret-brown. *Peduncle* robust, a foot long; bract-leaves many, small, ovate, imbricated. *Flowers* twelve to twenty, arranged in a simple distichous spike, all spreading horizontally from the stout slightly flexuose rachis, which is flattened laterally opposite each flower; flower-bracts ovate, green, margined with claret-red, an inch long. *Calyx* green, glabrous, glutinose, a little longer than the bract. *Corolla* nearly twice as long as the calyx, petals yellowish-white, more or less tinged with coppery-brown. *Stamens* shorter than the petals, those opposite the petals appendiculate at the base with a pair of large scales. *Style* not much longer than the ampullæform ovary. *Capsule* a little longer than the calyx.—*J. G. Baker.*

Fig. 1, Base of petal, showing the insertion of the filament and its scales; 2, a stamen; 3, apex of style, *all more or less enlarged;* 4, bract, calyx and young capsule, *life-size.*



M.S. del. et lith.

Tab. 6946.

CORYDALIS Ledebouriana.

Native of Central Asia.

Nat. Ord. Papaveraceæ.—Tribe Fumarieæ.

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

Corydalis (Bulbocapnos) *Ledebouriana;* glaberrima, glauca, radice tuberosa, caule simplici medio 2–3-foliato, foliis irregulariter ternatim v. biternatim sectis segmentis obovatis obovato-oblongisve apice rotundatis v. mucronulatis in petiolum brevem angustatis nervis obscuris, racemo multifloro, bracteis magnis ellipticis flores sæpe æquantibus, sepalis minimis lobatis, petalis brunneo-purpureis superiore vix carinato, inferiore concavo decurvo, calcare magno flore multo longiore robusto recto v. recurvo obtuso, capsula elliptica acuta.

C. Ledebouriana, *Kar. and Kiril. Enum. Plant. Alt.* No. 54, and *En. Plant. Songar.* No. 56; *Ledeb. Fl. Ross.* vol. i. p. 745; *Regel Gartenfl.* vol. xxviii. (1879), p. 225, t. 981.

The exploring expeditions sent by the Russian Government into Central Asia have richly endowed the gardens of Europe with many new and rare hardy plants; and no individual explorer has done so much in this respect as Dr. Albert von Regel, the distinguished son of a distinguished father, whose name has long been an honoured one in Horticultural circles. From the Himalaya to Central Siberia the genus *Corydalis* is at home; upwards of twenty-five species are known to inhabit the higher regions of the Indian Alps, and but one, *C. sibirica*, crosses that range to the southward, occurring on the Khasia Mountains in East Bengal. As many species, almost all except the above-mentioned *C. sibirica*, different from the Himalayan, are described in Ledebour's "Flora Rossica," published in 1842, and many must have been discovered since in the same regions; so that, including the European and American species, the genus *Corydalis* probably numbers nearly one hundred species.

C. Ledebouriana was discovered by Karelin and Kiriloff in Soongaria, an elevated district of North-Eastern

Turkestan, with the climate and many types of the vegetation of Western Tibet (where, however, *C. Ledebouriana* has not hitherto been detected). It is a large rather succulent species, with a tuberous root, and it must hence be transferred to the section *Bulbocapnos*, from that of *Leontice*, to which it has been hitherto referred, and in which the root is fusiform. I am indebted for the specimen here figured to Mr. Elwes, who received it from the St. Petersburg Botanical Gardens, to which it was sent by Dr. A. de Regel. The flowers generally precede the leaves, and appeared in Mr. Elwes' garden in the end of February; the leaves of the Kew specimen followed the flowers in April. There are, however, flowering specimens in the Herbarium with fully formed stem-leaves.

Descr. Rather fleshy, quite glabrous, pale glaucous green. *Root* as large as an ordinary potato, depressed-globose. *Leaves* long-petioled, irregularly ternately or biternately divided; petiole short or long; segments one-half to one inch long, obovate, entire or one- to three-lobed, lobes rounded, nerves very obscure. *Flowering-stems* ascending, six to ten inches, soft, terete, pale, tapering to the base, furnished about the middle with an opposite pair of trisect leaves with narrow leaflets. *Raceme* four to six inches long, lax-flowered; bracts large, leafy, broadly elliptic, green with purple edges. *Flowers* shortly pedicelled, an inch long, purplish brown. *Sepals* very minute, membranous, irregularly lobed. *Lobes* of the corolla dark purple, small, subequal, subacute, upper straight, hardly keeled, lower decurved. *Spur* twice the length of the rest of the corolla, cylindric, stout, obtuse, recurved, pale. —*J. D. H.*

Fig. 1, Side view of flower; 2, sepals; 3, ovary, style and stigma:—*all enlarged.*



M. J. Bell del. M. Fitch Lith.

Vincent Brooks Day & Son Imp.

L. Reeve & Co. London.

TAB. 6947.

STROBILANTHES FLACCIDIFOLIUS.

Native of India and China.

Nat. Ord. ACANTHACEÆ.—Tribe RUELLIEÆ.

Genus STROBILANTHES, *Blume;* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1086.)

STROBILANTHES *flaccidifolius;* frutex erectus ramosus, ramis obscure incano-puberulis, foliis oppositis elliptico-ovatis -lanceolatisve acuminatis serratis glaberrimis basi sensim in petiolum angustatis, floribus in spicas breves paucifloras v. subelongatas dispositis, bracteis foliaceis subspathulatis obtusis caducis, calycis puberuli segmentis 4 linearibus postico latiore lineari-oblongo, corollæ 2-pollicaris purpureæ tubo late infundibulari infra medium curvo, lobis brevibus æqualibus 2-lobulatis, staminibus 4, ovario glabro, stylo puberulo, capsula basi non constricta.

S. flaccidifolius, *Nees in DC. Prodr.* vol. xi. p. 194; *T. Anders. in Journ. Linn. Soc.* vol. ix. p. 481; *Clarke in Fl. Brit. Ind.* vol. iv. p. 468.

S. Championi, *T. Anders. in Benth. Fl. Hongk.* p. 261.

S. flaccidus, *Mann, Assam Forest Report,* 1876-7, par. 135.

RUELLIA indigofera, *Griffith Journ. of Trav. in India,* p. 237

R. indigotica, *Fortune, Resid. in China,* p. 158.

R. Cusia, *Ham. in Wall. Cat.* 2386.

GOLDFUSSIA Cusia, *Nees in Wall. Pl. As. Rar.* vol. iii. p. 88, and in *DC. l. c.* 175.

DIPTERACANTHUS ? calycinus, *Champ. in Hook. Kew Journ. Bot.* vol. v. p. 133.

S. flaccidifolius is the plant which yields in India and China the well-known blue dye called in the former country Room and Assam Indigo. The best account of it is Fortune's, in the work cited above. His description is far too long for being introduced in this work, and the following are the most important items of information which it contains. In the province of Chekiang, and on the mountains westward of Ningpo, and thence westward to Assam and Bengal, the *Strobilanthes* is extensively cultivated, but only as a summer crop in Chekiang, where it is not hardy, being native of a more southern latitude in China. It is planted when the spring frosts are over, and it is cut down in autumn, after attaining eighteen inches in height, when cuttings are taken for the following years' crops. The leaves are then stripped from the stems, and

the latter tied up in bundles and placed under protection to be planted in the following year. The leaves and stems reserved for dye-making are thrown into a water-tank, where they partially decompose. Lime is then added, and the watery infusion well mixed by beating the surface with bamboo rakes. From greenish the fluid becomes yellow, with a bright blue froth. A few drops of cabbage oil are thrown on this froth, which thereupon immediately disappears, and the colouring matter sinks to the bottom as a thick paste, which is collected and dried for the markets.

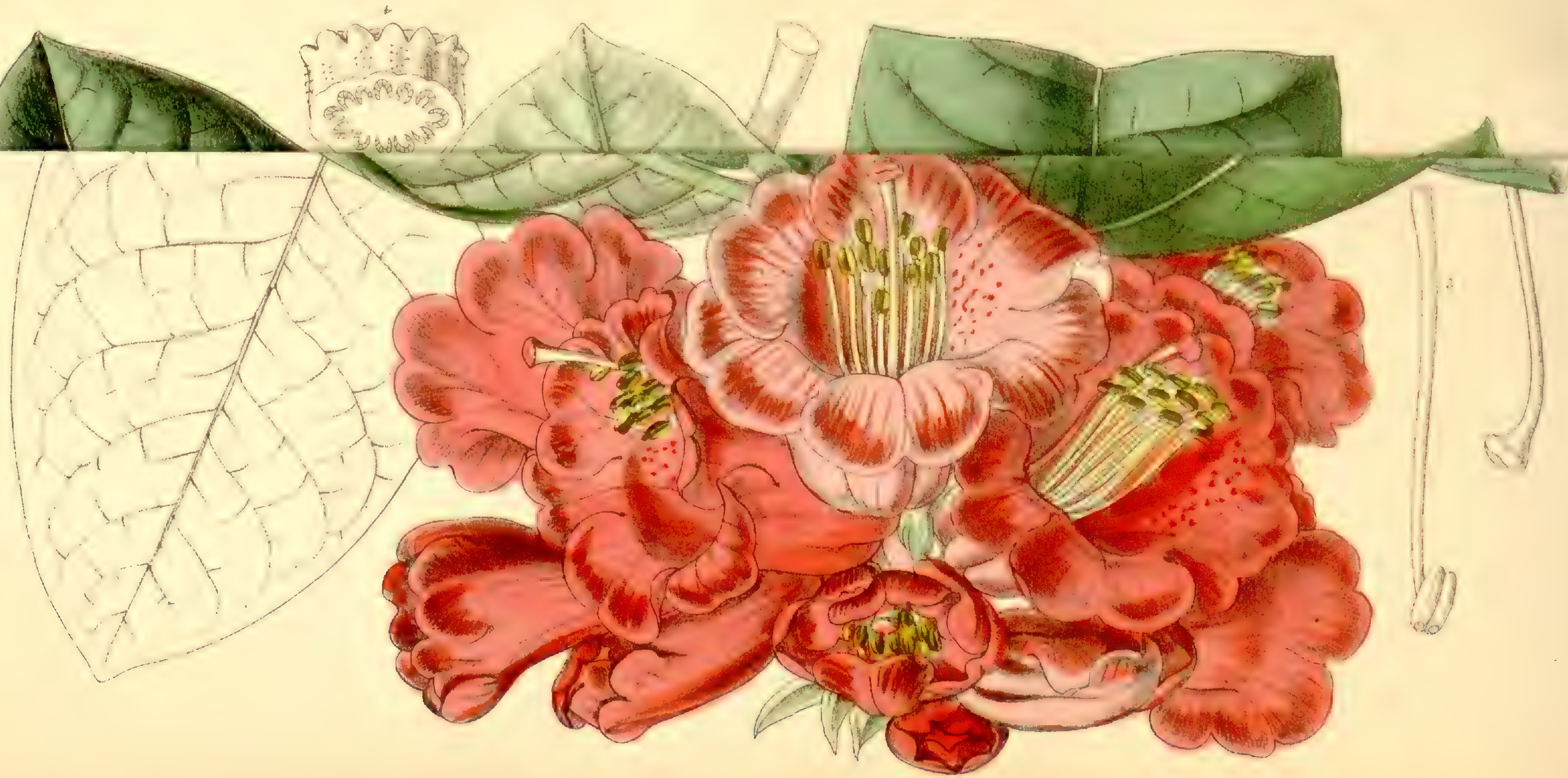
As with so many other plants yielding useful products, *S. flaccidifolius* has received many names, in this case multiplied by the fact of its having an extended geographical distribution, from Bengal eastwards through Assam and Burma to South China, and which has led to its being differently named in India and Hongkong. It further belongs to an immense genus, numbering upwards of 120 species, which are exceedingly difficult to recognize from descriptions alone. The *Strobilanthes flaccidifolius* was sent to Kew from Hongkong by Mr. Ford, where it appears to be indigenous, though scarce, and where its identity with the Indian and northern Chinese dye-yielding plant was not recognized.

Descr. A glabrous shrub, four to five feet high, branched from the base; branches herbaceous, erect, smooth, green, minutely hoary. *Leaves* two to five inches long, quite glabrous, narrowed into a petiole half to one inch long, ovate- or elliptic-lanceolate, acuminate, serrate, bright green above, bluish-green beneath. *Flowers* in spikes or panicles, or reduced to two opposite and terminal; bracts leaf-like, half to one inch long, subspathulate, obtuse, caducous; bracteoles like the calyx-segments. *Calyx* half an inch long, puberulous; four sepals linear, subacute, dorsal longer and twice as broad. *Corolla* two inches long, pale lilac-purple; tube broadly funnel-shaped, bent below the middle; lobes five, equal, short, broad, two-lobed. *Stamens* four, filaments short; anthers linear-oblong. *Ovary* glabrous, except at the tip; style very slender, puberulous; stigma entire, curved.—*J. D. H.*

Fig. 1, Calyx and style; 2, tube of corolla and stamens; 3 and 4, anthers; 5, ovary and disk; 6, vertical section of the same:—*all enlarged.*

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Tab. 6948.

RHODODENDRON GRANDE, *var.* ROSEUM.

Native of the Eastern Himalaya.

Nat. Ord. Ericeæ.—Tribe Rhodoreæ.

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

Rhododendron grande, *Wight Ic. Plant. Ind. Or.* t. 1202; *Clarke in Fl. Brit. Ind.* vol. iii. p. 464.

R. argenteum, *Hook. f. Rhododendrons of the Sikkim Himalaya*, p. 10, t. 9, and in *Journ. Hort. Soc.* vol. vii. p. 76 and 91; *Hook. Bot. Mag.* t. 5054; *Flore des Serres*, vol. v. (1849), t. 473–476 (*copied from Rhod. of Sikk. Himal.*).

R. longifolium, *Nuttall in Hook. Kew Journ.* vol. v. (1853), p. 365.

R. Windsorii, var. γ, *Nuttall l. c.* p. 357, 358.

Waldemaria argentea, *Klotzsch in Reis. Pr. Waldem. Bot.* p. 99, t. 53, 54.

Var. *rosea*, floribus roseis.

The plant here figured is a remarkable instance of a sudden change of colour of corolla in an individual long under cultivation. *Rhododendron grande*, better known as *R. argenteum*, was introduced by myself by seed from the Sikkim Himalaya in 1849, and plants raised from those seeds, now of great size, are still flourishing in the Temperate House of the Royal Gardens. The colour of the corolla, as shown in my drawing made in Sikkim, and reproduced in the "Rhododendrons of the Sikkim Himalaya," is nearly white with a dark red purple lobed spot at the base; in the drawing published in this Magazine (Tab. 5054), made from specimens that flowered in the Royal Gardens in 1858, they are more cream-coloured, with a faint greenish tinge, and the buds are a very pale rose-colour; and with little variation the colours of all the specimens that have flowered during the last thirty years, and these are very many, have approximated very closely to those of the above-mentioned plants, except that in one of the specimens there has been observed a darker rose-colour of the buds. In the present year the buds of the above individual have been of a deep red, and the full-blown corolla a lively rose-

colour, with darker veins on the lobes, and obscure spots on the tube within. It remains to be seen whether the change of colour will prove permanent; such as it is, there has been no alteration in the treatment of the plant that would account for it, and so curious a case of coloration appears worth a place in this MAGAZINE.

I need hardly observe that the species and even individuals of *Rhododendrons* vary greatly in colour, but the sport is usually from a dark to a light colour, as in the case of the rose-coloured and white variety of *R. arboreum*; these occur in nature, but I am not aware that the change has occurred in one individual under cultivation.

It remains to observe that the specific name of *argenteum* must give place to that of *grande*, under which the plant was published in India, in 1848, by Dr. Wight, in his "Icones Plantarum Indiæ Orientalis," from dried specimens collected in Bhotan by Dr. Griffith, that is, the year previous to the publication in England of the "Rhododendrons of the Sikkim Himalaya," and before Dr. Wight's work had reached this country. The figure in the latter work no doubt represents a starved state or variety, with elliptic-lanceolate leaves, long slender petioles, a very dense bracteate head of flowers only three inches in diameter, and small quite regular corollas only one inch in diameter.

I may further here remind horticulturists that *R. Aucklandii* must bear the name of *R. Griffithianum*, and for the same reason, as indicated under the figure of that plant in Tab. 5065 of this MAGAZINE. It was figured under the latter name, also from Bhotan specimens, in the same part of Wight's "Icones" (Tab. 1203), a figure as little worthy of the plant as is that of *R. grande* in the same work.—*J. D. H.*

Fig. 1, Bract; 2, stamen; 3, pistil and calyx; 4, transverse section of ovary:—*all enlarged.*



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Tab. 6949.

ESCALLONIA REVOLUTA.

Native of Chili.

Nat. Ord. Saxifragaceæ.—Tribe Escallonieæ.

Genus Escallonia, *Linn. fil.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 644.)

Escallonia *revoluta*; ramis erectis pubescenti-tomentosis v. subvillosis, foliis breviter petiolatis obovatis acutis v. cuspidatis supra medium argute inæqualiter dentatis coriaceis marginibus recurvis utrinque puberulis v. pubescentibus, racemis laxifloris simplicibus thyrsoideisve, floribus breviter pedicellatis, calycis tubo subgloboso, limbi lobis tubo æquilongis subulato-lanceolatis, corollæ albæ petalis in tubum ½-pollicarem cylindraceum dispositis, ungue elongata lineari, limbo brevi breviter oblongo.

E. revoluta, *Persoon Ench.* vol. i. p. 235; *DC. Prodr.* vol. iv. p. 5; *Hook. and Arn. Bot. Misc.* vol. iii. p. 341; *Remy in Gay. Fl. Chil.* vol. iii. p. 55; *A. Gray, Bot. U.S. Expl. Exped.* p. 564; *Engler in Linnæa*, vol. xxxvi. p. 546.

E. affinis, *Ruprecht in Herb. Acad. Petrop.*

Stereoxylon revolutum, *Ruiz and Pav. Fl. Per. & Chil.* vol. iii. p. 15, t. 236.

A common Chilian shrub, occurring in ravines and by watercourses at the level of the sea at Valdivia, and gradually ascending the Andes in proceeding northwards, where it attains the latitude of Concepcion, and perhaps a higher one. The character of revolute leaves is usually rarely apparent, though some of the dried specimens show it very strongly. The whole plant, and especially the branchlets, vary greatly in amount of pubescence, the latter being sometimes even villous. In the cultivated specimens when fresh the pubescence is hardly apparent to the naked eye, and the lithographer (not the artist) has made the foliage appear too hispid in the plate.

Escallonia revoluta was communicated by Mr. Lynch from the Cambridge Botanical Gardens, where it forms a robust shrub, flowering in September.

Descr. A shrub ten to twenty feet high, copiously branched; branches woody; branchlets pubescent tomentose or even villous, as thick as a crow-quill. *Leaves* three-quarters to one and a half inch long, rather coriaceous, obovate, acute or cuspidate, acutely irregularly toothed

for the upper half, more or less pubescent on both surfaces, convex above with rather recurved margins, narrowed at the base into a petiole one-eighth to a quarter of an inch long. *Racemes* or *panicles* terminal, sessile, erect, simple or thyrsoid, dense or lax-flowered, leafy at the base, and with smaller leaves at the base of the divisions. *Flowers* three-quarters of an inch long, spreading, shortly pedicelled, pedicels with a small bract at the base. *Calyx-tube* subglobose, hispid or tomentose; lobes subulate-lanceolate, very acute, as long as the tube. *Corolla* white, quite glabrous, tube cylindric; petals with long straight linear claw and short oblong rounded limb.—*J. D. H.*

Fig. 1, Flower; 2 and 3, anthers; 4, ovary and base of calyx tube; 5, transverse section of ovary:—*all enlarged.*

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M S. del. J.N Fitch lith.

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Tab. 6950.

NARCISSUS cyclamineus.

Native of Portugal.

Nat. Ord. Amaryllideæ.—Tribe Amaryllæ.

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

Narcissus (Ajax) *cyclamineus*; bulbo parvo globoso tunicis pallidis, foliis 2–3 linearibus suberectis dorso late carinatis, scapo unifloro subtereti, pedicello brevi sæpissime cernuo, perianthio tubo brevissimo obconico, segmentis anguste oblongis citrinis valde reflexis, coronâ saturatiori segmentis æquilonga vel paulo longiori ore erecto crenato, staminibus rectis conniventibus corona distincte brevioribus, fructu turbinato.

Ajax cyclamineus, *Haworth Monogr. Narciss.* p. 2.

This very distinct Narcissus has had a remarkable history. It is figured rudely in the "Jardin du Roy très chrestien Louis XIII." of Pierre Vallet, published at Paris in 1623; and afterwards better in the anonymous "Theatrum Floræ," published at Paris in 1637, under the name of "Narcissus hispanicus minor luteus amplo calice foliis reflexis." This latter work must not be confounded with the well-known "Theatrum" of our countryman Parkinson. Then it appears to have been entirely lost sight of for 250 years. Herbert looked upon it as an "absurdity that would never be found to exist." Haworth, who first named it *cyclamineus* in his monograph of 1838, issued as a supplement to the fourth volume of Sweet's British Flower Garden, knew it only from the excellent figure in the "Theatrum," which is reproduced in a paper by Mr. F. W. Burbidge in the "Gardener's Chronicle" of December 19th, 1885 (page 789, fig. 185). Just about the same time that this paper appeared, the plant was refound in the neighbourhood of Oporto by Mr. Edwin Johnston, and it has since been seen by Mr. A. W. Tait growing plentifully in sandy loam on the banks of a stream at an altitude of 300 feet above sea-level. A full account of the plant will be found in Mr. Tait's recently-published "Notes on the Narcissi of Portugal," p. 4, 5, and as he has distri-

buted bulbs of it freely to our principal English cultivators, and it is found to seed freely, no doubt it will soon become well known. Our drawing was made from plants flowered by Mr. F. W. Burbidge, in the Botanic Garden of Trinity College, Dublin, this present spring.

Descr. *Bulb* globose, half an inch in diameter; outer tunics whitish. *Leaves* generally two, sometimes three to a bulb, linear, suberect, greenish, deeply channelled down the face, broadly keeled, and the keel margined with two raised edges, down the back. *Scape* subterete, always single-flowered, half a foot or a foot long; pedicel almost always cernuous, so short that the spathe is pushed back by the reflexing segments when the flower expands. *Ovary* turbinate; perianth-tube very short, obconic; segments narrow oblong, lemon-yellow, nearly an inch long, strongly reflexed from the base. *Corona* as long as or a little longer than the segments, rather deeper in colour, nearly equal in diameter throughout; edge erect, distinctly crenate. *Stamens* inserted at the throat of the tube, erect, connivent, more than half as long as the corona. *Style* reaching generally to the tip of the anthers. *Capsule* turbinate, nearly an inch long.—*J. G. Baker.*

Fig. 1, Section of leaf; 2, a flower cut through vertically; 3, two stamens; 4, upper part of the style:—*all more or less enlarged.*

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TAB. 6951.

ALSEUOSMIA MACROPHYLLA.

Native of New Zealand.

Nat. Ord. CAPRIFOLIACEÆ.—Tribe LONICEREÆ.

Genus ALSEUOSMIA, *A. Cunn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 6.)

ALSEUOSMIA *macrophylla*; frutex robustus, glaberrimus, ramis erectis, foliis 3–6-uncialibus elliptico-lanceolatis oblanceolatisve in petiolum brevem angustatis integerrimis serratis v. sinuato-dentatis, floribus pollicaribus sæpissime 5-meris, corollæ lobis grosse fimbriato-dentatis dentibus incurvis, disco tuberculatis, baccis 2-locularibus polyspermis.

A. macrophylla, *A. Cunn. in Ann. Nat. Hist.* vol. ii. p. 209; *Hook. f. Fl. New Zeald.* vol. i. p. 102, t. 23, and *Handbook of the New Zealand Flora*, p. 109 and 731.

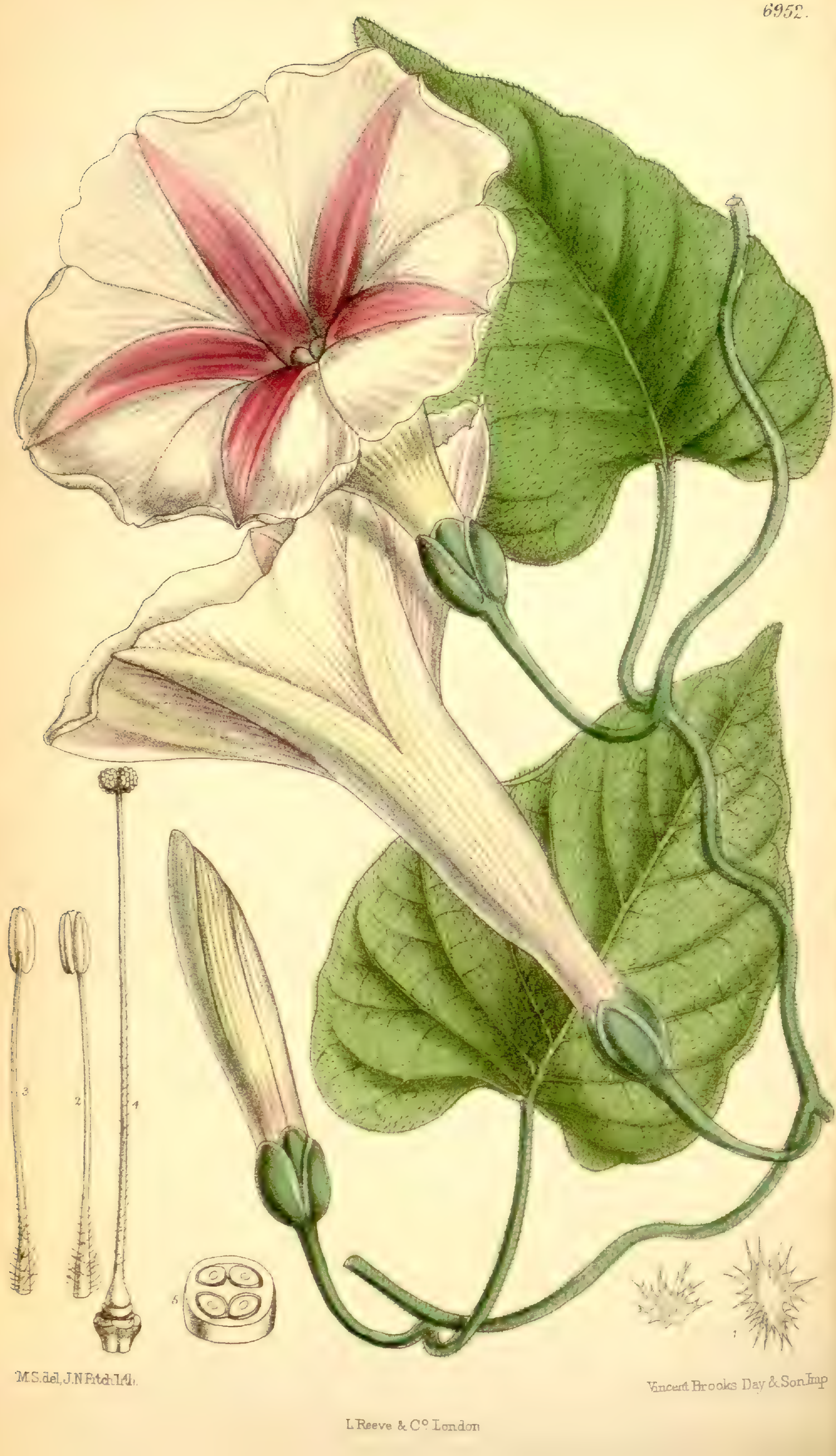
Alseuosmia is a genus confined to New Zealand and to the northern of the two greater Islands, where one species (*A. Banksii*) was discovered by Sir Joseph Banks on the shores of the Bay of Islands, when accompanying Captain Cook on his first Voyage of Discovery. It was not, however, till 1826 that the genus was rediscovered by the late Allan Cunningham, when he, being then Curator of the Sydney Botanical Garden, visited New Zealand. In 1839 the first description of it appeared by Allan Cunningham in his "Specimens of the Botany of New Zealand," published in the Annals of Natural History, in which work he describes eight species (now reduced to four), all from the neighbourhood of the Bay of Islands, and none have been added since. The name he adopted was suggested by the powerful fragrance of the flowers which scent the woods where it grows (εὐοσμία, a grateful odour, and ἄλσος, a grove). The name is well deserved, for I can bear testimony to their delicious fragrance, and to this penetrating the dark woods of the Bay of Islands to a considerable distance. This, and the affinity of the genus with *Lonicera*, would suggest the English name of New Zealand Honey-suckle for the genus.

My correspondents in New Zealand made repeated

attempts to introduce this genus into Kew, but always unsuccessfully. The seeds, however packed, invariably perished during the voyage, owing to the rotting of the copious fleshy albumen, and the minuteness of the embryo. In 1884, however, that enterprising cultivator, E. Loder, Esq., received a Ward's case with living plants of the species here figured, of which he was good enough to give two plants to Kew, and of these one, that here figured, flowered in February of the present year. Its flowers were, as was to be expected, deliciously fragrant.

DESCR. A glabrous shrub, six to ten feet high; branches erect, woody; bark brown. *Leaves* three to six inches long, elliptic-lanceolate or oblanceolate, acute, entire or serrate, narrowed into a short petiole a quarter to one-third inch long, bright-green and glossy above, yellow-green beneath; nerves faint. *Flowers* in small axillary clusters, drooping; pedicels one-eighth to a quarter of an inch long, bracteate at the base; bracts subulate. *Calyx-tube* oblong, lobes oblong-ovate, subacute. *Corolla* one and a half inch long, dull red, or creamy-white, with dull red streaks; tube cylindric, funnel-shaped above; lobes ovate, recurved, obtusely subfimbriately toothed and muricate on the upper surface; teeth incurved. *Stamens* at the throat of the corolla, filaments very short; anthers oblong, included. *Ovary* two-celled, cells four- to six-ovuled, style slender, stigma capitate. *Fruit* ellipsoid, fleshy, many-seeded.—*J. D. H.*

Fig. 1, Calyx and ovary; 2 and 3, stamens; 4, transverse section of ovary; 5, fruit:—*all but fig. 5 enlarged.*



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Tab. 6952.

IPOMÆA Robertsii.

Native of Queensland.

Nat. Ord. Convolvulaceæ.—Tribe Convolvuleæ.

Genus Ipomæa, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 870.)

Ipomæa (Speciosæ) *Robertsii;* tota pubescenti-tomentosa, caule gracili volubili, foliis gracile petiolatis late ovato-cordatis acuminatis integerrimis utrinque stellato- v. squamuloso-tomentellis sinu lata, floribus solitariis, pedunculo petiolo æquilongo, sepalis ½-pollicaribus oblongo-rotundatis glabratis, corolla 3-pollicari infundibulari alba radiis 5 roseis tubo medio obscure ventricoso, margine undulato, staminibus tubo inclusis, filamentis basi villosis, stylo parce piloso, stigmatis 2-lobi lobis globosis.

A very beautiful and apparently undescribed species, nearest to *I. velutina*, Brown, of the Gulf of Carpentaria, but differing in the acute leaves which are stellately hairy on the upper surface, in the flowers being always solitary (though a joint about their middle suggests the possibility of the peduncle being sometimes two- or more-flowered), and in the much larger sepals. Seeds were sent to the Royal Gardens in 1883 by Mr. G. F. Roberts (Nurseryman of Kew, Melbourne), from which the plant here figured was raised. It flowered in the Lily-house in July of last year, and is perennial.

Descr. *Stem* very slender, twining, clothed as are the petioles and leaves with a soft subtomentose pubescence. *Leaves* three to four inches long, membranous, broadly ovate-cordate, acuminate, with a broad open sinus at the base, dull green, pubescence more or less stellate on both surfaces, and squamulose on the upper; nerves eight to ten pair, spreading; petiole one and a half to two inches long, slender, pubescent. *Peduncles* axillary, solitary, one-flowered, jointed below the middle, the lower part pubescent, the upper gradually thickened upwards, nearly glabrous. *Sepals* broadly oblong or almost rounded, one-third to half an inch long, obtuse, green with white margins, nearly glabrous. *Corolla* three to four inches long; tube elongate, funnel-shaped and slightly tumid below the middle, limb

three to three and a half inches in diameter, undulate, nearly white externally with very pale pink striæ; limb internally white, obscurely striate with pale pink, and with five lanceolate rose-pink rays spreading from the tube to the circumference. *Stamens* included, filaments very slender, rather villous at the base; anthers oblong. *Ovary* two-celled, cells two-ovuled; style very slender, sparsely pubescent, stigma didymous.—*J. D. H.*

Fig. 1, Stellate scales from the upper surface of the leaf; 2 and 3, stamens; 4, ovary and style; 5, transverse section of ovary:—*all but fig.* 5 *enlarged.*


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Tab. 6953.

HILLEBRANDIA sandwicensis.

Native of the Sandwich Islands.

Nat. Ord. Begoniaceæ.

Genus Hillebrandia, *Oliver*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 843.)

Hillebrandia *sandwicensis*; herba succulenta, sparsim pilosa, erecta, ramosa, foliis amplis oblique rotundatis profunde cordatis breviter-multilobatis lobis inæqualibus triangularibus acuminatis dentatis v. serratis, floribus in cymis ramosis bisexualibus dispositis, sepalis 5 amplis, petalis totidem parvis cucullatis, staminibus perplurimis, filamentis liberis, antheris oblongis, ovario apice libero hiante, placentis 5 parietalibus, stylis 5 bifurcatis, cruribus spiraliter stigmatosis, capsula membranacea inter stylos dehiscente.

H. sandwicensis, *Oliv. in Trans. Linn. Soc.* vol. xxv. p. 361. tab. 46; *H. Mann. Enum. of Hawaiian Plants in Proc. Amer. Acad. Arts and Sc.* vol. vii. p. 167; *Sinclair, Indig. Flowers of Hawaiian Isds.* tab. 37.

For upwards of a century the large genus *Begonia* was supposed to have had no near ally, and from the date of the establishment for it in 1802, by Trattenick, of the Natural Order *Begonieæ*, till 1865, that of the publication of *Hillebrandia* by Oliver, the Order was represented by but the one genus. It is true that the 350 to 400 species constituting *Begonia* itself have comparatively lately been arranged by some botanists under even as many as thirty-five distinct genera, but this disruption of the old genus has not been approved by more recent authors. Since the publication of *Hillebrandia* still another genus has been added to the Order, by the discovery of *Begoniella*, Oliver (*Linn. Trans.* vol. xxviii. p. 513, t. 41), in New Grenada, a very remarkable plant, with the sepals united into a campanulate cup.

Hillebrandia differs from *Begonia* in the presence of petals, and in the ovary being free for its upper third; in habit and all other respects it is a true *Begonia*. It was discovered in the Island of Maui, one of the Hawaiian Archipelago, by M. Baldwin, of Lahaina, and specimens from it were sent to Kew in 1865, by Dr. Hillebrand, after whom the genus is named. It has since been found

in the mountains of Kauai. It is a native of the forest region near waterfalls, and its native name, according to Mrs. Sinclair, is "Akaakaawa." The Royal Gardens are indebted to that lady for seeds, which were received in 1886. From these the plant here figured and others were raised; and these flowered in May of this year. I have further to observe that the colour of the flowers appears to vary; those of Mrs. Sinclair's drawing being of a bright red.

Descr. A tall branched succulent herb, three to four feet high, everywhere sparsely clothed with long reddish hairs. *Leaves* four to eight inches long and broad, obliquely rounded and deeply cordate with a very narrow sinus, and overlapping basal lobes; marginal lobes five to nine, very unequal, triangular, acuminate, unequally toothed; nerves radiating from the petiole, which is stout and long, but shorter than the blade. *Peduncles* one-half to one foot long, dichotomously branching and bearing bisexual cymes. *Bracts* opposite, membranous. *Flowers* about half an inch in diameter, white, with a rose tinge or more or less rosy; females two-bracteolate. *Sepals* ovate, subacute, outer rather larger. *Petals* as many, much smaller, spathulate, concave, membranous. *Stamens* many, free, represented in the female by perigynous glandular staminodes; anthers obtuse, flattened. *Ovary* hemispheric, terete, free above and open between the styles, one-celled; styles five, short, forked, arms spirally stigmatose; placentas five, parietal, two-fid. *Capsule* hemispheric, membranous, about half an inch in diameter, with a broad open vertex.—*J. D. H.*

Figs. 1 and 2, Stamens; 3, female flower; 4, transverse section of ovary:—*all enlarged.*



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Tab. 6954.

BARLERIA REPENS.

Native of Eastern Tropical Africa.

Nat. Ord. Acanthaceæ.—Tribe Justicieæ.

Genus Barleria, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 1091.)

Barleria *repens*; caulibus procumbentibus diffuse ramosis obtuse angulatis basi radicantibus cano-pubescentibus pilosisve, foliis ovatis obovatis v. ellipticis obtusis acutisve in petiolum angustatis membranaceis utrinque pubescentibus, floribus axillaribus solitariis sessilibus v. subsessilibus, bracteolis subulatis calyce multo brevioribus, sepalis majoribus ovato-oblongis acutis integerrimis reticulatis minoribus parvis lanceolatis, corollæ rubræ 2-pollicaris tubo elongato infundibulari pilosulo lobis oblongis.

B. repens, *Nees in DC. Prodr.* vol. xi. p. 230; *T. Anders. in Journ. Linn. Soc. Bot.* vol. vii. p. 31.

The genus *Barleria*, though a large one, numbering upwards of sixty species, has never met favour with horticulturists. Only three species have been figured in this Magazine, *B. cristata*, Linn. (Tab. 1615), *B. Gibsoni*, Dalz. (Tab. 5028), and *B. Mackenii*, Hook. (Tab. 5866). They are, however, very handsome stove plants, as the above-cited figures show, and the real reason for their neglect is that they are weedy in habit, and their beautiful blossoms are delicate and ephemeral.

B. repens is apparently common in Eastern Tropical Africa. It was first described from specimens collected in Pemba and Raza Islands, near Delagoa Bay, by Forbes, a collector for the Horticultural Society; and it has more recently been found by the Rev. M. Wakefield at Mombesa, and at Kilwa and Zanzibar by Sir John Kirk, to whom the Royal Gardens are indebted for seeds that arrived in 1875, and flowered in a stove in July of 1886.

Descr. A prostrate diffusely branching shrub or undershrub; stems one to two feet long, rigid, branched, rooting at the base, pubescent with short rather lax hairs, obtusely four-angled. *Leaves* opposite, and appearing as if fascicled, for the abbreviated leafy branchlets at the nodes, one to two and a half inches long, rather membranous, elliptic-

ovate or obovate, rarely nearly orbicular, obtuse or acute, narrowed into a petiole one-sixth to half an inch long; pubescent on both surfaces. *Flowers* axillary, solitary, sessile or very shortly pedicelled; bracteoles minute, subulate or linear, much shorter than the calyx. *Sepals* four, two outer one-half to three-quarters of an inch long, oblong-ovate, ciliate, reticulate, quite entire; two inner very much smaller, subulate-lanceolate, ciliate. *Corolla* two inches long, pale rather dull rosy-red; tube puberulous, funnel-shaped; limb one to one and a half inches in diameter, lobes five, oblong, tips rounded, upper half as large again as the others, two lower rather smaller than the lateral. *Stamens* four, two very long, far exserted, with white filaments; two very small, included, with a subulate staminode between them; filaments sparsely hairy at the base. *Ovary* glabrous, style capillary.—*J. D. H.*

Fig. 1, Inner sepals and ovary; 2, base of corolla laid open and stamens; 3 ovary and disk; 4, vertical section of the same:—*all enlarged.*



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

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Tab. 6955.

CŒLOGYNE corymbosa.

Native of the Himalaya and Khasia Mountains.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Cœlogyne, *Lindl.* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 518.)

Cœlogyne (Erectæ) *corymbosa*; rhizomate robusto, pseudobulbis 1–1½ pollicaribus ovoideis compressis demum supra medium leviter costatis pyramidatisve, foliis 2-nis oblongo-lanceolatis acuminatis in petiolum brevem angustatis, corymbis 2–3-floris, floribus 3 poll. latis, sepalis oblongo- v. lineari-lanceolatis acuminatis albis, labello trifido lobis lateralibus erectis antice rotundatis integerrimis v. obscure denticulatis rubro striatis et plaga aurantiaca ocellata notatis, lobo medio trulliformi v. ovato-lanceolato acuminato carinis 2 crenatis a basi ultra medium productis, disco plaga aurantiaca 2-loba notato, columna gracile apice arcuata cucullata dentata.

C. corymbosa, *Lindl. Fol. Orchid. Cœlogyne*, p. 7; *Reichb. f. in Gard. Chron.* (1876), pp. 9, 10; *Rolfe in Gard. Chron.* ser. 3, vol. ii. p. 73, fig. 15.

C. ocellata, var. maxima, *Dean Floral Magaz.* t. 365.

The *Cœlogynes* of the Eastern Himalaya threaten to give rise to much controversy amongst both botanists and horticulturists, especially those species belonging to Lindley's section "Erectæ," and amongst them *C. corymbosa*, *brevifolia* and *ocellata* are the most difficult to define. The plant here figured is, I have no doubt, Lindley's *C. corymbosa*, though it differs somewhat from the type, which is described in "Folia Orchidacea" from specimens and a drawing of my own, made in Sikkim in 1848. In this the leaves are small, three to five inches long, and broader in proportion than in the plant here figured; the sheaths of the peduncle are much more numerous and shorter. There are, however, in both my Sikkim and Khasian collections, specimens of the larger form, and others in all respects intermediate between these and the smaller. I have no doubt that, as Mr. Watson has pointed out to me, the plant long known in gardens as *C. ocellata*, *maxima*, is the same species, though the plate in the "Floral Magazine" quoted above represents a raceme with eight flowers, whereas two or three are the normal number in *corymbosa*, or very

rarely one or four. *C. ocellata*, Lindl., differs only in the shorter rounder obtuse mid-lobe of the lip. *C. brevifolia* also differs in the rounded mid-lobe, and in the lip being pubescent within. *C. ochracea* is a more delicate plant, with smaller more delicate flowers, and a differently sculptured mid-lobe of the lip.

Professor Reichenbach has published in "The Gardener's Chronicle" (1878), p. 8, a "*Cœlogyne heteroglossa*, n. var.," which he suggests may possibly be a mule between *corymbosa* and *brevifolia* or *ocellata*, of which he says that the flowers are larger than in *corymbosa*, of the same colours, but the tips of the side lobe of the lip overlap the base of the very broad (not narrow lanciform) mid-lobe, and there are three membranous denticulate keels from the base of the lip to that of the mid-lobe, and the areas between the side lobes are brown, each brown one ending in a yellow one; there is also a four-lobed angled deep yellow area in the very base of the broad middle lobe with a dark brown narrow border. Much of this description reminds me of *C. brevifolia*, though there is nothing very foreign to *corymbosa* in it.

C. corymbosa is a native of forests of the Sikkim and Bhotan Himalaya, between 5000 and 8000 feet, and is not uncommon in the Khasia Mountains. The specimen figured was sent from the Kollong rock, Khasia Mountains, by C. B. Clarke, Esq., F.R.S. It flowered in the Royal Gardens in May of the present year. It is a very large-flowered form.—*J. D. H.*

Fig. 1, Column; 2, lip; 3, anther; 4, pollen-masses:—*all enlarged.*



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Tab. 6956.

PRIMULA obtusifolia.

Native of the Himalaya.

Nat. Ord. Primulaceæ.—Tribe Primuleæ.

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

Primula *obtusifolia*; efarinosa v. foliis subtus et inflorescentia farinosis, foliis membranaceis oblongis elliptico-obovatis oblanceolatisve obtusis v. acutis eroso-dentatis rarius integris basi obtusis cordatis v. in petiolum angustatis, scapo plurifloro, bracteis ovatis lanceolatisve pedicellis brevioribus basi liberis v. connatis, calycis campanulati lobis tubo subæquilongis v. brevioribus, corollæ sanguineo-purpureæ v. flavæ lobis planis patentibus obcordatis subcrenulatis tubo longioribus v. æquilongis, ore annulato, tubo calyce duplo longiore, ovario globoso acuto vertice non incrassato, capsula globosa calyce inclusa, seminibus subglobosis papillosis.

P. obtusifolia, *Royle Ill. Pl. Himal.* p. 311, tab. 77, fig. 1; *Duby in DC. Prodr.* vol. viii. p. 42; *Hook. f. Fl. Brit. Ind.* vol. iii. p. 489; *Watt in Journ. Linn. Soc. Bot.* vol. xx. p. 7.

As with so many species of *Primula*, it is not easy to limit the specific characters of this by words, so as to distinguish it from its allies. In some respects it resembles *P. prolifera*, which is a much larger plant, with superposed whorls of flowers and a long narrow corolla-tube; and it is still nearer *P. elongata*, Watt, which has, like *P. prolifera*, a very narrow corolla-tube, and which further differs in the more deeply crenate corolla-lobes and want of a thickened ring at the mouth. *P. obtusifolia* is remarkable for its usually deep claret-coloured flowers. There are two varieties of it, namely var. *Roylei* with subentire obovate-spathulate leaves mealy beneath, and var. *Griffithii* with deeply-toothed ovate-cordate leaves. Our figure represents a form referable to var. *Griffithii*, but with more oblong leaves. There is in the Kew Herbarium another variety, represented by a single specimen, collected by Dr. Watt in Sikkim, and which in all respects resembles this, except in that the flowers are described as yellow; and in a MS. note on *obtusifolia* Dr. Watt gives yellow as the colour of its flower. Royle's figure of *P. obtusifolia* represents the corolla-tube as much too long and narrow, and its colour as lilac.

Sept. 1st, 1887.

Seeds of *P. obtusifolia* were sent to Kew from Sikkim by Dr. King, which flowered in a cool pit in June of the present year. The species is a native of the alpine region of the Himalaya throughout its length, from the Sutlej river to Bhotan. In Sikkim it is confined to elevations of 11,000 to 14,000 feet, and there abundant, flowering in May and June.

Descr. *Rootstock* stout, clothed with broad fleshy sheathing scales. *Leaves* very variable, two to five inches long; in extreme forms some are ovate-cordate and petioled, others have the blade so narrow, and so narrowed into the petiole, that the whole organ is very narrowly spathulate, tip usually obtuse, undersurface naked or mealy, nerves prominent and reticulate. *Scape* six to ten inches, stout or slender, usually brownish-green; inflorescence naked or more or less mealy; bracts a quarter to a third of an inch long, ovate or subulate, free or connate at the base. *Calyx* campanulate, cupular in fruit, cleft to the middle, lobes ovate or oblong and subacute, or broadly oblong with rounded tips, dark brown when not mealy. *Corolla* claret or almost port-wine coloured, rarely yellow; tube about twice as long as the calyx; mouth narrow, thickened, orange-yellow; lobes broadly obcordate, flat, spreading, obscurely crenulate. *Ovary* subglobose, tip not rounded nor thickened. *Capsule* globose, shorter than the calyx. *Seeds* papillose.—*J. D. H.*

Fig. 1, Calyx; 2, corolla laid open; 3, ovary :—*all enlarged.*



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Tab. 6957.

IRIS Kingiana.

Native of Central Himalayas.

Nat. Ord. Irideæ.—Tribe Moræeæ.

Genus Iris, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 686.)

Iris *Kingiana*; rhizomate breviter repente, foliis linearibus erectis subglaucis semipedalibus, pedunculo brevissimo, spathis unifloris, valvis lanceolatis viridibus magnis, perianthio tubo viridulo elongato, segmentis exterioribus obovato-cuneatis reflexis saturate lilacinis maculatis unguibus cristâ depressa alba filamentis copiosis albidis luteo capitatis barbatis præditis, segmentis interioribus oblongis unguiculatis pallide lilacinis, styli cristis deltoideis, antheris pallide lilacinis filamento æquilongis.

I. Kingiana, *Foster in Gard. Chron.* 1887, vol. i. p. 611.

This very interesting new species was discovered by Mr. Duthie, in his recent exploration of British Garwhal, and was first cultivated by Professor Foster, and named by him after Dr. George King, Director of the Calcutta Botanic Garden. It comes about midway between *I. pumila* and *I. tectorum*, and forms a connecting link between the sub-genera *Pogoniris* and *Evansia*, in the former of which the claw of the outer segments is furnished with a beard, and in the latter with a more or less laciniated crest. Our drawing was made from a plant that flowered in the Kew collection at the end of May this present year.

Descr. *Rootstock* short-creeping. *Leaves* five or six to a rosette, three elongated, linear, erect, rather glaucous, about half a foot long at the flowering time; veins and edges hyaline. *Peduncle* very short. *Spathes* single-flowered; valves lanceolate, greenish, unequal, the innermost one and a half or two inches long. *Perianth-tube* greenish, cylindrical, two or two and a half inches long; limb bright lilac; outer segments obovate-cuneate, reflexing, an inch and a half long, dark lilac, much mottled with paler lilac, furnished with a beard down the claw composed of white filaments with a yellow glandular tip, springing from a depressed white crest; inner segments oblong-

unguiculate, erect, paler lilac. *Style* an inch long, including the short deltoid crests, lilac in the middle, paler towards the edge. *Anther* whitish-lilac, as long as the filament.—*J. G. Baker.*

Figs. 1 and 2, Stamens; 3, style, with its crests:—*both much enlarged.*



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

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TAB. 6958.

ANEMONE FANNINII.

Native of South Africa.

Nat. Ord. RANUNCULACEÆ.—Tribe ANEMONEÆ.

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

ANEMONE *Fanninii;* sericeo-villosa, foliis amplis longe petiolatis orbiculatis basi profunde cordato-bilobis 5–7-lobis palmatinerviis superne subvelutinis, lobis ovato-rotundatis duplicato-dentatis, scapis 2–3-pedalibus robustis 2–3-floris, floribus amplis, sepalis numerosis lineari-lanceolatis acuminatis extus sericeis, carpellis villosis, stylo filiformi glabro.

A. Fanninii, *Harv. mss. in Gen. So. Afric. Pl.* Ed. ii. 2; *Masters in Gard. Chron.* N. S. vol. xxv. (1886), p. 426, 432, fig. 84.

This giant *Anemone* was discovered in 1863 at Dargle Farm, Natal, by Mr. G. Fannin, who sent dried plants of it to the late Dr. Harvey, and by him it was named in manuscript after its discoverer. Specimens have subsequently been received at Kew from Mr. J. M. Wood, collected in 1883, on a grassy hill at Ismont, at an elevation of 2000 feet; and still later Dr. Masters has communicated specimens from Mr. A. W. Adlam, of Pieter Maritzburgh, Natal, who found it in open grassy situations at 3600 to 4000 feet elevation, and sent seeds to England. In an interesting botanical sketch of a tour in Natal ("Gard. Chron." l.c. 426) Mr. Adlam describes this Anemone as growing five feet high with leaves two feet in diameter.

The distribution of the genus *Anemone* in the southern hemisphere is very peculiar; beginning with the African continent, one species (*A. Thomsoni*, Oliver) is found on the equatorial mountain of Kilimanjaro, at an altitude of 9000 to 10,000 feet, its nearest congeners to the north being two European species which occur in Algeria, for no representative of the genus has been found in Abyssinia or in Marocco. To the south again none occur till Natal is reached, where *A. Fanninii* appears; whilst still further south are the *A. Caffra*, Eckl. and Zey. (a near ally of *A. Fanninii*), of Caffraria, and *A. capensis*, L., which grows on Table Mountain and other high ranges to the westward. In South America the genus, though scantily

represented as to species, extends throughout the Andes almost to Cape Horn itself, and is found also in South Brazil. In Asia, south of the tropics, one species alone is known, the *A. crassifolia*, Hook., of the Tasmanian Alps, which belongs to a different section of the genus from the African or American species. Its geographically nearest allies are tropical and very remote indeed, namely, the *A. sumatrana* of Sumatra, and unpublished species in the Philippine Islands.

A. Fanninii, as observed above, is very nearly related to *A. Caffra*, and may indeed prove to be a gigantic form of that species, from which it differs chiefly in its very much larger size, and the more rounded lobes of the leaf. The specimen here drawn was received in June, 1835, from Mr. J. Medley Wood, of the Natal Botanical Gardens, and flowered in a cool pit at the Royal Gardens in April of the present year. The flowers, which last about a fortnight, are sweet-scented, and the petals green for several days before expanding. In the open air the leaves attained fifteen inches in diameter. It is quite hardy, plants having stood out of doors at Kew all last winter.

Descr. *Rootstock* stout, woody. *Leaves* suborbicular, eight to twenty-four inches in diameter, coriaceous, five- to seven-lobed, velvety above, densely or laxly villous beneath, with spreading subsilky hairs, palmatinerved; nerves very stout beneath; lobes rounded, obtuse, irregularly toothed; petiole one to two feet long, silkily villous with spreading hairs below and appressed ones above, or appressed throughout. *Scape* two to five feet high, very robust, clothed like the petiole two- rarely three-flowered; involucre of two rarely three linear bracts one to three inches long, entire or with lobed tips, densely silky externally. *Flowers* three to four inches in diameter, pure white, fragrant; pedicels eight to ten inches long or more. *Sepals* very inconstant in number, twelve to thirty, linear-lanceolate, acuminate, silky externally. *Stamens* very numerous, in many series, densely crowded round the pistil. *Carpels* numerous, silkily villous, terminating in a slender glabrous style of about twice the length of the ovary, and which does not appear to lengthen after flowering.—*J. D. H.*

Fig. 1 and 2, Stamens; 3, carpels:—*all enlarged.*



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TAB. 6959.

STATICE SUWOROWI.

Native of Western Turkestan.

Nat. Ord. PLUMBAGINEÆ.—Tribe STATICEÆ.

Genus STALICE, *Linn.* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 625.)

STATICE (Psylliostachys) *Suworowi;* annua, foliis omnibus radicalibus membranaceis oblongo-oblanceolatis obtusis integerrimis nervo excurrente mucronatis undulatis, scapo elato superne rachique spicarum pubescente, spicis valde elongatis subpaniculatim dispositis densifloris, bracteis ovatis albohyalinis cuspidatis, spiculis 2–3-floris bibracteolatis, bracteolis florum inferiorum scariosis late ovatis nervo viridi cuspidatis, superiorum subulatis, parium inferiore truncato-dentata, calycis tubo inferne glanduloso-piloso, lobis aristatis, corollæ tubo calyce duplo longiore, lobis rotundatis.

S. Suwerowi, *Regel Gartenfl.* vol. xxxi. (1882), p. 289, tab. 1095, figs. 1, 2; *Gard. Chron.* N. S. vol. xx. (1883), p. 392, fig. 59.

This is one of the most beautiful Annuals introduced of late into cultivation, and is fortunately perfectly hardy. It belongs to an annual section of the genus *Statice*, with terete spikes of flowers, all Oriental and Central Asiatic, of which *S. spicata*, Willd., which ranges from the Ural to Palestine in the West, and Beluchistan in the East, is the type. *S. Suwerowi* differs from that plant in its tall stature, in its much greater size, quite entire leaves, and very long drooping spikes. It was discovered by Dr. Albert Regel near Dscham-Bulak in Western Turkestan, and is named in honour of Iwan Petrowitsch Suworow, Inspector of Military Hospitals, &c., in the Turkestan forces. The Royal Gardens are indebted for specimens to Dr. Masters, who raised plants from seeds received from Messrs. Haage and Schmidt of Erfurt. The plants flowered in July, 1886. Dr. Masters mentions a single specimen as having remained upwards of two months in flower, and says that by sowing in succession from February to April it may be had in full bloom throughout the summer from May till October. At Kew it has flowered both in a conservatory and in the rockery, in the latter case attaining a height of five feet, but with flowers paler than under

glass. The plant figured was raised from seed communicated by Dr. de Regel from the Imperial Botanical Gardens of St. Petersburg.

DESCR. A tall annual. *Leaves* all radical, six to eight inches long, membranous, pale green, oblanceolate, obtuse, mucronate by the excurrent nerve, narrowed into a winged or naked petiole, midrib broad, nerves very slender. *Scape* three to five feet high, stout, obtusely angled and grooved, green, glabrous below, hairy above, bearing one very long terminal drooping spike a foot long or less, and several distant lateral ones four to six inches long. *Spikes* sessile or nearly so, cylindric, obtuse, one-third to nearly one-half of an inch in diameter; rachis pubescent; flowers subsessile, one-sixth of an inch long, most densely crowded, rose-coloured, disposed in two- to three-flowered sessile bracteate spikelets, bracts and bracteoles scarious with excurrent nerves, shorter than the calyx. *Calyx-tube* narrow, hairy at the base; lobes triangular, awned. *Corolla-tube* twice as long as the calyx, lobes rounded or very broadly oblong. *Stamens* exserted. *Styles* capillary.—*J. D. H.*

FIG. 1, *Reduced* sketch of the whole plant; 2, leaves, and 3, portions of inflorescence *of the natural size;* 4, flower and bracts; 5 and 6, stamens; 7, pistil:—*all enlarged.*



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Tab. 6960.

IRIS Sari, *var.* lurida.

Native of Asia Minor.

Nat. Ord. Irideæ.—Tribe Moræeæ.

Genus Iris, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 686.)

Iris (Oncocyclus) *Sari*, var. *lurida*; rhizomate brevi obliquo, foliis ensiformibus falcatis glaucescentibus semipedalibus, pedunculo monocephalo foliis æquilongo, spathæ valvis lanceolatis ventricosis pallide viridibus, perianthio tubo bipollicari, limbi segmentis orbicularibus copiosissime fusco-punctatis, exterioribus reflexis diffuse barbatis, interioribus erectis, styli appendicibus brevibus rotundatis.

I. Sari, *var.* lurida, *Boiss. Fl. Orient.* vol. v. p. 131.

This curious new Iris belongs to the small section *Oncocyclus*, and is closely allied to the well-known *I. susiana* (Bot. Mag., tab. 91). Our drawing was made from a specimen sent by Mr. R. I. Lynch, of the Cambridge Botanic Garden, with whom it flowered last May. We have also had it this summer in the herbaceous ground at Kew, received from Professor Foster. The species was originally described in my synopsis of the genus Iris, published in the "Gardener's Chronicle" in the year 1876 (vol. v. p. 788), from material furnished by Max Leichtlin.

Descr. *Rhizome* short, oblique. *Leaves* about six, ensiform, falcate, glaucescent, half a foot long at the flowering time, half an inch broad. *Peduncle* monocephalous, half a foot long; spathe-valves lanceolate, ventricose, pale green. *Perianth-tube* two inches long; segments of the limb suborbicular, two and a half or three inches long, copiously striped and spotted with claret-purple on a claret-white ground; outer segments reflexed, darker in colour, furnished with a diffused brown-black beard; inner segments paler, erect. *Filaments* shorter than the anthers. *Style* dark brown, an inch broad, furnished with two short quadrate appendages.—*J. G. Baker.*

Fig. 1, Part view of stamen; 2, back view; 3, style with appendages:—*all more or less enlarged.*

oct. 1st, 1887.

A

3 A

4 A

2 B.

2 A.

E

B

3 B

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TAB. 6961.

PRIMULA SAPPHIRINA.

Native of the Sikkim Himalaya.

PRIMULA REIDII.

Native of the Kumaon Himalaya.

Nat. Ord. PRIMULACEÆ.—Tribe PRIMULEÆ.

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

PRIMULA *sapphirina*; perpusilla, dense cæspitosa, foliis cæspitosis subrosulatis cuneato-spathulatis obovatis oblanceolatisve in petiolum latum angustatis, grosse pectinato- v. pinnatifido-dentatis, scapo gracillimo plurifloro, bracteis minutis, floribus brevissime pedicellatis nutantibus, calycis parvi lobis brevibus obtusis v. subacutis, corollæ late infundibularis sapphirinæ v. violaceæ tubo brevi tereti, lobis obovatis 2-fidis, capsula globosa inclusa.

P. sapphirina, *Hook. f. and Thomson in Herb. Ind. Or.*, and in *Flora of British India*, vol. iii. p. 492; *Watt in Journ. Linn. Soc.* vol. xx. p. 10, tab. 13 C.

PRIMULA *Reidii*; foliis oblongis oblongo-oblanceolatisve obtusis grosse lobulato-dentatis vel -crenatis in petiolum angustatis, supra convexis bullatis laxe subsericeo-villosis, scapo rigido plurifloro, bracteis latis, floribus brevissime pedicellatis nutantibus, calycis ampli campanulati intus farinosi lobis brevibus latis rotundatis glanduloso-ciliatis, corollæ eburneæ tubo calyce æquilongo lobis late oblongis in globum conniventibus apice 2-lobis cum dente interjecto, ovario globoso, capsulæ globosæ valvis ad apicem membranaceis.

C. Reidii, *Duthie in Report on Saharumpore Bot. Gardens* for 1885, and in *Gard. Chron.* N. S. vol. xxv. (1886), p. 277 in note, and N. S. vol. xxvi. (1886), p. 691, fig. 136.

Of the two Himalayan Primroses here figured, *P. sapphirina* was discovered by myself in June, 1849, in the alpine regions of the Sikkim Himalaya, growing at elevations of 13,000 to 15,000 feet, where it starred the otherwise bare soil and rocks, soon after the melting of the snow, with its gem-like flowers. It has since been collected by Dr. King's native emissaries, by whom seeds were transmitted to Calcutta, and thence to Kew. It is very similar in size and habit to *P. pusilla*, Wallich, of similar elevations in Nepal and Sikkim, but in which species the corolla is salver-shaped and white, and the throat bears a tuft of woolly hairs. The seeds were sown at Kew, March 30, 1886, and the plants raised flowered in a cold pit in May of this year.

OCT. 1ST, 1887.

Primula Reidii is in some respects an even more singular species than *P. sapphirina*, from its compact head of rather large ivory-white flowers, the very large calyx, and the limb of the corolla, which is, from the incurvation of its broad lobes, almost globular. It is a very recent discovery of Mr. Duthie, made when (in August, 1884), as Superintendent of the Botanical Gardens of Saharumpore, he officially visited the higher regions of the Western Himalaya in the province of Kumaon (that bordering Nepal on the west). In an interesting account of that excursion, printed in the Annual Report of those gardens, and reprinted in the "Gardener's Chronicle," quoted above, Mr. Duthie mentions the discovery of this Primula in the Ralam valley on wet rocks near the glacier, at an elevation of 12,000 to 13,000 feet, and describes it with the name attached of his fellow-traveller, Mr. Reid. On a subsequent excursion made in 1885 in British Garwhal, a province immediately to the westward of Kumaon, Mr. Duthie again met with *Primula Reidii*, and at the same elevation. Seeds were taken from the Herbarium specimens sent by Mr. Duthie, and the plants raised flowered in the Royal Gardens contemporaneously with *P. sapphirina*, and under like conditions.—*J. D. H.*

Fig. A. *P. sapphirina;* 1, leaf; 2, calyx; 3, corolla laid open; 4, ovary:—*all enlarged.*

Fig. B. *P. Reidii;* 1, calyx; 2, portion of corolla laid open; 3, ovary:—*all enlarged.*



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Tab. 6962.

DENDROBIUM SULCATUM.

Native of Assam, or the Khasia Mountains.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

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

Dendrobium (Dendrocoryne) *sulcatum;* caulibus fastigiatis clavatis leviter compressis profunde sulcatis, foliis subterminalibus late ovatis acutis v. acuminatis lævibus coriaceis, nervis numerosis obscuris, racemis lateralibus breviter pedunculatis multifloris, bracteis minutis acutis, floribus fastigiatis aureis, sepalis oblongis lineari-oblongisve obtusis, petalis sepalis æquilongis obovatis apice rotundatis, labello late cuneato-obovato v. obcordato in unguem brevem angustato hirsuto aurantiaco intus sanguineo striolato.

D. sulcatum, *Lindl. Bot. Reg.* vol. xxiv. (1838), tab. 65.

D. sulcatum, *var.* polyantha, *Rolfe in Gard. Chron.* Ser. 3, vol. i. (1887), p. 607.

Dendrobium sulcatum was first described and figured by Lindley in the Botanical Register for 1838, from what appears to me to have been a very poor specimen, that flowered in the Duke of Devonshire's garden at Chatsworth. The plant itself is stated to have been received from India, where it was collected by Mr. Gibson, a botanical emissary of his Grace's. Mr. Gibson collected in the Khasia Mountains, and nowhere else in India that I am aware of, whence he sent home a multitude of orchids and fine plants of other Orders. The only other early authority for *D. sulcatum* is a specimen (so named by Lindley) in the Hookerian Herbarium, marked as from Assam, Griffith; but as Griffith's Assam and Khasia collections were mixed, this specimen may also have been from the Khasia. Lindley's original drawing represents a narrowly oblong leaf, described as three-nerved, but figured as five-nerved, and a clavate stem, with three racemes of three flowers each, characters so different from those of the plant here figured, that Mr. Rolfe has, in the "Gardener's Chronicle" (taking Lindley's figure as the type of *D. sulcatum*), described that here figured as var. *polyantha*. A reference, however, to the native specimen, together with the opinions of several experienced orchid-growers, leads

me to regard the form here figured as the typical state of the plant, possibly improved a little by cultivation, and Lindley's figure as representing a very emaciated or indifferently cultivated state of it. An examination of the native specimen (though ill-preserved and mutilated) seems to prove this; its leaves are intermediate in breadth between Lindley's and that here figured, and have many nerves; and the raceme bears thirteen bracts, indicative of the position of as many flowers, of which all but two have fallen away.

D. sulcatum belongs to the section of the genus which, as limited by Lindley, in his notes on the Orchidology of India (Journal of the Linnæan Society, vol. iii. p. 5), "must be confined to species with stems or pseudo-bulbs bearing leaves at the apex only, and always of a thick leathery texture." Under *D. chrysotoxum* in the Register (1847, t. 36), he calls these Club Dendrobes, and considers them best characterized by their fleshy angular stem with two or more manifest articulations, one or more leaves at the upper end, and a lip not broken up into a tuft of hairs or fringes (the latter forming his section *Desmotrichum*). Amongst the typical yellow-flowered Dendrocorynes figured in this work are *D. chrysotoxum*, Lindl., t. 5053, *D. densiflorum*, Wall., t. 3418, *D. Farmeri*, Paxt., t. 4659, and the subject of the present plate. The white-flowered *D. speciosum*, Sm., t. 3074, and its allies, together with *D. tetragonum*, Cunn., t. 5956, all from Australia, are rather aberrant members of the same section. The type may be regarded as *D. aggregatum*, Roxburgh, which is the first described of the Indian yellow-flowered Dendrobes.

Our specimen was received in 1886 from the Botanical Gardens of Calcutta, and was said to have come from Assam. It flowered in April, 1887, in the cool orchid-house, which favours the supposition that it is a native of the Khasia Mountains, rather than of Assam.—*J. D. H.*

Fig. 1, Lip; 2, base of flower and column; 3, anther; 4, pollen-masses:—*all enlarged.*



W. Curtis del. et lith.

Vincent Brooks, Day & Son imp.

TAB. 6963.

LANDOLPHIA FLORIDA.

Native of Tropical Africa.

Nat. Ord. APOCYNEÆ.—Tribe CARISSEÆ.

Genus LANDOLPHIA, *Beauv.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 692.)

LANDOLPHIA *florida*; alte scandens, cirrhifera, glaberrima, foliis breviter petiolatis amplis ovato-oblongis obtusis v. acutis integerrimis basi rotundatis v. subcordatis, nervis utrinque costæ 6–8, cymis pedunculatis multifloris glabris pubescentibus tomentosisve, floribus breviter pedicellatis, bracteolis minutis ovato-oblongis obtusis pedicello appressis, calycis parvi lobis oblongis, corollæ tubo gracili pollicari stramineo intus villoso, lobis tubo æquilongis lineari-oblongis obtusis, ovario annulo piloso cincto, stigmate fusiformi apice 2-dentato.

L. florida, *Benth. in Hook. Niger Flora*, p. 444; *Walp. Ann.* vol. iii. p. 29; *Kotschy Plant. Tinn.* t. 13 A; *Thomson in Appendix to Speke's Journ. of Discovery of Source of Nile*, p. 639; *Grant in Trans. Linn. Soc.* vol. xxix. p. 107. *Christy, New Commercial Products, N.* i. p. 8, *with a plate.*

L. comorensis, *Benth. in Gen. Plant.* vol. ii. p. 693.

Vahea comorensis, *Bojer Hort. Maurit.* p. 207; *DC. Prodr.* vol. viii. p. 228.

Willughbeia cordata, *Klotzsch in Peters Mosamb. Bot.* p. 281.

This is the India-rubber producing tree of Tropical Africa, a plant known to Botanists long before its commercial value had attracted attention to it. The first notice of it is by the late M. Bojer, of Mauritius, who published it in 1836 under the name of *Vahea comorensis*, from specimens cultivated in the Mauritius Botanical Garden, and which were brought from Johanna, one of the Comoro Islands. In 1848 it was described by Bentham in the Niger Flora, from specimens collected by the lamented Vogel, Botanist to the ill-fated Niger Expedition of Captain Trotter. Bentham recognized it as a true *Landolphia*, but coming from the west coast of Africa, he could not have supposed that it was referable to what was supposed to be another genus, *Vahea*, and which was a native of the east coast. In 1863 it was published as *Willughbeia cordata*, by Klotzsch, from specimens brought from Johanna Island, the locality whence Bojer's specimens were obtained. In 1867 it was figured by Kotschy in the account of the plants collected by Madame Tinné in the Soudan, under its proper name

of *Landolphia florida*. Lastly, when preparing the *Apocyneæ* for the "Genera Plantarum," Bentham recognized the identity of *Vahea* of Lamarck with the earlier established *Landolphia* of Beauvois, and referred *V. comorensis*, Bojer, to the latter genus, but did not perceive its identity with *L. florida*. This was no doubt due to the fact that whereas the cymes of *florida* are densely tomentose, those of *comorensis* are quite glabrous. Since its first publication *L. florida* has been found in many places on both the east and west coasts of Tropical Africa, from Guinea to Angola on the west coast, and from the Soudan to Mozambique on the east, occurring in forests near the coast as well as in the interior, and varying with glabrous, pubescent or tomentose cymes.

The first notice of the *Landolphia* yielding India-rubber that I have found is by Col. now Sir J. A. Grant, in the appendix to Speke's Journal (p.639), repeated in an elaborate account of his collections published in the Linnæan Society's Transactions (xxix. 107). In this he says of *Landolphia florida*, "A woody climber, named M'hoonga (Kis), found at Madi, Derembe, in a shady spot by a rocky burn. Its trunk travelled like a boa constrictor along the ground till it found a tree to climb up, and was twenty-five inches in circumference; ascending to the topmost branches, it threw down pendants of foliage and clusters of lily-white, scented flowers. The milk, if rubbed upon the skin, adheres like birdlime, and can scarcely be rubbed off. . . . The Wahiao people make playing balls from the juice, and consider its rubber to be the most adhesive known."

For living specimens of this interesting plant the Royal Gardens are indebted to Sir John Kirk, from whom they were received in 1878. The plant, a spray of which is here figured, after climbing to the roof of the Palm House, flowered profusely, in the month of June of this year, powerfully scenting the air with its delicious fragrance.—*J. D. H.*

Fig. 1, Calyx, pedicels and bracteoles; 2, base of corolla-tube laid open, showing the stamens; 3, stamens; 4, ovary; 5, transverse section of ditto:—*all enlarged.*

6964.

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

Vincent Brooks Day & Son Imp.

L. Reeve & Co. London.

TAB. 6964.

PHALÆNOPSIS MARIÆ.

Native of the Sulu Archipelago.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus PHALÆNOPSIS, *Blume* (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 573.)

PHALÆNOPSIS (Stauroglottis) *Mariæ;* caule brevissimo, foliis oblongis v. late lineari-oblongis apicibus acutis sæpe recurvis basi uno latere auriculatis, paniculæ gracili longe pedunculata pluriflora, floribus 1½ poll. latis, sepalis petalisque subæqualibus lineari-oblongis obtusis albis violaceo-fasciatis, labelli lobis lateralibus angustis corniformibus subrecurvis magnibus inflexis, intermedio oblongo purpureo albo-marginato basi 2-calcarato, disco villis erectis onusto, columna medio constricta, apice nuda.

P. Mariæ, *Burbidge in Warner & Williams Orchid. Album*, vol. ii. t. 80, and sub t. 87.

Mr. Burbidge, the discoverer of this species in the Sulu Archipelago, when travelling for Messrs. Veitch, says of it in the work cited above, "At first sight this plant, both in its habit of growth and in its blossoms, is suggestive of *Phalænopsis sumatrana*, especially the beautiful variety of that species known as *lilacina*; but in *P. Mariæ* there is no apical lobe to the lip, nor is the apex of the column fringed as in that species. The bold amethyst-like blotches on the snow-white sepals and petals are very lovely." Mr. Burbidge adds that it is a mountain plant and of a singularly hardy constitution, and hence bears the vicissitudes of transit better than many of its allies. In the description accompanying the plate in the Orchid Album, the specific name is, by an oversight, attributed to Professor Reichenbach, an error which is corrected by Dr. Reichenbach himself in a note appended to the description of Plate 87 (*Vanda tricolor*, var.), where it is explained that *P. Mariæ* was dedicated by Mr. Burbidge to his wife on the spot where he found it, the main Island of Sulu. The specimen here figured was presented to Kew by Messrs. Hugh Low, of Clapton, and flowered in June of the present year.

NOV. 1ST, 1887.

Descr. *Stem* very short. *Leaves* six to eight inches long, by two to two and a half broad, linear-oblong, acute, recurved towards the apex, channelled along the centre, with convex sides, bright green, smooth, glossy. *Panicle* with its peduncle much longer than the leaves, slender, sparingly branched; flowers distant; peduncle and rachis slender, dark green; bracts small, green. *Flowers* one and a half inches in diameter, pedicel and ovary together nearly an inch long, slender, pale. *Perianth* white with four or five broad red-purple transverse bands on each leaflet; dorsal sepal oblong, tip rounded, lateral rather broader and more elliptic; petals about the same size as the sepals, but rather broader upwards, and subspathulate. *Lip* small, shorter than the sepals; lateral lobes narrow, erect and rather recurved, spur-like, their tips pointing to the constriction in the column; midlobe clawed with a cleft recurved spur at the base; limb oblong, obtuse, red-purple with a white margin, disk clothed thickly with long erect villi. *Column* with the sides constricted in front about the middle, the edges inflected.—*J. D. H.*

Fig. 1, Column and lip seen sideways; 2, front view of column; 3, anther with the tip of the stipes and gland projecting; 4, pollinia with stipes and gland:—*all enlarged.*



M & Ie. J.N. Fitch lith.

Vincent Brooks Day & Son imp.

L. Reeve & Co. London.

TAB. 6965.

POLEMONIUM FLAVUM.

Native of New Mexico.

Nat. Ord. POLEMONIACEÆ.

Genus POLEMONIUM, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 823.)

POLEMONIUM *flavum*; caule 2–3-pedali simplici v. corymbosim ramoso folioso superne laxe tomentoso, foliis pinnatis, foliolis multijugis elliptico-lanceolatis acutis, cymis corymbosis, pedicellis calycibusque pilis laxis flexuosis glanduloso-tomentosis, calyce campanulato ultra medium 5-fido, lobis oblongo-lanceolatis acuminatis, corolla flava infundibulari-campanulata glanduloso-puberula, lobis late ovatis acutis calyce multo longioribus, filamentis lobis corollæ brevioribus ima basi villosis, capsula polysperma, seminibus obscure alatis.

P. flavum, *E. L. Greene in Coulter's Bot. Gazette* (Indiana, U.S., June 1881), vol. vi. p. 218; *Gray Synopt. Flora of N. America, Gamopetalæ*, p. 412.

Mr. Greene says of this plant, when describing it in the "Botanical Gazette," "It is hard to establish, and somewhat hazardous to propose, new species of *Polemonium*. The claim for specific rank for this very striking and beautiful plant I base upon the shape and colour of the corolla. No other species but *P. confertum* shows a corolla whose limb is really funnel-formed, that is not at all spreading; nor has any other form red-yellow flowers which show no tinges of blue or purple or flesh colour, even in fading. Its nearest ally is *P. foliosissimum*, while it has more the look of *P. carneum*." The chief of American botanists, Dr. A. Gray, having admitted the claims of *P. flavum* to specific rank, Mr. Greene's views are confirmed. I must remark, however, that as cultivated at Kew the corolla-lobes do spread, and show no trace of a tawny red colour. With regard to *P. carneum*, A. Gray, a native of San Francisco, it agrees with *P. flavum* in habit, and has a yellow-flowered variety assigned to it by Gray, but it has rounded apices of the corolla-lobes. A third species that much resembles *P. flavum* is *P. incarnatum*, A. Gray (Greene's Plants of California, No. 796), but that is more glabrous, has obtuse calyx-lobes, a very large corolla with rounded

lobes, and of a salmon colour, fading to purplish. *P. foliosissimum*, A. Gray, is considered by Mr. Greene as the nearest ally of *flavum*. I have gathered this species in the Wasatch Mountains, Utah, in company with Dr. Gray; also at La Veta, near the borders of New Mexico, at an elevation of 9000 to 10,000 feet; it has narrower leaves, smaller white or blue flowers, and rounded corolla-lobes. None of the above species have been figured in any horticultural publication.

P. flavum is a native of the highest slopes of the Pinos Altos Mountains of New Mexico, where it grows with *Delphinum glaucum*, Watson, and *Eupatorium grandidentatum*, DC., and where it was found by Mr. Greene in flower and fruit in September, 1880. The specimen figured here was communicated to the Cambridge Botanical Gardens by Mr. Lynch in July 1 of the present year. The species has also been in cultivation, and flowered at Kew during the last two years.—*J. D. H.*

Fig. 1, Vertical section of flower; 2, calyx, style and stigmas; 3, portion of corolla and stamen; 4, ovary and disk; 5, vertical section of the same:—*all enlarged.*



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Tab. 6966.

MORINA BETONICOIDES.

Native of the Sikkim Himalaya.

Nat. Ord. Dipsaceæ.

Genus Morina, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 158.)

Morina betonicoides; caule pilis retrorsis pubescente, foliis linearibus v. linearilanceolatis acutis integerrimis marginibus spinulosis, caulinis oppositis, capitulis paucifloris, involucelli tubo brevi ore truncato spinis 12–20 erectis armato, calycis subcampanulati obscure bilabiati lobis late ovatis spinescentibus ciliatis, corolla rosea, tubo hirsuto calyce duplo longiore lente curvo, limbi fere æqualis lobis subæqualibus obcordato-rotundatis ore contracto, filamentis brevibus inferioribus paullo brevioribus.

M. betonicoides, *Benth. in Hook. Ic. Pl.* t. 1171; *Clarke in Flora of British India*, vol. iii. p. 217.

The head-quarters of the genus *Morina* are, as far as is at present known, the Himalaya Mountains, where it occurs throughout the whole extent of the range, from Kashmir eastward. A few species extend westward into Affghanistan, and one into Persia, and probably a fair share will be found in Western China. There are two sections of the genus, one with a deeply and subequally two-lipped calyx, the lips two-lobed, to which belong *M. persica*, L. (*M. Wallichiana*, Royle), *M. longifolia*, Wall. (Tab. nost. 4092), and *M. Coulteriana*, Royle (Tab. 6734), remarkable for its yellow flowers; in the other the calyx is obscurely two-lipped with spinescent lobes; to this belongs *B. nepalensis*, a species hitherto only known from Wallich's specimens collected in Nepal, and the subject of the present plate, which Mr. Clarke suggests may be a fully developed state of *nepalensis*.

M. betonicoides was first found by myself, in 1848, at elevations of 10,000 to 13,000 feet in the Sikkim Himalaya, and it has subsequently been gathered by Mr. Clarke in the same country and at the same elevations. It is a beautiful rock plant and quite hardy. The specimen here figured was raised from seed sent by Dr. Kurz, Superintendent

of the Royal Botanical Garden of Calcutta, in March 1883, and the plant flowered in June of the present year.

Descr. *Stem* erect or suberect, ten to eighteen inches high, with a line of retrorse hairs down one side. *Leaves* four to eight inches long, linear-lanceolate, acute, quite entire, margins ciliate with long very slender prickles, nerves parallel; cauline opposite, shorter, broader towards the base, recurved. *Spikes* subcapitate, subtended by opposite bract-leaves tinged with red, few-flowered. *Flowers* sessile. *Involucel* with a short broad terete subcampanulate tube, membranous, hairy; mouth truncate with twelve to twenty erect unequal ciliate teeth or bristles, which are shorter than the calyx-teeth. *Calyx* rather longer than the involucel, tube terete; mouth oblique, obscurely two-lipped, five-lobed, lobes erect triangular ovate ciliate, tips spinescent. *Corolla* one inch long, bright rose-red, crimson at the bases of three or four of the lobes, tube hairy, incurved, slender below, dilated under the flat nearly regular limb, which is half an inch in diameter, with orbicular-obcordate subequal lobes. *Stamens* four, within the corolla-tube, filaments very short, and anthers subequal. *Stigma* discoid.—*J. D. H.*

Fig. 1, Flower and involucel; 2, calyx, style and stigma; 3, corolla laid open; 4, vertical section of base of calyx and ovary :—*all enlarged.*



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

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TAB. 6967.

VICIA DENESSIANA.

Native of the Azores Islands.

Nat. Ord. LEGUMINOSÆ.—Tribe VICIEÆ.

Genus VICIA, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 524.)

VICIA (Cracca) *Denessiana*; perennis, scandens, sericeo-pilosa, caule sulcato subtetragono, foliis sessilibus foliolis alternis et subopppositis ad 16–24 jugis oblongis obtusis mucronulatis subtus sericeo-pubescentibus, stipulis semisagittatis serratis, racemis foliis subæquilongis densifloris, pedunculo rachique robustis, floribus pollicaribus versicoloribus, calycis dentibus tubo multo brevioribus, vexillo abbreviato alis ultra medium subreflexis breviore, leguminibus breviter stipitatis 2-pollicaribus lineari-oblongis acutis planis compressis, seminibus parvis funiculo semilunari.

V. Dennesiana, *Watson in Godman Nat. Hist. of Azores*, p. 154.

V. Durneriana (erore pro Dennesiana), *Drouet, Cat. Flore des Iles Açores*, p. 90.

This is one of the very few plants endemic in and peculiar to the Azores, and like the *Campanula Vidalii* (Tab. nostr. 4748) it is most restricted as to area. The late Mr. H. Watson, in his contribution to Mr. Godman's interesting work quoted above, says of it, "This is a remarkable plant in itself, and in its history so far as is at present known; for chance alone seems to have saved it from becoming an extinct species almost immediately after it became known at all. It was found by Mr. Hunt (British Consul for the Azores) on the mountains at the east end of the Island of San Miguel, growing upon damp earthy precipices, but in one spot only, from which it has since disappeared through a landslip. At the time of writing this page (Mr. Watson says) the letter from Mr. Hunt which conveyed a more detailed account of the discovery and disappearance of the *Vicia* has been itself unfortunately lost or mislaid. Mr. Hunt unsuccessfully sought for the plant elsewhere in the same neighbourhood, and no other collector has found it in any of the isles." Mr. Watson goes on to say, that it has flowered with him at his garden, Thames Ditton, Surrey; and cultivated specimens have been distributed to Botanists, labelled with

the manuscript name of *Dennesiana*, adapted from that of Mr. G. E. Dennes, who was Honorary Secretary of the Botanical Society of London at the time when some specimens were sent by Mr. Hunt for distribution through that Exchange Club. Mr. Watson's treatment of the plant was to protect the seedlings in a frame in winter, and put the grown up plants into the open garden ground in the following summer to flower and seed. The severe frost of May, 1867, in Surrey, proved almost fatal to the small stock of plants that he possessed; he, however, took up the roots and repotted them, when one alone flowered in the dry summer of 1868 in a weakly condition. This he hoped might be available for the Botanical Magazine, but he was disappointed, and it is only after twenty more years that an opportunity has occurred of carrying out Mr. Watson's intention of having this very interesting plant figured in the Magazine. The changes in the colour of the flower are, as that author states, remarkable; the early buds are of a fine purple, but as they expand they become of a dull slate colour passing on to a dingy fawn and when dry a sort of russet brown.

The source of the specimen here figured is a plant found in Mr. Watson's garden, after that lamented botanist's death, by Mr. Nicholson of the Royal Gardens, Kew, and which he brought to Kew. This flowered in the herbaceous pit in the end of May.—*J. D. H.*

Fig. 1, Leaf; 2, flower; 3, stamens; 4, pistil; 5, pod, and 6, seed, both of the natural size; 7, the same *enlarged*, as are Figs. 1–4.


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TAB. 6968.

ANTHURIUM VEITCHII.

Native of Colombia.

Nat. Ord. AROIDEÆ.—Tribe ORONTIEÆ.

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

ANTHURIUM (Cardiophyllum) *Veitchii*; caudice brevi, foliis maximis lamina ab apice petioli subæquilongi pendula elongato-oblonga acuminata basi profunde cordata, lobis rotundatis sinu angusto v. sese obtegentibus, nervis perplurimis patentim arcuatis profunde depressis, lamina inter nervos convexa, basilaribus **retrorsum arcuatis, saturate viridibus supra lucidis, infra pallide e viridi** brunneis, petiolo tereti non canaliculato, geniculo incassalo pollicari, pedunculo robusto tereti petiolis dimidio breviore, spatha libera pedali lanceolata caudato-**acuminata basi subcordata, patenti-recurva, spadice sessili crassa obtusa** straminea, perianthii foliolis crassis subquadratis truncatis facie ventrali concavis, ovario elongato-conico 2 loculari, stigmate minuto, loculis 1-ovulatis.

A. Veitchii, *Masters in Gard. Chron.* N.S. vol. vi. (1876), p. 772, fig. 143; *Engler Monogr. Araceæ*, p. 178; *André Ill. Horticol.* vol. xxviii. t. 406.

No Araceous plant surpasses the subject of this plate in stateliness and beauty of foliage. A full-grown plant of it quite fills the end of the centre table of an ordinary stove, and arrests the eye by its graceful habit, the gigantic size of the pendulous leaves, which are four feet long in well grown plants, the brilliancy of their green, and if placed in a favourable position, the play of light on the numerous polished symmetrically curved convexities that cross each half of the blade from the tip to the base. The spadix and spathe are very inconspicuous, the latter being pale green, and the former dull straw-coloured.

A hybrid raised by Mr. Bull between *A. Veitchianum* and *A. Andreanum*, is *A. chelseiensis*, N.E. Br. (in "Gard. Chron." vol. xxiv. 1885, p. 650); it is no improvement upon either parent.

This beautiful plant was very appropriately named by Dr. Masters after the most eminent of living cultivators, who generously presented to Kew the specimen here figured, and which flowered at Kew in June of the present year. It is a native of Colombia, and was discovered by Mr. Waters, who suggested the specific name of his patrons

to Dr. Masters. In the description accompanying the figure in the "Gardener's Chronicle" the peduncle of the spathe is said to be hardly shorter than the petioles, and our drawing would appear to confirm this; but I am assured by Mr. Brown that the figure in the "Chronicle" which represents the peduncle as about half the length of the petiole is its normal condition. It will be observed that the reduced figure of the spathe in the plate 6968 is not represented in *situ*.

Descr. *Caudex* short, erect, leafy in our specimen to the base, and emitting roots from near the bases of the petioles. *Leaves* disposed in a symmetrical crown four or five feet in diameter, formed of eight or more leaves, whose petioles rise almost perpendicularly from the caudex, then curve outwards and bear pendent blades upwards of four feet long by nearly a foot broad; petiole terete, not grooved, with a swollen joint an inch long at the top; blade linear-oblong, acute or acuminate, deeply cordate at the base, with a narrow sinus or overlapping lobes, bright green and shiny above, pale and suffused with brownish-green beneath; midrib and nerves deeply sunk, the latter very numerous, forty or more pairs, curved with the concavity towards the apex of the leaf, and with the leaf surface raised between them in smooth symmetrical transverse semi-lunar ridges. *Peduncle* about half the length of the petioles, stout, terete, smooth below, ribbed under the spathe. *Spathe* a foot long, horizontal, green, caudate at the tip, dilated and subcordate at the base. *Spadix* six inches long by one in diameter, erect, sessile, cylindric, obtuse, straw-coloured. *Perianth-segments* nearly square in outline, convex dorsally, concave ventrally, with truncate rounded tips; filaments very broad; anthers erect. *Ovary* elongate-conical, two-celled, cells one-ovuled; stigma minute.—*J. D. H.*

Plate 6968 represents a plant of *A. Veitchii* reduced to *one-fourth the natural size*, and a spadix with its spathe of the *natural size*. Fig. 1, Flowers in a fragment of the spadix; 2 and 3, segments of perianth; 4 and 5, front and back view of stamens; 6, ovary; 7, the same with one cell cut open, showing the ovule; 8, transverse section of ovary; 9, ovule:—*all enlarged*.

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TAB. 6969.

HELICOPHYLLUM ALBERTI.

Native of Bokhara.

Nat. Ord. AROIDEÆ.—Tribe ARINEÆ.

Genus HELICOPHYLLUM, *Schott*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 968.)

HELICOPHYLLUM *Alberti*; foliis longe petiolatis hastatis undulatis lobo postico triangulari-lanceolato lateralibus patentibus obtusiusculis, anticis 2 postico paullo brevioribus erectis angustis uno latere infra medium processu corniforme instructis, petiolo crassiusculo canaliculato, spathæ breviter crasse pedunculatæ intus lævis tubo cylindraceo viridi lamina oblonga acuminata intus atro-purpurea dimidio breviore, spadice gracili, inflorescentia mascula brevi femineæ subæquilonga, interstitio pistillodiis pugioniformibus laxe obsita, appendice gracile cylindracea atro-violacea, ovario 2–4-ovulato.

H. Alberti, *Regel, Descript. Plant. Nov.* fasc. ix. (1884), p. 43, t. ix.

Helicophyllum is a small genus of Oriental Aroids, natives of Eastern Siberia, Asia Minor, Syria, and Persia, of which three species are described in Engler's Monograph of the *Araceæ*, published in 1879, and a few others have been found since, including the subject of this plate, which, coming from Eastern Bokhara, extends the previously known geographical area of the genus considerably to the eastward. It further modifies the generic character from our specimens having four ovules, whereas its congeners are described as having but two ovules, and they are so figured in the drawing of *H. Alberti* from native specimens given by Regel.

A very similar species to *H. Alberti* has been brought by Dr. Aitchison, F.R.S., from North-Western Afghanistan, but in it both the lateral and anticous lobes of the leaf are wanting.

The tubers of *H. Alberti* were sent from the Imperial Garden of St. Petersburg in 1884, and flowered in May of the present year in a sunny border of the Herbaceous ground; the inflorescence was offensively fetid. The species is named after the intrepid explorer of Central Asia, Dr. Albert Regel, the accomplished son of Dr. de Regel, the Director of the Imperial Botanical Garden of St. Petersburg.

DEC. 1ST, 1887.

Descr. Stemless; root sub-globose. *Leaves* of young plants oblong-lanceolate, simple, narrowed into the petiole; of full-grown plants four inches long, with a petiole as long; blade hastate, acuminate, undulate, concave at the base, with two lateral spreading horn-like horizontal basal lobes, and between them two long linear erect ones that are nearly as long as the blade, and face it; these front lobes have each on the outer margin below the middle a curved horn-like process; the leaves are dark green above, very pale beneath; petiole stout, channelled in front. *Spathe* seven inches long, on a very stout short green unspotted cylindric peduncle; tube one and a half inches long by one broad, cylindric, faintly striate, pale green without and within; lamina oblong, acuminate, very thick, open, with rather recurved margins, dark maroon purple within, pale green without, quite smooth without and within. *Spadix* five inches long, slender; male and female portions each about a third of an inch long; the intervening portion as long as the male and female together, loosely covered with dagger-shaped pistillodes; appendix longer than the rest of the spadix, cylindric, smooth, ragged at the tip, blue-black. *Anthers* red purple; nearly square, with rounded angles, adnate to a very short stout filament; slits short, opening outward and upward. *Ovaries* turgidly ovoid, truncate, crowned with a thickened papillose ring, which surrounds a central short truncate umbo; ovules 4 (in this specimen), erect.—*J. D. H.*

Fig. 1, Spadix; 2, 3, and 4, stamens; 5, ovary; 6, the same sliced vertically, and 7, transversely; 8, ovule:—*all greatly enlarged.*



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Tab. 6970.

RUBUS rosæfolius.

Native of the Himalaya, Burma, and Java.

Nat. Ord. Rosaceæ.—Tribe Rubeæ.

Genus Rubus, *Linn.*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 616.)

Rubus *rosæfolius*; erectus, ramosus, aculeis sparsis parvis recurvis, ramis gracilibus petiolisque patentim pilosis hirsutis pubescentibus glabratisve interdum glandulosis, foliis pinnatis, foliolis 3–7-jugis ovato-lanceolatis acutis v. acuminatis duplicato- inciso-serratis utrinque viridibus, stipulis subulatis v. linearibus, floribus solitariis v. in paniculas paucifloras dispositis gracile pedicellatis, sepalis caudato-acuminatis petala orbicularia v. subrhombea alba longioribus, ovariis perplurimis in pistillum cylindraceum densissione congestis dorso pauciglandulosis ceterum glabris, stylo gracili, fructu oblongo-cylindraceo, drupis perplurimis parvis globosis glabris rubris.

R. rosæfolius, *Smith Ic. Ined.* fasc. iii. p. 60, t. 60; *DC. Prodr.* vol. ii. p. 556; *Blume Bidrag.* p. 1107; *Miquel Fl. Ind. Bat.* vol. i. pt. i. p. 375; *Kurz Fl. Brit. Burm.* vol. i. p. 439; *Hook. Ic. Pl.* t. 349; *Hook. f. Fl. Brit. Ind.* vol. ii. p. 341; *Baker Fl. Maurit.* 96; *Wall. Cat.* No. 728.

R. rosæfolius β, coronarius, *Sims Bot. Mag.* t. 1733.

R. rosæflorus, *Roxb. Fl. Ind.* vol. ii. p. 519.

R. pinnatus, *Willd. Sp. Pl.* vol. ii. p. 1081; *DC. l. c.*; *Ait. Hort. Kew*, vol. iii. p. 270.

R. javanicus, *Blume, Bidrag.* p. 1108.

R. asper, *Don Prodr. Fl. Nep.* p. 234; *Wall. Cat.* No. 741; *DC. l. c.* 558.

R. pungens, *Cambess. in Jacquem. Voy. Bot.* p. 48, t. 59.

R. sikkimensis, *Otto Kunze mss.*

R. paniculatus, *Clarke in Journ. Linn. Soc.* vol. xv. p. 140 (*not of Smith.*)

R. sorbifolius, *Maxim. Diagn.* vol. x. p. 390 (a very hispidly hirsute state.)

R. Commersonii, *Poir. Encyclop.* vol. vi. p. 240.

R. sinensis, *Hort.*

It is somewhat singular that a plant so widely distributed, so long and well known botanically, rejoicing in eleven specific names, and well adapted for ornamenting a conservatory, should be seldom met with under cultivation. Its native country was long unknown. It was first described, in 1791, by Sir J. E. Smith, and figured in his "Icones Ineditæ" from specimens procured by Commerson in the Mauritius; where, according to Baker (Fl. Maurit.), it was introduced from the Malay Islands by Commerson about 1780. Willdenow described it in 1799 as *R. pinnatus*,

but without locality. Aiton, in the second edition of "Hortus Kewensis," says that it was introduced by Sir Joseph Banks from the Cape of Good Hope and St. Helena; and I gathered it myself, in 1840, abundantly in the latter locality, where it is, however, undoubtedly introduced. In 1813, Sims figured a double-flowered state of it as var. *coronarius*; this was brought from Penang (Prince of Wales Island) by a Mr. Evans, of Stepney, whose name should be gratefully remembered by Horticulturists, for Mr. Sims states that this gentleman "devoted almost the whole of his income to the acquirement of new and rare plants, which he generously distributed amongst other collectors." Mr. Sims adds that "nurserymen usually call it *R. sinensis*, but on what authority it is considered as coming from China we know not." The Botanical Magazine was, however, the first publication in which the plant was described from specimens which, though no doubt cultivated ones, were brought from its native country, nor was it till much later that its geographical limits were determined. Even so late as 1840, the late Dr. Harvey sent to Sir W. Hooker a figure of it from the Cape of Good Hope, which was published in the "Icones Plantarum," with the remark that it is perhaps a native of Table Mountain. The fact is that the intercourse maintained by the ships of the East India Company between India, the Cape of Good Hope and St. Helena, sufficiently accounts for its introduction into those countries; and it has already spread from them into so many others, that it promises to be a cosmopolite in the warm countries of the globe. It is an undoubted native of the Himalayan Mountains, the Malay Peninsula, Java, China and Japan, in which latter country the double variety figured in this Magazine (t. 1733) is cultivated as a garden shrub. Mr. Morris informs me that it is naturalized in several of the West Indian Islands, and its fruit sold in their markets under the name of "Framboisier."

As a species *R. rosæfolius* is not likely to be confounded with any other, though some Malayan species approach it very nearly. Its chief attractions are its evergreen foliage, the delicate white of the petals, and above all the fruit, which is copiously produced in cultivation and charming to the eye, though insipid to the taste.—*J. D. H.*

Fig. 1 and 2, Stamens; 3, young carpels:—*all enlarged.*

6071.

1

5.

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3

4

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Tab. 6971.

ONCIDIUM micropogon.

Native of South Brazil?

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Oncidium, *Swartz*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 562.)

Oncidium (Microchila) *micropogon*; pseudobulbis confertis brevibus ovoïdeis compressis demum sulcatis, foliis 2-nis crasse coriaceis lineari-oblongis apice rotundatis medio canaliculatis, racemo elongato flexuoso laxe plurifloro, bracteis parvis, floribus $1\frac{1}{2}$ poll. latis, sepalis lineari-oblongis acuminatis subtortis aureis brunneo pallide fasciatis, lateralibus basi connatis labello suppositis, petalis sepalis subæquilongis sed multoties latioribus unguiculatis orbicularibus apice emarginatis aureis ungue brunneo, labello petalis minore breviter unguiculato subæqualiter trilobo lobis aureis unguiculatis orbiculatis v. late obcordatis, disco tumido echinato lateribus dentatis, columna brevi.

O. micropogon, *Reichenb. f. in Bonplandia*, 1854, p. 90, and *Xen. Orchidac.* vol. i. p. 179, t. 63, f. ii.; *Lindl. fol. Orchid., Oncid.* 48.

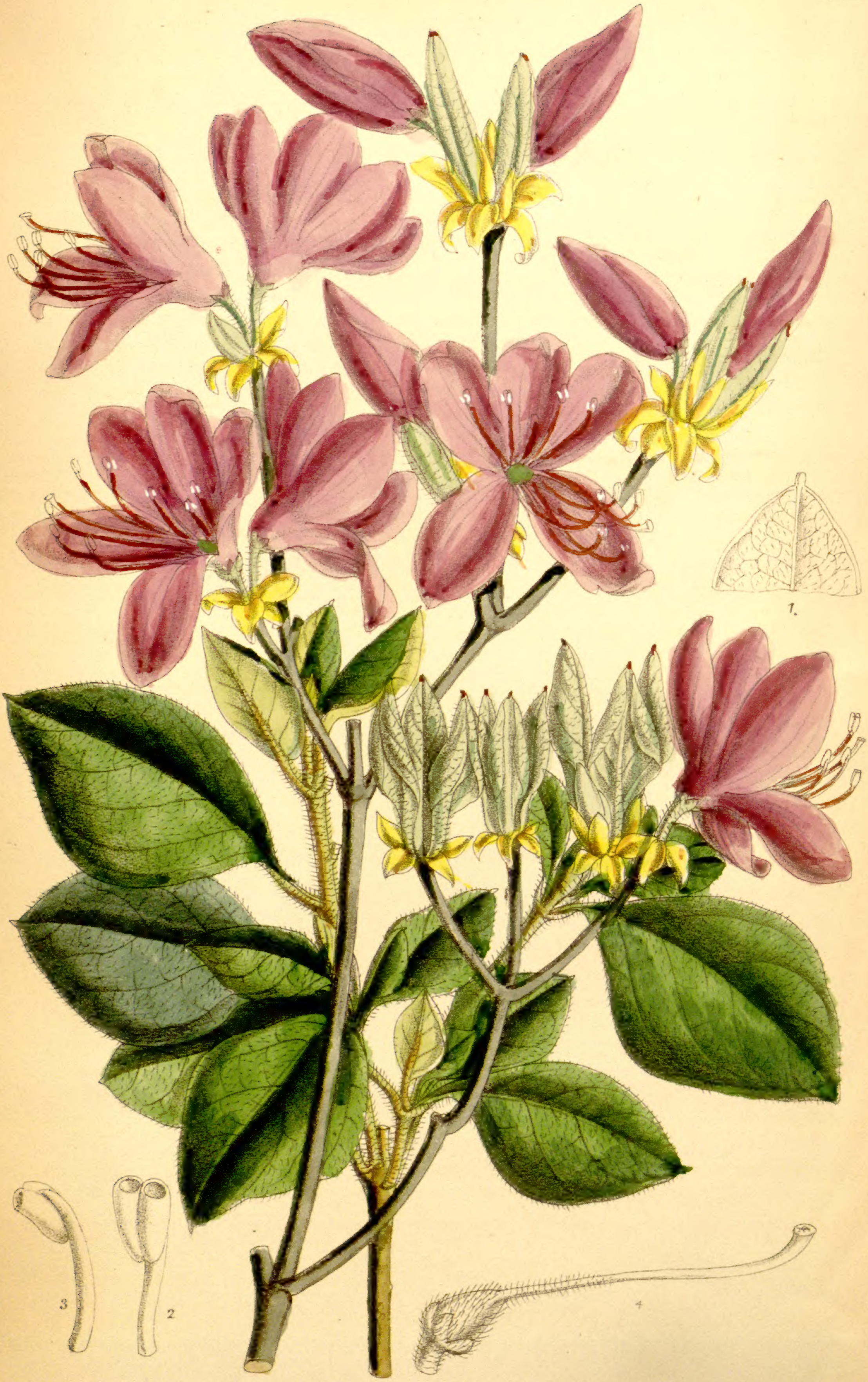
O. dentatum, *Klotzsch in Otto and Dietr. Allgem. Gartenzeit.*, 1853, p. 234.

The native country of this species seems not to be exactly known; it was first published by Dr. Reichenbach from specimens that flowered in the famous Orchid Collection of Consul Schiller at Hamburg; and a few years later, in the "Xenia Orchidacea," it is mentioned as to be found in various gardens in Germany. It is, however, supposed to have come from St. Catherine's in South Brazil. The specimen here figured was contributed by Messrs. Sanders, of St. Albans, in 1886, and flowered in August of this year.

Descr. *Pseudo-bulbs* sub-distichously imbricate on a short rhizome, an inch long, broadly ovoid, compressed, truncate, smooth, in age with a few broad shallow grooves on each face. *Leaves* two at the top of the pseudo-bulb, sessile, four to six inches long, linear-oblong, rounded at the tip, thickly coriaceous, deep green and shining, channelled down the middle. *Raceme* eight to ten inches long, long-peduncled, rather stout, flexuous, pendulous; bracts small, ovate, appressed to the pedicels. *Flowers* one and a half inch across the petals. *Sepals* linear-oblong, acuminate, undulate and almost twisted, yellow with pale brown

bands, two lateral connate at the base and placed under the lip; each sepal is traversed on the back by a stout green costa. *Petals* as long as, but much broader than the sepals, clawed, orbicular, notched and sometimes with wavy or subcrenate margins, golden-yellow with a deep red-brown claw. *Lip* smaller than the petals, shortly stoutly clawed, with three sub-equal spreading clawed orbicular or broadly obcordate golden-yellow lobes; disk tumid, covered with conical yellow and brown tubercles, margins expanded and pectinately toothed. *Column* short, stout.—*J. D. H.*

Fig. 1, Flower with the sepals and petals removed; 2, front view of column; 3, anther; 4 and 5, pollen:—*all enlarged.*



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TAB. 6972.

RHODODENDRON RHOMBICUM.

Native of Japan.

Nat. Ord. ERICACEÆ.—Tribe RHODOREÆ.

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

RHODODENDRON (Azalea) *rhombicum;* ramulis junioribus petiolis pedicellisque hirsutis, foliis diu persistentibus breviter petiolatis rhombeis acutis eglandulosis, floribus ad apices ramulorum binis, una cum foliis paucis serius maturatis e gemma terminata erumpentibus, gemmarum bracteis oblongis membranaceis demum recurvis, floribus breviter pedicellatis, calyce parvo 5-dentato hirsuto, corollæ roseæ limbo sub-bilabiato, lobis oblongis tubo breviter campanulato multoties longioribus obtusis concavis, staminibus 10, filamentis gracillimis 5 anticis quam posticis duplo longioribus declinatis, antheris minutis, ovario parvo 5-loculari hirsuto, stylo gracili elongato, stigmate truncato.

R. rhombicum, *Miquel Prolus. Fl. Jap.* p. 96; *Regel Gartenfl.* 1868, p. 225, t. 586; *Maximov. Rhod. As. Or.* p. 26.

R. reticulatum? *Don Gen. Syst.* vol. iii. p. 846.

Tsurogone tsutsusi, *Miquel Ann. Mus. Lugd. Bat.* vol. i. p. 34.

In his admirable memoir on the Asiatic species of *Rhododendreæ* published in the "Memoirs of the Imperial Academy of St. Petersburg," Maximovicz has definitely relegated *Azalea* to its right position as a section of *Rhododendron*, and we have followed him in the "Genera Plantarum." The characters once and still depended on for separating *Azalea* were the eight stamens and deciduous leaves; but the stamens are often ten, and as Maximovicz points out, several species retain their leaves during flowering and even after, as the subject of the present plate instances. There is in fact no other character given by Maximovicz in his conspectus of the sections of the genus, whereby that of *Azalea* is distinguished from section *Eurhododendron*, but the deciduous leaves.

R. rhombicum is a native of the Island of Niphon, where it inhabits mountain forests, and its near allies are all Japanese and Chinese. The specimen figured flowered in an azalea bed in the Royal Gardens in May, and leaves were fully developed in June, but there are specimens in

the Herbarium with fully formed leaves and flowers together on the same branch. The leaves assume a bronze hue late in autumu.

Descr. A tall much branched shrub; branches slender, stiff, glabrous, young strigosely tomentose; leaf buds developed at the base of the pedicels of the flowers; bracts oblong, obtuse, silky, at length spreading and recurved. *Leaves* subconical, one and a half to two inches long, young silky, rhombic-elliptic, acute at both ends, dull green and sparsely hairy above; nerves three to four pairs, subtrigose beneath; undersurface finely reticulate; petiole one-sixth to one-fourth of an inch long, tomentose. *Flowers* usually in pairs; pedicel one-sixth to half an inch in diameter, strigosely villous. *Calyx* minute, five-toothed. *Corolla* one and a half to two inches across the lobes, sub two-lipped, bright rose-coloured; tube very short, campanulate; lobes narrowly oblong, obtuse or subacute, concave. *Stamens* ten, five upper much the shortest, five lower declinate and ascending; filaments very slender; anthers minute. *Capsule* ovoid-oblong, villous.—*J. D. H.*

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

INDEX

To Vol. XLIII. of the THIRD SERIES, or Vol. CXIII. of the whole Work.

6921 Adesmia balsamica.
6939 Æchmea myriophylla.
6944 Alpinia zingiberina.
6951 Alseuosmia macrophylla.
6915 Amasonia calycina.
6958 Anemone Fanninii.
6968 Anthurium Veitchii.
6934 Aristolochia ridicula.
6954 Barberia repens.
6926 Begonia cyclophylla.
6937 Billbergia decora.
6940 Carex scaposa.
6927 Ceropegia Monteiroæ.
6930 Chrysanthemum multicaule.
6928 Clavija Ernstii.
6955 Cœlogyne corymbosa.
6925 Corydalis Kolpakowskiana.
6946 Corydalis Ledebouriana.
6962 Dendrobium sulcatum.
6935 Disporum Leschenaultianum.
6949 Escallonia revoluta.
6919 Gladiolus Watsonioides.
6913 Hedychium Gardnerianum.
6931 Hedysarum microcalyx.
6969 Helicophyllum Alberti.
6920 Hemipilia calophylla.
6929 Heuchera sanguinea.
6953 Hillebrandia sandvicensis.
6952 Ipomæa Robertsii.
6957 Iris Kingiana.
6960 Iris Sari, *var.* lurida.
6942 Iris (Xiphion) Vartani.
6963 Landolphia florida.
6924 Lapeyrousia grandiflora.
6943 Lonchocarpus Barteri.
6932 Momordica involucrata.
6966 Morina betonicoides.
6950 Narcissus cyclamineus.
6917 Nymphæa flava.
6971 Oncidium micropogon.
6938 Oxera pulchella.
6964 Phalænopsis Mariæ.
6936 Pleurothallis insignis.
6965 Polemonium flavum.
6916 Primula, (A) erosa, (B) capitata, *var.*
6956 Primula obtusifolia.
6961 Primula, (A) sapphirina, (B) Reidii.
6941 Pultenæa rosea.
6948 Rhododendron grande, *var.* roseum.
6972 Rhododendron rhombicum.
6970 Rubus rosæfolius.
6918 Silphium albiflorum.
6914 Solanum Wendlandii.
6959 Statice Suworowi.
6922 Strobilanthes coloratus.
6947 Strobilanthes flaccidifolius.
6945 Tillandsia Jonghei.
6967 Vicia Denessiana.
6923 Xanthoceras sorbifolia.
6933 Xanthorrhæa Preissii.