



















# EXOTIC BOTANY

ILLUSTRATED,

In THIRTY-FIVE FIGURES

OF

CURIOUS and ELEGANT PLANTS:

EXPLAINING

The SEXUAL SYSTEM;

AND

Tending to give some NEW LIGHTS

INTO

The VEGETABLE PHILOSOPHY.

---

BY

J O H N H I L L, M. D.

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L O N D O N :

Printed at the Expence of the A U T H O R.

MDCCLIX.



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To the RIGHT HONOURABLE

The EARL of NORTHUMBERLAND.

*My Lord,*

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GARDEN

**I**F repeated Obligations demand renew'd Acknowledgments, I should be the most ungrateful of Mankind to omit this Opportunity of declaring how much I owe to Your Lordship's continued Favour; and with how little Title, beyond the mere Desire not to be found wholly unworthy of it.

But there is another Source from which this Undertaking in a Manner claims the Protection of Your Lordship's most respected Name. The Plants which will be found its best Recommendation, are new in EUROPE: and several, indeed the greater Part of these, were first rais'd in this unfavourable Climate under Your Lordship's

ship's immediate Care: they were the Produce of Your own Stoves, and Gardens.

These, if their humble Rank allow'd Sensation, would glow with a new Lustre when they reflected on their Origin: but what they cannot know, he feels, my Lord, most sensibly, who gives the World these their faint Representations; and who can have no Pride so great as that of throwing himself with them, at Your Feet. To enjoy Your Lordship's Protection, is to claim upon a sure Title, in some Degree at least, that of the World: for all are sensible there is no Way of attaining Yours, but by endeavouring to deserve it.

*I have the Honour to be,*

*With the highest Respect and Gratitude,*

*My Lord,*

*Your Lordship's*

*Most Obedient,*

*And most Humble Servant,*

E X O T I C  
B O T A N Y.

I N T R O D U C T I O N.

**T**HE following Figures are engraved from Nature. Most of the Plants came over dried, as Specimens; and they were brought to the State wherein they are represented in these Designs, by Maceration in warm Water. The Method was this.

The Plant was laid in a China Dish, and Water was poured upon it, nearly as much as the Cavity would hold; another Dish, somewhat smaller, was turn'd down upon this, and the Edges were cemented with common Paste spread upon brown Paper. This was set upon a Pot half full of cold Water, and placed over a gentle Fire. Thus after a little Time the lower Dish heats; and the Water gradually in it: A few Minutes then complete the Business. The Plant, however, rump'd up in drying, expands and takes the natural Form it had when fresh. Even the minutest Parts appear distinctly.

The Specimen is destroyed by this Operation, but it shews itself, for the Time, in full Perfection: I could have wished to save some of these, but they were sacrificed to the Work; and I hope their Remembrance will live in the Designs.

This is the History of the ASIATIC Plants: to which I have added some few others, that served best to illustrate the Sexual System; and to shew the Course of Nature in constructing DOUBLE FLOWERS. Descriptions are not needed; for the Figures shew all the Parts distinctly; what these cannot express, as the Height of the entire Plant, the Organs concealed within the Flowers, and the like, are added; with such other Observations as appeared most curious or useful.

The Place whence I received each is set down: and this gives a general Direction as to the Degree of Exposure the Plant will bear. I have not named that more particularly, because it is not known. Experience will be the best Guide. There are many which we nurse in Green-houses, that would bear the open Borders.

The Seeds of these Plants came over with the Specimens; and they are now in the Ground, in four remote Parts of the Kingdom, where I have Correspondence with those who have Stoves, and have been most successful in raising tender Species: many must be expected to fail; and some lye long in the Earth; but the present Season has raised several of them, as will be seen in the succeeding Chapters.

In all these Places each Plant will be tried in the Stove, the Green-house, and the open Air. This Way we shall know what each will bear: and there is no other.

## S C A R L E T C O S T U S .

**W**HETHER every Plant of *COSTUS* assumes this glowing Colour, at a certain Period, I cannot say: this was from *MADAGASCAR*; and tho' several Flowers were perfect on it; and the Buds of many others had not yet opened, it was, except for a few light Traces of Green toward the Top, entirely Scarlet. The Snow-white of the Flowers upon this red Ground, give it a Character of consummate Elegance; and there is Singularity enough about them to demand the Attention also of the Philosopher.

The Stalk is round; jointed as a Reed, a Yard high, and of a shining Crimson. The Leaves surround it at their Base, forming a filmy Scabbard; thence they run out to a considerable Length; waved at the Edge, supported by large Ribs; and pointed at the End. They were, in this Plant, of a high and pure Scarlet.

The Flowers are numerous, and most conspicuous. Their Buds form together a vast Head, which seems composed of polish'd Coral. The Rudiment of a Seed Vessel supports each Flower: There rises from the Head of this a Cup divided into three deep, pointed Segments of a glowing Red on the outside, and of a Violet Blue within. The vast Flower bursts from its Hollow, and is of an Ermine Whiteness; tender, delicate, and finely scented; and in Form different from all we know in *EUROPE*.

Three pointed Petals form the lower and the outer Part, and from the midst of these rises a Nectarium, or tubular Body; larger, and expanded at the Rim: within this there is yet another seeming Petal smaller, bent back upon it, and curled up again; and facing this a very narrow Part crowned with a yellow split Button, all the rest being White. This is the Figure of the Flower from Nature. The Style is single and slender: The Seed Vessel, which follows, is divided into three Parts, and holds many Seeds: The Root is tuberous, irregular, spongy, and white; almost insipid, but with a light spicy Flavour.

The Fragrance of the Flower is delicate; and 'tis the Base alone that has it: the upper Part is scentless.

No Care would be too much to make this more familiar in our Collections; and in the native Soil 'tis very hardy: it loves a black moist Earth, and thrives best under Shade. The Roots parted at any Season grow readily: The Flowers open at Night, and melt away under the next Day's Sun; but there is a long and large Succession of them.

The modern System, invented by *LINNÆUS*, arranges Plants into Classes, according to the Number, Situation, and Proportion of the dusty Buttons in the Flower, which grow usually upon slender Filaments, about the young Seed Vessel. In this there is only one; the Plant is therefore of the first Class, the *MONANDRIA*. The Button is supported on a narrow Petal, instead of a Filament in this Flower; and 'tis the same in others of the Class, the *CANNA* is an Instance. We shall shew hereafter the Distinction between Filament and Petal is slight and vague: one easily enlarges to the other, and many double Flowers are formed by the swelling of their Filaments.



*Scarlet Costus.*









*Propaganda Vegetabilis.*

## PROFUSE NYCTANTHES.

**T**HIS sweet Nyctanthes, which, with us, straggles along the bark Bed of a Stove, a weak, unsightly, and irregular Plant, graces the CHINESE Forests in a better Form. 'Tis there also a weak Shrub, but rising among Thickets, it lays the slender Boughs upon their more robust Branches, and carries them to the Height of twelve or fourteen Feet; grac'd with innumerable Flowers, and with a glorious Verdure. With us the Leaves are often pale, for the free Air gives Colour, and our Stoves can but admit a moderate Share of it. There where it breathes its Perfumes to the Wind, the Leaves have also their complete and glowing Verdure. The Stalks are lightly hairy, and they divide wildly, but pleasingly, with obtuse Angles. The Leaves are firm in Substance, and deep ribb'd. The Flowers are Snow-white, and innumerable. More had fallen from this Specimen than remain'd upon it, yet the Number was still equal to those here represented. It very well deserves therefore the Character, PROFUSE OF BLOOM; and it may dispute the Prize of Fragrance against all Vegetable Nature.

The Flowers stand in small Clusters at the Extremities of the Branches: each has its lacerated Cup, with eight narrow and sharp-pointed Divisions, which grow in Length after the Bloom is fallen. One Petal forms the Body of the Flower: This is a slender Tube, divided at the Edge naturally into no more than eight Segments, but no Flower grows more readily luxuriant. In this Specimen, gather'd in a Hedge, they were in general nine; and we shall see, in the succeeding Page, how Art can multiply them farther.

Each Segment rises from the Head of the Tube, with a bearded Base, which wears off as they grow in Number and in Length; and is in all States most conspicuous in the outermost Divisions. Deep in the Hollow of the Tube lie two Filaments with their Buttons, and one Style rises up between them, exceeding them greatly in Length. The two Filaments shew it to be of the second Class, the DIANDRIA.

It will be worth while to examine this Flower strictly, for the sake of that which follows. I know no Subject more Curious than searching Nature in her Course of doubling Flowers: and this is at once a singular and very glorious Instance. In many others the Filaments swell into Petals, and the Doubleness begins from the Base of the Flower; in this the Luxuriance rises from the Head of the Tube, and the two small Filaments remain unalter'd at its Bottom. This Flower of nine Petals is an approach to Doubleness; and will lead toward the Knowledge of the other.

The Tube terminates in a thick, unequal, knobbed Circle: and from the outer Verge of this rise the Eight proper Petals, but when it swells to more than the natural Thickness, others come up within these from different Parts of its Surface, forming the inner Circle. No more appears in this Condition of the Plant. It is thus a very valuable Article in our Collections: but in the fully Double State it exceeds all Price.

Nyctanthes foliis inferioribus cordatis Obtusis superioribus ovatis acutis.—Linn.  
Jasminum Arabicum Authorum.

## ROSEATE NYCTANTHES.

**T**HIS also I received from CHINA ; not from their Fields, but Gardens : where they boast they can produce it from the other at their Pleasure. If this be true, they exceed us in Gardening, as much as in some other of the Arts. Perhaps it is the first Shrub of the World for Elegance and Fragrance. The Stem is more robust than in the former, and does not equal two thirds of its Height : The Leaves are altogether alike, as is also the general Form of the Plant ; but the Flowers differ in their Disposition : there is only one upon each Footstalk or Termination of the Branch, but they are numerous on the entire Shrub : their Form is not unlike that of a double Rose ; their Bigness just what is here represented : they are White in Colour, and they exceed in Fragrance even the single Kind. The Doubleness arises from the original Rim of the Tube, and the two proper Filaments I found perfect in the Centre of several of the Flowers, with their complete Buttons. The Cup in some Degree partakes of the Nature of the Flower ; its pointed Segments fall in filmy Pieces down the Footstalk.

We are led one Step toward the Knowledge of DOUBLE FLOWERS and their Construction, by this Shrub ; for here also the multiplied Petals rise from the knotted Substance, which forms the Rim of the Tube in the natural Flower : that becomes larger, more exuberant ; and instead of sending out one or two Rows of Petals, bursts into many.

If we could learn what Power in Nature occasions this, we should know how to imitate it in the Works of Art. 'Tis not rank Nourishment, like that from Dung, for this extends the entire Plant in Height and Bigness, which prevents, not favours the Production of DOUBLE FLOWERS. From the Tulip to this Shrub 'tis usual that these are produced on shorter Plants than the single. May it not be, that Nature, urged by some Accident in the general Course of Growth, opens sooner into Flowers than otherwise, and so makes them double ? The great Cause appears to me to be a proper Addition of rich, but not rank Nourishment.

In the common Course of Nature ; a Plant at a certain Height, that is, at a certain Distance from the Root, produces Flowers ; the Bark, instead of Leaves, then forming a Cup, and the inner Rind Petals. Now if rich Nourishment force the Plant to break into Flowers at a less Distance from the Root, more Food is carried to them, and more Petals are formed. The original Petal consists of two Membranes, and a spongy Substance between them ; in this Flower the innermost Skin is thrown off, and becomes an entire Petal, and the chill Air forms another Skin in its Place out of this spongy Part ; this is afterwards thrown off as the first, and so a second Series of Petals is formed ; and by the same Process afterwards are produced many more.

This is evidently the Formation of the DOUBLE FLOWER in the present Instance. Nor is any to wonder, that in the Place of four or five single ones there comes upon each Footstalk but one of these. We shall shew the same Change presently in a common Plant, the NARCISSUS.

*Linnaeus* gives no Names to DOUBLE FLOWERS ; the Effect of Culture.



*Roseate Nyctanthes.*

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*Iris sibirica.*



## T Y G E R I X I A.

**T**HIS I received from CHINA: it is also a Native of the AMERICAN Continent; but if they meant to figure it, who gave the first Accounts of a FLOS TIGRIDIS, they were very ill Designers. This deserves all the Praise theirs had for Elegance; and will be a sovereign Beauty in our Collections.

The Plant is seven Foot high: the Stalk is thick, firm, jointed, and tinged with Crimson. The Leaves are long and flaggy, of a fresh Green, and firm by means of vast Ribs; they surround the Stalk at their Base; and are there Whitish within.

The Flowers spread from the Summit in a broad loose Cluster, extremely specious, and not less singular: no Eye could miss admiring them at a Distance, or being more charmed on a nearer View. Each has six Petals: these are placed in two Series, three in each. Those of the outer Series are larger, but those of the inner are more richly painted. LINNÆUS errs, who calls the six Petals of the IXIA equal: this Plant manifestly shews the contrary. The Colours are a delicate Yellow, and a full Crimson, and they are thus disposed upon the Flower. The three outer Petals are yellow from their Base to three fourths of their Length, and in all that Part they are spotted like the Tyger's Skin, with Crimson; on their Points they have the same Crimson, but somewhat paler, throughout the whole Surface. This is the colouring of the inner Part of these Petals; the Outside is Yellow, and the Crimson Spots are only carried lightly along the Edges. The three inner Petals are more uniformly marked; they are Yellow throughout, and are all over spotted with this elegant Crimson.

Three Filaments rise from the Base of the Flower with yellow Buttons, themselves of a fine Crimson; and they surround a single Style, whitish, and divided into three Parts at the Head, or Stigma. The Rudiment of the Seed Vessel stands under the Flower, and is triangular, and filled with many Seeds.

The three Filaments very distinctly shew the Plant belongs to the TRIANDRIA, the third Class in the Sexual System.

Its natural Habitation is the desert sun-burnt Sand of the INDIES; and it thrives no where so well as in the Neighbourhood of the Sea; not on the Shore, but at half a Mile, or a Mile Distance. Its tuberous Roots lie deep beneath the Surface twelve or fifteen Inches, and it propagates itself so fast, that there are Leagues of the Sand covered with it.

Our Gardeners should regard this Particularity of Plants that love some Influence of the Sea Salt, tho' they do not grow upon the absolute Shore. We have some Trefoils, and other ENGLISH Species, which have the same Quality; never being found on the Shore, nor ever far from it. The Influence of Sea Water reaches a great Way. A little Sea Sand in the Mould wherein these Plants are propagated, would answer the Purpose; and they would thrive much better, because their Nourishment would be more natural.

## AMETHYSTINE CALLICARPA.

**W**E add here an AMERICAN to our ASIATIC Treasures; a Shrub whose Berries have an Elegance not met with elsewhere in the Vegetable World. Its Hardiness is also a great Recommendation. We keep it in Green-houses, but this cannot be necessary; a Native of NORTH AMERICA will certainly bear the free Air in our Climate.

It is a Shrub of moderate Height, with pliant Branches, and large handsome Leaves. The Flowers grow in a very singular Manner; like those of what are called the Verticillate Plants: two Leaves rise opposite, and from the Bosom of each Footstalk grows a Tuft of Flowers, which, as they open, spread in an elegant Cluster, surrounding the whole Stalk.

The Flowers are of a pale, but elegant Crimson; they have a small green Cup, and each is divided into four Segments, mimicking so many Petals, spread widely open. The Cup has also four Divisions, but they are small and plain.

Four long and slender Filaments rise from the Bottom of each Flower, with oval Buttons; and they surround a single Style fixed on the Rudiment of the future Berry.

These Berries are the great Beauty of the Plant; they have a Delicacy and Elegance in Tinct and in Construction, which attract every Eye. They cluster round the Stalks at these Joints as the Flowers had done, and they are as big as small Pease; round and extremely glossy. Their ripe Colour is a most delicate Purple, not deep, but shining, exactly that of some pale Amethysts; and they appear covered instead of the tough Skin which invests our Berries, with a thin shelly, and as it were pearly Coat; upon whose Surface the Colour plays according to the Light, as in the Opal, or very fine Mother of Pearl: or as we imitate it in what are called the Changeable Silks. They have not the Aspect of Berries, but of Pearls tinged naturally of this Amethystine Colour. Those to whom I first shewed some of them, brought from the native Climate of the Shrub, took them for shelly, and not vegetable Substances. Mr. LEE has since ripened them here to the same Perfection. I gave a small Shrub, with them perfect upon it, last Year, to my great Friend and Patron, the Patron of all useful Studies, the Lord NORTHUMBERLAND.

The four Filaments in each Flower shew it to be of the fourth Class in the Sexual System, the TETRANDRIA; and, like the preceding, having but one Style rising from the Rudiment of the Fruit, it is of the first Order under that Class, the MONOGYNIA.

It has been called SPHONDYLOCOCCUS, and by our Gardeners, generally, JOHNSONIA. It grows freely from Cuttings; and in the second Year may be brought into its Place in our Plantations.



*Amethystine Callicarpa*

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*Ermine Azalea.*

## E R M I N E    A Z A L E A.

**T**HIS Hedge Shrub of the universal CHINESE Empire, excels all that we know in our Gardens. They introduce in their wild Works of Art also; and it carries an Everlasting Bloom in the Front of those strange Rocks, with which they terminate their Views, or startle the Stranger's Eye in their vast Gardens. There is a fateny Softness in the Flower, unlike all the EUROPEAN kinds; and its considerable Size, and most extraordinary Painting, gives it new Characters of Beauty.

The Shrub is nine Foot high, and naturally grows in a loose open manner, with distant Branches, which the Winds play with, in great Wantonness, and through which the fresh Air at all times breathes freely: to this perhaps is owing, in a great degree, the peculiar Lustre of the Bloom. Our Gardeners know how essential this free Course of the Air is to the Perfection of Fruits: perhaps it is as requisite to the full Beauty of Flowers. Mildews and Blights affect these tender Parts of Plants as well as the Fruit; and to render them fully glowing, it may be as needful to prevent the Occasions of such Accidents. Nature has done a great deal in this Plant, and we see the Consequence: Art may try in others.

The Leaves of this AZALEA are of a delicate Green on the upper Part, and Whitish underneath. The Wood is firm and white, and the Bark brown. The Cups from which the Flowers rise are soft and downy; cut into five Segments. The Flower itself is White, tinged on the Back with a deep Crimson. The same Colour, only brighter, plays on the Edges; and on the Ermine Whiteness of the Body of the Petals it is again stamp'd in little Spots, as Art disposes the black Tails of that Creature in making Habits of the Skins. One Petal forms the Flower, but it is deeply cut into five Parts, and within rise five elegant and conspicuous Filaments Crimson, and crown'd with yellow Buttons. The Style is single.

In the wild State it flowers twice in the Season, and paints the Hedges Spring and Autumn. In Gardens it blooms throughout the Year; and never drops the Leaf. The CHINESE, who attend to the least Circumstances, in their Culture of Plants, manage this Shrub in a peculiar Way, to keep it always blooming. Every Evening they take off the decay'd Flowers with their Stalks. This prevents the ripening of Seeds; and consequently more Flowers follow: as in our Domestic Fowls, if they be permitted to sit, the laying ceases, but if the Eggs are removed that should have afforded the young Brood, they lay on.

Thus every Morning there is a Succession of Buds, which, when the Sun grows warm upon them, burst at once into these noble Flowers: an elegant and wonderful Appearance.

The five Filaments shew this Shrub to be one of the PENTANDRIA, the fifth Class in the Sexual System.

The Flower varies amazingly under their Culture in regard to Colour, but they have not, so far as I learn, made any Advance towards Doubling it.

## NOSEGAY PERIWINKLE.

**W**ITH us this new Favourite makes an elegant Appearance; but so much inferior to the full Excellence it wears in CHINA, that unless I should observe this Figure is from a Specimen sent out of that Country, some half-instructed Botanist would say I had exceeded Nature. It has been thought, these Figures, in general, represent very elegant Plants of their several kinds; but I, and those who saw the Specimens with me, must own they are very much below Nature; tho' they are as like her Works as I could make them.

When KÆMPFER brought into EUROPE the Specimens he had collected in JAPAN, the Plants HERMAN had raised, tho' from the Seeds of the same Shrubs, appear'd so unlike to them, that many, at the first Sight, thought the Species different: but these Variations went no farther than Colour, Number of Flowers, and the like Accidents; the essential Characters were altogether the same in those collected healthy under their native Sky, and such as the Stoves furnished; the Difference was in Beauty, nothing more. Perhaps the Seeds collected with these Specimens will yield Plants just as different, or just as much inferior to themselves as those of that Instance; but the Difference is slight: We see thus what the Plants are in their extreme Perfection; and if we would raise them to the same Beauty here, we must give them Air.

The Name by which I have called this Shrub is a Translation of the CHINESE Term; they call it so because each Sprig cover'd with its Cluster of Flowers is a Nofegay.

The Shrub is four Foot high, and grows naturally with a pleasing Irregularity. The Bark is tender, and the Wood not hard. The Flowers grow ten, twelve, or more together at the Summit of each Branch; and fresh Buds open as the first blown Flowers decay, so that the Nofegay is in part renewed daily, and yet seems Everlasting.

This is one of the PENTANDRIA, the fifth Class: but its five Filaments are not conspicuous; they are lodged in the Tube, and the Flower must be torn open to discover them. This Tube swells toward the Top, and there are five Prominences on its Surface; 'tis in this Part the five membranaceous Buttons are lodged. They form that Swelling, and these Prominences; and they surround the Embryo of the Fruit; a most singular Style fixed on the Rudiment of a double Pod.

The Shrub is Native of the EAST-INDIES, CHINA, and the CAPE of GOOD HOPE; and in all those Places it is nurs'd also in Gardens: yet 'tis but within these few Years we have known it. Its Figure on the CHINA Skreens, and other japan'd Works always pleas'd the Eye, but it was suppos'd a mere Piece of Fiction. We once thought so of their vast Hibiscus, but we know otherwise now; and we are in the Way to more Discoveries.





*Nosegay Periwinkle.*

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*Peloria*

## P E L O R I A.

**I** Add to the fifth Class a Plant, which 'tis a Custom rather to place among the Monsters: but few have seen it. This Specimen I owe to the Favour of the Bishop of PANTOPPIDAN, who gather'd it in NORWAY.

By Monsters, among Plants, Naturalists mean such as have been produced by the Copulation of two distinct Kinds. 'Tis not impossible that the Organs of the some different Plants may be so nearly like to one another, that such a Copulation may come within the Verge of rational Belief: but I have not yet seen any Instance of it in Nature: Neither do I know to what Plant they would refer for one Part of the Parentage of this, who fancy it a Mongrel; if it were allow'd, that the common LINARIA, which it must be acknowledg'd extremely to resemble, were the other.

'Tis thought VERONICA and VERVAIN, have produc'd a Monster, or a Mongrel Plant between them: Nor will I contradict the Opinion, since Negatives admit no Proof. All I can say is, that I have long cultivated the two Plants in the same Border, and near one another, but no middle kind has yet appear'd. 'Tis not impossible there may hereafter: or that which fails with me, may have succeeded with another.

The PELORIA has a general Resemblance, in its Aspect, of the TOAD-FLAX; but the Flower is altogether different. Even the Class is different: nor is the Plant if I may judge from a single Specimen, so very like this TOAD-FLAX as has been said.

From a long slender woody Root there rose in this three Stalks; purplish, weak, and bent; whereas our LINARIA is usually robust and upright. The Leaves were long and narrow, but they had blunter Ends than in the common TOAD-FLAX, and they were paler. The Flowers crown'd the Top of each Stalk in a handsome Spike. They are large, oblong, yellow, and in Construction wholly unlike not the LINARIA alone, but those of any other Plant whatever. The Mouth is regularly open'd, and the Tube is long and swell'd: at its Base there are four Horns or Spurs form'd of the same Substance with the Flower, and hollow. Within there are five regular and perfect Filaments unlike entirely those of the LINARIA, and indeed of every thing else known. The Rudiment of a Seed Vessel was also perfect in many of the Flowers, and there were some unripe Seeds.

I have sown these, tho' without much Hope, because they were plainly immature: if they shoot we shall have Opportunities of knowing something more of the Plant than we do at present; or if these fail, it will soon be in the Upsal Garden; where a Root was some Years since set, but at an ill Season, and without Success.

Perhaps the Proof of its being or not being a mixt Production, may be refer'd to the Success of fairly ripen'd Seeds. If these produce their like, it will give a severe Shock to the receiv'd Opinion. Mules produc'd from the Horse and Ass do not propagate: and probably a Law so universal in the Animal Creation is not broken in the Vegetable.

## JACOBÆAN AMARYLLIS.

**W**E, receiv'd first from SOUTH AMERICA this Pride and Glory of the bulbous Class. Mine, though of ASIATIC Origin, differ'd in nothing from the usual Plant, except that the Leaves were somewhat narrower, and of a less firm Substance. I need not recommend it to the World. The Hexandrous Class comprizes most of the bulbous Plants; and they are generally crown'd with specious Flowers: This has enjoy'd the first Praise hitherto; and Fancy is the only Judge, whether or not the next excels it.

The Leaves are fleshy, but not firm: The Stalk is thick; and what is very singular, 'tis often white, or transparent toward the Ground, though it gives Nourishment to this high-colour'd Flower. The Change which gives that glowing Colour is made higher.

The Flower bursts from a filmy Scabbard; and with its Weight often bends the Stalk. The Disposition of the Petals, one upright, two sideways, and three downward, is regular and essential in the Plant: and the bending of the lower Petals, by which they embrace the Filaments towards the Bottom, is yet more singular.

The six Filaments discover the Plant to be of this hexandrous Class; the sixth in order in the Sexual System: and the Character of that Class cannot be more strongly mark'd in any Flower. The ANTHERA, or Buttons, which crown the Filaments, are at first long and white; afterwards shorter and yellow. It is a Change frequent in the Anthera of other Flowers; but here they are so large that 'tis easy to see how it is brought about. The Plant will flower upon a Shelf, and it may therefore be familiarly observ'd.

The Anthera at their first Appearance are furrow'd lengthwise, and are white. Each is compos'd of two Tubes join'd on their inner Part; and each has a Groove outward along the Middle. If an Anthera be cut transversely, these two Tubes are plainly seen; and they are fill'd with a yellow Powder, the Farina. After a Time they burst: the Opening begins at one End of each Tube, and in the Groove. As they split farther up, the two Sides turn back, and the Tubes contract themselves, and become shorter. This makes their change of Shape: the yellow Colour is owing to the Farina covering them.

The other Parts of Impregnation are as conspicuous in this vast Flower. The Stigma or Top of the Style is cover'd with crystalline Clubs, and open Tubes, and is always wet with a glutinous clear Humour, serving to detain and burst the Grains of Farina.

There are also six Nectaria in the Base of the Flower, of a very curious and peculiar Structure, solid at their Bottom, and branch'd upwards in the manner of white Coral.

These Parts I first observ'd in that Species Amaryllis, figur'd in a small Work, entitled, OUTLINES OF VEGETABLE GENERATION, publish'd a few Months since. LINNÆUS overlook'd them. I am happy to find them also in this Plant, which is a Species of the same Gems: different Observations thus confirm each other.

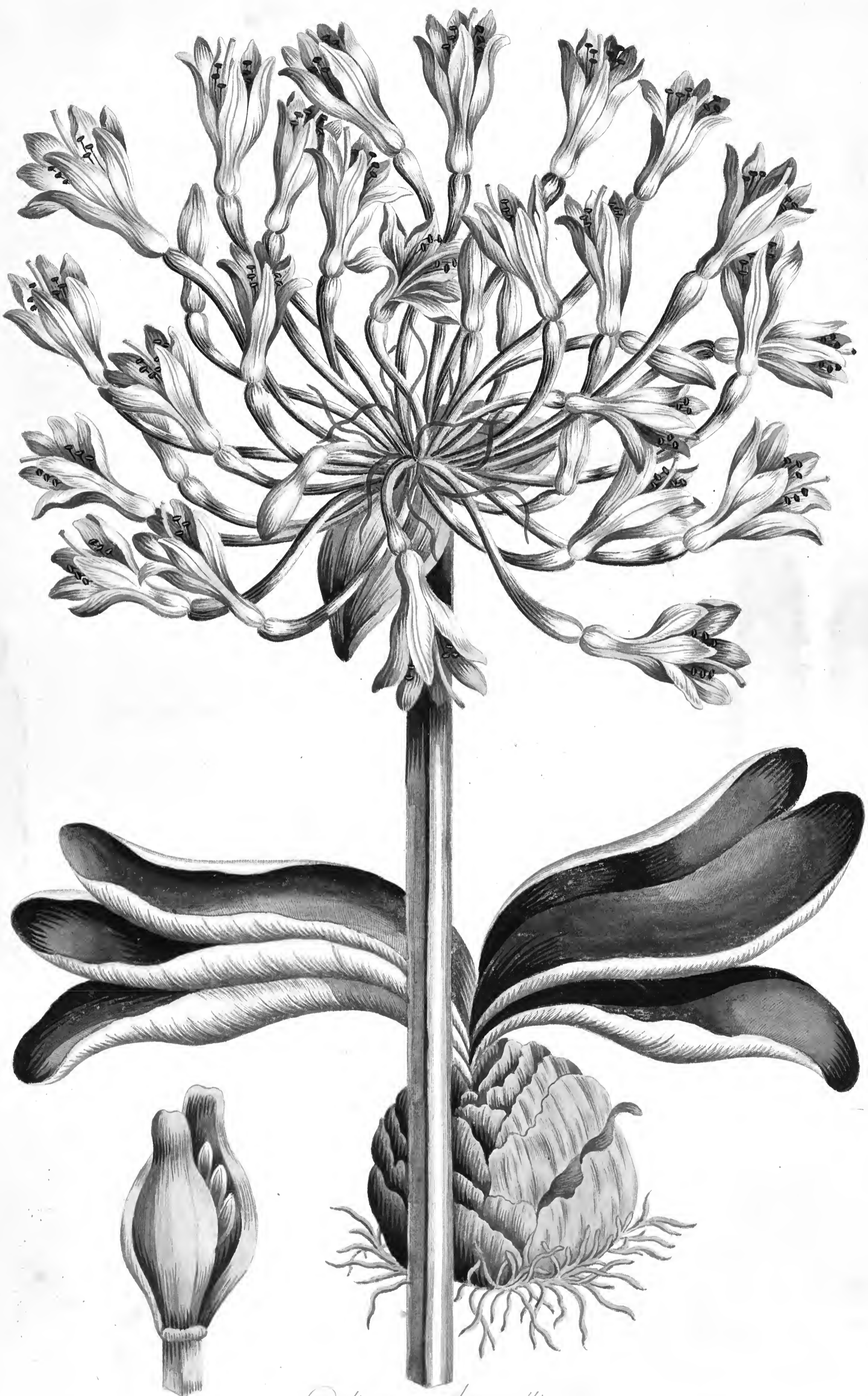


*Jacobean Amaryllis.*

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*Delicate Amaryllis.*

## DELICATE AMARYLLIS.

**T**HE former Species, obtain'd from LINNÆUS, by its uncommon Lustre, the Epithet of FORMOSISSIMA: MOST BEAUTIFUL: perhaps this will make the Title doubtful. Its Profusion in the entire Cluster is a great Glory; and the more elegant, though fainter Colour, entitles it well to the Addition DELICATE. At times it has flower'd in the EUROPEAN Stoves: but this has been so seldom, and with so much Variation, from the more or less advantageous Management, that they who possess'd the several Plants doubted whether or not they were the same Species; and the good HEISTER lately thought it so glorious and so wonderful a Sight, that when it burst for Flower, he wrote upon the Garden Gates an Invitation to superior Beings, to come down and look upon it. He thought the Plant that flower'd with him different from what had been describ'd by others, but 'twas only that it blow'd less perfectly. This is the Aspect of the Cluster in Perfection, as it flower'd in CHINA, though 'tis otherwise the same with his; as his own Root and Leaves here figur'd also shew.

The Stalk is robust, upright, and crown'd at first with a vast single Bud, consisting of many Flowers in a kind of Scabbard. When this bursts they throw themselves naturally into a rounded Form, and play in various Elevations; their Colour, which is pale at first, grows stronger as they stand, and the whole Cluster remains a long time in Perfection. The Flower has nothing of that Singularity which is so conspicuous in the preceding Species; but it is not altogether regular, the Petals not being all of equal Length.

The Characters of the sixth Class, the Hexandria, are as conspicuous and evident in this as in the last named Species; and these bulbous Plants very happily shew that Distinction, which, though as certain in all others, is often obscur'd by the Smallness of the Parts, or by their Situation in the Depth of the Flower.

There is something that deserves Notice in the Scabbard of this Plant; the filmy Substance, which performs the Office of a Cup, and holds the young Flowers, 'till they are ripe for bursting: tho' the Materials of this, and the Form, properly speaking, are the same as in the other Kind, yet the Bigness in this makes a striking Difference, and it is more durable, and is not wholly destitute of Colour. It is perhaps the most Elegant of its Kind; and is the next Thing in Degree to the Cup in the Hæmanthus, which the Incurious suppose a Flower. The Term Scabbard, Spatha, is given to this kind of filmy Substance, supplying the Place and Office of a Cup; but there is also another apparent Particularity in this Plant, those crimson Threads which lie among the Footstalks of the Flowers rising from the same Base. All who saw them wonder'd: but 'tis their Colour only which is particular. They are of the Nature of those Films call'd Stipulæ in other Plants, and there are the same Substances exactly, only White in every common many-flower'd Narcissus.

## DOUBLE ORIFLAMME.

**O**Riflamme is a Name given, long since, to a specious single Tulip, from its Colours which were supposed to imitate those of the antient sacred Banner of the FRENCH; whose Tints were Blood and Gold. I do not know, that before this Year, it has been seen double. This was the happy Effect of a regulated Culture: it was rais'd in ENGLAND, and is added to the Plants of this Collection, not alone for its Beauty, but because it will serve very happily to explain the Course of Nature in doubling the Bulbous rooted, Hexandrous Flowers.

The Leaves, the Root, and the whole Aspect of the Plant are the same with those of the single Tulip from which it springs; but the Stalk is shorter. This confirms the Opinion advanc'd before in speaking of the Roseate Nyctanthes, that the Force of Nature bursting into Bloom, at a less Growth in Height than usual, favours the Doubleness of Flowers: more Petals being form'd, because there is more Nourishment sent thither.

In this Plate we see the single and the double Flower together, and as the Parts are all large and conspicuous, we shall trace without great Difficulty how the Change is made. Double Tulips have hitherto been slighted, because they were irregularly doubled, and rose as Chance directed: this will perhaps bring them into repute, and the Gardener may have them thus regularly double, if he will follow the Method of a proper Culture.

The single Tulip consists of three Parts: the Petals or Leaves which are six, the Filaments with their Buttons also six, and a single Rudiment of a Seed-vessel. These are conspicuous in the single Flower; in the Double the six outer Petals, and the Rudiment of the Seed-vessel remain unalter'd, therefore the Change is not made from them: but the six Filaments are lost entirely. Therefore Reason says the additional Petals are made out of the Filaments: and this Experience confirms.

The Doubleness of a Tulip will be favoured by this Culture. When the single Tulip is in the Bud, just before it would have open'd, cut it down. Water the Root slightly, Morning and Evening, and at the usual Season take it up. Plant it again with Marle in the Mould, and the next Year use the same Caution, many may be thus manag'd at once, for a few only will come double, as is the Case in Anemones and many other Flowers. Of these such only as shew a Tendency to Doubleness the second Year, are to be treated thus, the following, and so on for the succeeding Seasons. This first Tendency to Doubleness, is to be seen in the Filaments, they grow broader and more flat.

After this, it comes on thus: the Filaments grow broader and split like Forks, the Button standing in the Middle of the Division: then, in the succeeding Years, the new Petals grow broader, and the Points wear off; at Length the Rudiment of the Button also fades away, and there are then six new Petals like the six first: after this, each splits flatwise into two, and they become twelve, so that the Flower consists of eighteen Petals with no Remains of Buttons. This is the perfect double Tulip.



*Double* *Oriflamme.*

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*Sanguineous Colchicum.*



## SANGUINEOUS COLCHICUM.

**W**E are accustom'd to the Colchicum in great Variety ; single and double, strip'd as the Tulip, and tessellated as the Fritillary : but this will not be the less welcome. The Vastness of the Flower, and the Contrast of Colours, the perfect Blood upon the perfect Ermine, tho' it be laid on with less Regularity, will recommend it.

In Autumn, there rise, uncover'd from the Ground, three Flowers, or more in a Cluster, accompany'd by no Leaves, supported by no Stalk, but naked and defenceless. The Root below, is an oblong Bulb, coated with a thick Chestnut-skin. At the Height of an Inch from the Ground, each Bud opens into a Flower, equally delicate and magnificent, form'd of eighteen Petals, long, wav'd and pointed: the Ground-colour is white, and the Spots are a bloody Crimson.

Nothing more is seen, unless by opening the Ground. Then we perceive these Flowers rise from the Centre of certain young Leaves which have been cover'd with them by a Scabbard, yellowish, rib'd, and dy'd with the same Purple. This Scabbard is the outer Skin of the Bulb, next within the brown Coat ; only growing thinner as it rises. Within it, is another very delicate Membrane, and then the Leaves, perfect at their Tops ; but convoluted, and less distinct as they are traced downwards. They enclose all the Way the Tubes of the several Flowers, which are white and hollow.

The single Colchicum has six Filaments and a Style : the Filaments are in this double Flower obliterated ; they form the inner Petals as in the double Tulip, but the Style remains. It is continued down to the Root, in three distinct Bodies.

Deep in the Centre lies the Rudiment of the Seed-vessel, almost close upon the Head of the Root, regularly form'd, tho' very minute, and with all its Divisions. This grows and rises afterwards with the young Leaves about it, and in the succeeding Spring, pierces the Surface and ripens a large Seed-vessel with no apparent previous Flower ; that having blown in Autumn. A singular and great Provision of Nature for the Seeds.

The six Filaments shew this to be one of the Hexandria, the sixth Class in the sexual System : but when we recollect the Flower, the Root, the Leaves, and all the Parts of the true Saffron, and see that, because the Filaments in that are only three, it becomes one of the Triandria, and is separated from this Colchicum, and coupled with the Ixia, this shews the sexual System, tho' useful, is not natural. Whenever a true natural Method shall be establish'd, the Colchicum and Crocus will be plac'd together. They agree in the Roots, Leaves, and Flowers, for tho' the Leaves of Colchicum are broad, and those of Crocus narrow, both are grassy. They are alike in the Essentials, and differ only in these lesser Characters.

This Flower was rais'd from Seed sav'd from the common Colchicum, gather'd from the wild Plant in a Meadow near CALNE in WILTSHIRE.

I M P E-

## IMPERIAL GLORIOSA.

**T**HE Tulip was consider'd before this Flower, the Doubleness of which has in it something most extraordinary, because it will explain how Nature has performed the Wonder. The waved Edges, and the inverted Situation of the Petals in this, are all it has in Reality so singular: These are from Nature, for in the single State of the Plant they have the same curl'd and bent Aspect. The rest is owing to a simple Process: the Doubleness is formed just as in the Tulip, but it is not quite so perfect. There the Buttons are entirely lost, here there remain some Vestiges of them; and tho' but lightly, they deform the Flower. We see a Thousand double Tulips in the same State of Imperfection, for one that is like that, represented in our Plate; and on the same Principle, in the Gardens of CHINA, doubtless a perfect Gloriosa might have been found: but the Gentleman who collected for me, could not have the same Advantages as if he had undertaken the friendly Task in EUROPE.

Tho' double, it produces Seeds: For the Rudiment of the Seed-vessel continues unhurt; and it is possible these Remains of Antheræ, or the more perfect ones, in single Flowers, near the Plant, may impregnate them.

We have been accustom'd to receive this Species with single Flowers from the EAST INDIES, I have not heard of it double before this Specimen, but in any State it is a Plant of vast Singularity and Elegance. It climbs among the Bushes or winds itself round Trees. Nature has furnished few so well for supporting themselves; for besides that the single Stalk twists itself naturally as our Hops round about whatever is near it, the Leaves all terminate in fine long twisted Points, a Kind of Tendrils that lay hold also on every thing near them.

Thus the Gloriosa, in the single State, covers whole Thickets, spreading over their Tops and falling down again every where before and among the Branches. In that State, the Flower is made of six Petals, as the Tulip, and there rise from the Base of it six Filaments. In this peculiar Form of Doubleness, the Filaments have become broad and form'd themselves into other Petals; and afterwards have split flatwise as in that Flower when fully double; and this in the same Manner has Eighteen of them.

The CHINESE boast they produce this Change by Art; and without Exception they are good Gardeners: but probably the first came from Nature. We see double Ranunculus's and Anemones rise from Seed with the single, and double Tulips, appear in those Beds where only single ones were planted. Nature does something in this which does not fall under the Examination of our Senses, but we see the Effect. Probably they who in *China* saw the first Tendency to Doubleness in a Gloriosa, gave the Plant a more careful Culture. If they have an absolute Art beyond this, it is one we should be very happy to acquire.

This, as the Plants with double Flowers in the preceding Instances, is lower than the single Kind, it winds among their Rocks, but five Feet is its usual Height, the Root is tuberous.

M E-



*Imperial Gloriosa.*







*Matamorphoses of Narcissi.*

## METAMORPHOSES of the NARCISSI.

**H**OWEVER singular it might appear, that purple Threads crept about like Worms among the Foot-stalks of the Amaryllis; or that from the Cluster of the profuse *Nyctanthes rose*, one double Flower; this Instance, by a familiar Example, shews, that our Wonder, at one Object, is often owing to our Inattention to others: and that what appears most strange in foreign Flowers, or foreign Transformations, is found familiarly, tho' less conspicuously in those of our own growth; and is transacted daily in our Gardens. The single *Narcissus*, here figured, has the same Kind of Threads, only white; and there is the Transformation made twice over.

From the Seeds of the common single *Narcissus* of our Country Gardens, rose the Plant number'd 1. in the present Plate, and from its Seeds which ripend in Perfection, was produc'd the other, of which there are two Views; and which, though rais'd thus from our own Seeds, is called Oriental.

The common wild *Narcissus*, too mean a Plant, and too well known to need a Figure here, bears on the Summit of its weak Stalk, one large Flower. The two Parts of which, called the *NECTARIUM* or the Cup, and Petals, are both of the same Yellow. We have other common *Narcissus*'s which produce many Flowers upon one Stalk: these are altogether different: The Cup being naturally of one Colour, and the Petals of another; but the single flowered Kind is always uniform in Tinct.

The Plant 1. raised from the Seeds of that Kind, produced Flowers in a Luxuriance unknown to the Species in its natural State, yet preserving their Character: Three grew upon one Stalk, with those fine *Stipulæ* between them; but the Cup and Petals were as in the original Plant of one Colour.

The Seeds of this Plant 1. produced the other, 2. and here the Flowers again, instead of three, were only one upon each Stalk; but vastly large and delicately doubled. The Leaves differ'd also, for they were shorter in the double Flower, and the Stalk was lower. We see therefore, to bear one or many Flowers upon a Stalk, tho' it has been esteemed a Mark of great Distinction, may be the Character of a mere Variety; and we are led by this toward believing the boldest Thing that ever was said of Varieties, LINNÆUS'S Reduction of the Primrose and Cowslip to one Species; the Oxlip being a middle Stage between them.

The Manner in which the Doubleness is produc'd in this Plant, is different make all the others which have been named; for the Structure of the Flower is also different. We have seen the Filaments produce the Doubleness of the Tulip, Colchicum, and superb Lilly, all of this Class; and here they assist in the Change: but there is also a peculiar Part, the *Nectarium* in the single Flower. This is naturally indented at the Edges; and in the double Flower it forms many of the inner Petals. Those Indentings are carry'd down to the Base, and make so many distinct Parts; and the rest of the Addition is made from the Filaments, which, just as in the Tulip, spread into Breadth and split flatwise, each forming two or more Petals.

The Change from a single Flower to a Cluster together, is not peculiar to the Garden in these Instances, or to the single field Plant we have nam'd; the SOLOMON'S SEAL, in our Woods, has sometimes single, sometimes cluster'd Flowers, from each Joint of the Stalk; and so have many others.

R H U-

## R H U B A R B.

**W**E received many Plants under the Name of Rhubarb into our Gardens, for Men were curious to know, to what Species that inestimable Root belonged. They often were deceived, for those were ignorant who undertook to gather it; but among many Errors, 'tis plain enough there came also Truth. This Specimen was from the North of CHINA, wild upon the Hills, where a great deal of Rhubarb is taken up for Commerce. I received it from one too careful to make Mistakes; and who had Opportunities of knowing. The Seeds came with it, and the Plants which rise from them, I think, will shew, that the Species, now called Rhubarb, in our best Gardens, is so. The Difference between that and the present Figure, is no more than would naturally rise from Culture, and a different Climate.

Altho' the Flowers are trifling, there is sufficient Beauty in the Whole. The Leaves have a bold and elegant Wave upon their Edges; and the Stature of the Plant, together with their Disposition, the colouring of the Stalk, and frequent Purple of the Ribs in the lower Leaves, make it extreamly well worth Culture; especially as it requires little Care, and lives in full Exposure.

The Plant is a Yard high, and its Cluster of Leaves even without a Stalk, have sufficient Elegance. The Flowers are pale, they have no Cup, and one small Petal forms them; close at the Base, and cut into six Segments.

They err'd who plac'd it with the Docks; though its Flowers, Seeds, and whole Habit, naturally might have justified the Mistake in Times when the present Distinctions of Plants were not sufficiently known. The certain Characters of the sexual System plainly separate it. Perhaps a natural Method will some Time change the Face of Things again. The Filaments in the Flower are nine, and this invariably, according to the Laws of the present System, place it in the ninth Class, the Enneandria. As the last named Species were referr'd to the Hexandria for their six Filaments, the Plants of the two intermediate Classes, the Heptandria and Octandria, are character'd by Seven and by Eight: the present has its Place in the succeeding Division for its Number; and differs from the Dock-kinds, whose exterior Form it wears, because they have but six. Yet it agrees in other Characters, nearly related to this Classic-mark, with those resembling Plants. The Heads of the Styles are three, as in the Docks; and tho' the necessary Distribution of Linnæus separates it three Classes, yet the Advance, from six to nine Filaments, being but a regular or proportional Gradation, perhaps Nature does not allow so vast a Distance of these Genera.

When we shall be able to attain a truly natural Order for Plants, probably this, and the Dock, which rise by a third in Number of these Parts, over one another, will be brought together; as the Crocus and the Colchicum before-nam'd, whose Proportion of the Parts is double. Something there is in Nature, which authorizes this Opinion: and how strange soever it might seem to a young Botanist, there is much more Difference between two Plants with six and with seven Filaments, than between those which have six and nine, or three and six, these being proportional Variations; the other absolute Differences.

P O I N-





*Rhubarb*

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To the Right Honourable  
*The Earl of NORTHUMBERLAND, patron of Science,*  
*This figure of the Poinciana which flowered at Lion House*  
is Dedicated  
by *D.<sup>r</sup> J. Hill.*

## P O I N C I A N A.

**T**HERE needs no Epithet of Distinction with this Name, since it is the only Plant of its Kind; and unlike every Thing beside in Nature. These are a Collection of vegetable Beauties, and it is hard to say, which of them demands Preference: but this is certainly inferior to none.

We have heard of it from the EAST-INDIES, and in the WEST-INDIA Islands: and Seeds sent thence have produced often Plants in our Stoves, but they have not flower'd; they rarely made the Attempt, and when they shew'd Bud, they perish'd in the Effort. This flower'd in the Year 1758, at SION HOUSE, under the Eye of Lord NORTHUMBERLAND, whose Stoves are better proportion'd for this Service, than any I have seen; and who has been so happy in his Attention to this Science, as to enrich EUROPE with more new Plants than could have been expected in the Time, and in the present State of BOTANY; so much having been attempted every where.

Last Year it flower'd in such Perfection, as this Figure represents, and made an Effort to ripen one Seed-veffel. 'Tis now in the full Bud again, and having more Strength at the Root, will probably accomplish it. I do not despair of seeing the same Hand that rais'd the Plant to flower in BRITAIN, produce from Seeds ripen'd here a new Succession.

This was from CHINA Seed, and there appear'd some Difference in the Plant, but the essential Characters are all the same; and the Variation is no more than accidental.

No Plant declares its Class more evidently than the Poinciana. 'Tis counted in the Filaments; and these are wonderfully long and distinct: if all Plants shew'd them thus, nothing would be so easy as the sexual System. They are ten, and the Class is therefore the DECANDRIA, the Tenth in the Linnæum Method.

Every thing conspires to Beauty in this Plant; the Leaves are elegant in Form and Colour; and the Disposition of the Flowers in a long, loose Spike, sufficiently near to make one Body, and yet separate enough to shew each distinctly. The very Cups, as the Flower opens, become colour'd, and make a Part of it; nor is any Thing more elegant than the Manner wherein those long and numerous Filaments are lodged within the Bud till the Flower opens. A fifth Petal in the Flower, and a fifth Leaf of the Cup, different in Form and colouring. From the others, add to the Singularity and graceful Wildness of the Whole; and the Colour is in the highest Degree rich and glowing. Art imitates it poorly. The Filaments in particular are as distinguishable for Colour as for Form: the Crimson of these is ill imitated by our best Tincts. The Form of such a Cluster, crown'd with their Antheræ, struck all who saw the Plant in earlier Times of BOTANY, and they nam'd it PEACOCK'S CREST from the imagin'd Resemblance.

S N O W Y

## S N O W Y M E S P I L U S.

**T**HE common Hawthorn of our Hedges would be allowed a Shrub of Elegance, were not the Eye tired with its Familiarity: that is a *MESPILUS* according to the received Distinctions, and this Native of our *North-America* another; exceeding by many Degrees that Beauty we have allowed the common Kind. The Lord *NORTHUMBERLAND*, whose honoured Name I have so frequent Cause to mention in the present Work, gave this among the Rest to the *European* Botany. His Lordship raised the Shrub from the Fruit sent from *New York*, and it has now stood some Years the common Plantation in his Garden; flowering in vast Profusion every Summer. Those who have seen the fair Shrub in this State, will not ask why I call it Snowy: the pure White of the streaming Spikes of Flowers, which hang from all its Branches, give full Cause: and there is something in the starry Disposition, and wav'd Form of the Petals, which calls to Mind the falling Snow in a particular Manner.

It is a Shrub of Ten Feet high; thick set with elegant green Leaves, indented with a wonderful Regularity at their Edges: and the deep shining Bark is no small additional Grace. The Characters of the *MESPILUS* are strongly and particularly inscribed upon the Flower; altho' the Length and Waving of the Petals, the first obvious Marks, appear very singular. The Cup has five Divisions; and the Petals answer to the *LINNÆAN* Character in Number, for they are five, but by no Means in Form. *Subrotunda et concava*, roundish and hollowed, was an Expression very proper in describing the Petals of the common Kind, but by no Means applicable to these, which are oblong and undulated. The generical Characters do not rest upon such slight Distinctions; and we may see by this 'tis better not to admit them, for they subject the Characteristicks to Uncertainty. One is enough that is fixed and invariable, and the Dependence should be alone on that.

The numerous Filaments are inserted into the Cup, and this declares the Class of the Plant to be the *ICOSANDRIA*. They are too many for any of the Classes established by the Number of these Parts; and they are regularly proportioned: therefore the Place of their Insertion alone determines it.

This Shrub may be made a very agreeable Article in Clumps and small Plantations, but as the Value of it will depend upon the fresh Green of the Leaves and the pure Colour of the Flowers, it must have a free Air; and be kept from the Shade of larger Trees. In this Case the Leaves will retain their Verdure in full Perfection; and the Flowers, tho' they do not hold upon the Boughs quite so long, will have much more Beauty; for Shade turns them yellowish soon after they are opened, and without a free Course of the Air the Leaves on the lower Part of the Plant soon wither. It would be ridiculous to trim it up to a Head; for one great Article of its Beauty is the wild Freedom of its Growth, and natural pendent Position of its Flowers among the loose and distant Branches.



*Snowy Hespilus.*

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*Sun-bright • Mesembryanthemum.*

## SUN-BRIGHT MESEMBRYANTHEMUM.

**I**F Singularity or Elegance alone can recommend a Plant to Notice, none can dispute the double Claim of this; for it has both. The untutor'd AFRICAN admires it in his Desert: and the more we have Knowledge, the greater we must own its Claim to that Distinction. Its general Form, the Manner of its Growth, the Peculiarity of its Leaves; and above all, its glowing Flowers command our Estimation. One farther Claim it has to our Regard: tho' a Native of very fultry Regions, it bears the chill Air of EUROPE, better than most Plants from the same burning Quarter. There is never more Need of Shelter, than a Green-house will afford; and with good Management, it will live many Months in a common Border.

The Stalks have little Strength or Firmness: they naturally throw themselves every Way upon the Ground, and the Plant forms a Kind of circular Tuft wherein the green and fleshy Leaves make a pleasing Variety with the Crimson Stalks, before the Flowers disclose their superior Beauty. The Leaves are thick and juicy, almost rounded in the Circumference, and sharp at the Point. They are green all the Year; and as the straggling Branches hang from the rough Rocks, or cover the burnt Sands, they cannot but command that universal Attention which is paid them. With us a small Pot of Earth feeds the Plant, and they fall over its Edges very beautifully.

This Flower leads us a Step more forward, in the sexual System, than we have hitherto advanced: those we have nam'd already, shew'd the Character of their several Classes, solely in the Number of their Filaments, the Class being named thence; and this Distinction holds as far as twelve. Those which have twelve Filaments, being Dodecandria. The last Plant was of the Decandrous Tribe, and Nature offers not one Plant, whose Filaments are eleven: at least, none such has yet been discover'd.

After twelve we do not count the Number: but are guided by the Arrangement of the Filaments, their Proportion, or their Place of Infertion.

Here we enter on the Divisions form'd by the Infertion of the Filaments: this Plant belongs to the twelfth Class, the name of which is Icosandria. This might seem to mean, that the Flower had just twenty Filaments, but the Account is not the Article of Distinction: Icosandria is an adopted Term, and the Character of the Class is not compris'd in less than these three Marks: the Flower has a hollow Cup form'd of one Piece; the Petals or Segments of the Flower, are fixed to the Side of the Cup; and the Filaments, which are numerous, are inferted either on the Side of the Cup, or to the Flower itself; not to the Receptacle or Head of the Stalk whence the Flower rises, for that is the Character of a distinct Class, the Polyandria of which we shall speak hereafter.

This is one of the most complex Distinctions of the Linnæan System, and should be well fixed in the Memory: the present Flower is a very proper Instance, tho' the great Author of the System once himself mistook it.

C O M-

## COMPLEAT ANEMONE.

**A**NEMONES are too familiar for Description: and after what has been said relating to the ICOSANDROUS Class, there need few Words to explain the Character of the POLYANDRIA, to which this belongs. The Filaments are numerous, as in the Plants of that Division, but they rise from the Receptacle, or Head of the Stalk; not from the Edges of the Cup, or Body of the Flower.

Science or History demand no more on this Head: therefore we have Opportunity under a favourable Instance, to trace that great Article, the Progression of Nature, in forming the Doubleness of Flowers, in a new Course. We have seen several Ways in which that Change is brought about in various Kinds; and this will add one more: for tho' the Method be the same in its Original, it differs greatly, as the Effect is wrought from various Parts of Flowers.

In the Tulip, we see the Filaments spread into Petals, and form the Doubleness of the Flower, and from the vast Number of Filaments in the Anemone, when single, and the Multitude of new Petals in the double One, it would be natural to suppose they had also the same Origin in this: But it is much otherwise. We open here into a new Course of Nature; and the Doubleness of this Flower, and of some others of like Kind, is form'd from Parts we have not yet seen serve that Purpose. That this new Course of Nature may be the more clearly understood, I have given the Flower of the natural wild Anemone, Native of ÆGYPT, and other Parts of the East, with those successive Forms it wears from a different Culture.

The Structure of the common natural, or single Anemone is this.

At the Summit of the Stalk, there is a slight fleshy swelling of a paler Colour: this is called the Receptacle of the Flower; and its several Parts rise from that Receptacle in the following Order. First, the Body of the Flower, composed of six Petals in two Series, three outer and three inner, as in the Tulip: the three outer serve as a Cup, the three inner being more delicate. Next within these, rise from the same Receptacle, a Multitude of Filaments crowned with large yellow Buttons. The Infertion of these on the Receptacle, shews the Plant to be of the Polyandrous Class; not of the Icosandrous. Above these Filaments, the Receptacle runs up into a conic Form; and is cover'd all the Way with naked Rudiments of Seeds.

When the Flower becomes, by Culture, semi-double, the three inner Petals form that Doubleness, each splitting flatwise (as the new Petals of a Tulip) into two, or into three; and thus the Flower, instead of six, has nine or twelve Petals. But in the compleat double Anemone, the Change is much more wonderful. The outer Petals remain as in the semi-double Flower; the Filaments are converted into peculiar oblong Substances, acquiring a fine Colour; and every Rudiment of a Seed upon the Surface of the Receptacle, forms an additional Petal. These make the inner Cluster, and perfect the Doubleness of the Flower.

In other Kinds, we may promote Doubleness by the Use of such Manures as peculiarly swell the fleshy Substance of the Stalk whence the Filaments rise. In this we are to enlarge the Pith or central Substance: for from that rise the Rudiments of Seeds. Such a Manure, and a Length of Time before the Plant is suffer'd to flower, will produce this elegant Change.



*Complet & Anemone.*

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*Hercule & Pionny*



## H E R O I C P I O N Y .

**T**HIS elegant Flower, which has so much the Aspect of a Child of Culture, came into my Hands the Produce of absolutely Savage-nature.

GREECE, and some Parts of the northern EUROPE, produce that simple Male Piony, from which our Gardeners have, in the Course of many Ages, rais'd the vast double Flower of the same Name : but that, with some little loose and casual Variegation in the Petals, has been their utmost Reach. Here we behold it, strip'd like a Carnation and proliferous; one flowering from the Centre of the other : and this from simple Nature. Perhaps it is the utmost Instance that has been, or can be produc'd of her Luxuriance. I have nam'd it Heroic, as it transcends common Nature; and reminds us of what is called the heroic Style in Painting.

The Country whence it came was AFRICA; a Quarter of the Globe from whence we have not before receiv'd this Plant : but tho' an AFRICAN, it is not an Inhabitant of the parch'd Sands. Some few Miles up the River SENEGAL there is a large Extent of Grass-land, like the richest of our Meadows : that River rolls its rapid Current through it, and, on the Banks, grow innumerable Pionies, drooping their double and luxuriant Heads toward the Water. This was one of them : the Leaves are in nothing different from the common Piony, nor the Flower, except in Elegance.

We see double Flowers in our own Meadows : the Lady-smock and the Marsh-marygold are Instances. So far EUROPE mimicks the Garden Culture in her Wildness; but the Luxuriance of a vast proliferous Flower, in absolute free Nature, demands a warmer Sun; and seems to claim a Place as singular as that where it was found; an EUROPEAN Meadow under an AFRICAN Heat. Gardeners produce, or more properly Nature, exuberant under their Assistance, sends up sometimes proliferous Anemones, Ranunculus's, Roses, and some other Kinds : but even our extream Art has never shewn a Flower of this enormous Size, so well fed, that another could rise from its Centre.

Proliferous Flowers, in general, have been suppos'd to arise from a Continuation of the Style of one into another Flower : it is the Doctrine of the LINNÆAN School; but it is not universal in the School of Nature. The Ranunculus is render'd proliferous by a Continuation of the Receptacle into a Stalk, or more properly by the Stalk assuming the Place of a Receptacle of Seeds, and pushing itself farther. In this, if the Encrease depended on the Stigmata, for there is no Style, there must two of these Secondary Flowers have risen from the Centre of the First, for the Piony has two Rudiments of Capsules. But there was Nothing of it in the present Instance.

The Summit of the natural Stalk form'd a proper Receptacle, as is usual in this Flower; but instead of a double Rudiment of a Seed-vessel rising from the Head of this, the Receptacle became simply extended in Length, the Petals occupy'd so much of it as is usual, and that which grew out farther, was cover'd with the same green Rind as the proper Stalk; and was to all Intents and Purposes a real Stalk, supporting on its Head another Flower.

The classical Character of the Piony cannot be read in the double Flower : but in the Single, a Multitude of Filaments growing from a Receptacle, not from a Cup or Petal, shew it one of the Polyandria.

## B O H E A T E A.

**W**E have long question'd whether the Green and Bohea Tea were, or were not the Produce of the same Shrub: most thought they were; their Difference being attributed only to the State of Growth wherein the Leaves were gather'd; and the various Method of curing them. I think it is otherwise. Certainly I have received among my CHINA Plants, two Specimens under the Name of Tea, which differ obviously in Leaf and Flower. That which I figure here, has shorter and darker Leaves, and in each Flower six Petals: this, from the Colour of the Leaf, I fancy to be the Bohea. The other has longer and paler Leaves, and in every Flower nine Petals; that I suppose to be the Green. Whether this be the Case, must be found by more Experience: and if they really be the Produce of two distinct Shrubs, we are yet to learn whether the Difference be as Species, or only as Varieties. One Thing, beside the Difference of Form and Colour of the Leaf, seem'd, in the Course of these Experiments, to shew that they were really the two Kinds I have conjectur'd. The Water in which this Specimen was macerated, had the Colour and the Taste of genuine Bohea Tea; and that which was us'd for the other, had as palpably the proper Aspect of Green Tea; only made very strong; and perhaps, colour'd a little from the Bark.

Beside, the greater Distinctions, there was something in the Colour of the Antheræ or Buttons. They were Orange-colour'd in the One, and of a pale Yellow in the other. I speak of such as were burst, for there were some unripe ones which were white.

The Class to which this and the other belong, is very evident. They have a vast Multitude of Filaments, and these rise from the Receptacle: therefore the Shrub is of the Polyandrous Tribe.

The Cup is small; the Filaments are innumerable: the Seed-vessel, when perfect, consists of three Parts, in each of which is a single Seed. We have lamented often, that the Seeds do not come over perfect, and sound enough to grow when planted here, as many other of the CHINA Seeds freely enough do; and it has been suppos'd, the People of that Country, who are celebrated for their Cunning, took some Measures to prevent this before they suffer'd the Seeds to be exported. But it is all easily resolv'd into the common State of Nature.

Many Seeds, with us, will not grow, if they be not sown soon after Ripeness: even the Acorn, which one would think, at first Sight, durable; loses its Power of Vegetation in a very moderate Time. The Fact is this: those Seeds which are most subject to a Fermentation in their own Substance, soonest lose the Power of Growth; and this is one of them.

Perhaps a better Method of preserving the Seeds may answer the Purpose; and if that can be done, I believe it will be now effected. A Nobleman, whose Regard to Botany I have had frequent Cause to mention in this Work, has contriv'd a Method, which will, I think, succeed.

GREEN



*Bohea Tea*

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*Green Tea.*

## G R E E N T E A.

**I**F there were no Value in this Shrub, as Tea, its Beauty is sufficient to recommend it to our Notice; and I am in no doubt, but a few Years more will add it to our Collections. We admire the double blossom'd Cherry, and some other Trees, whose Flowers resemble those which cover the Green-Tea Shrub, but they are inferior to these: no Whiteness can excel that which we see in them; and their Disposition in little Tufts and elegant loose Clusters upon the Summits of the tenderest Branches, give the whole Plant a singular Beauty.

Why I have call'd this the Green Tea, has been said in the preceding Chapter: perhaps it is an Error, but there is Appearance of Truth on its Side. Certainly it is Tea; and the Aspect differs from that of the more dusky Plant preceding. LINNÆUS, saw in various Parcels of Tea, Flowers with six, and others with nine Petals; and questions whether they belong'd to the same Species, or to two distinct ones. These Specimens shewed the same Variety of Flowers, and shewed them growing on Boughs, whose Leaves were also different: the Eye here seems to have answer'd that Question and the Taste confirm'd its Judgment, yet more Proof is wanted; for he were very rash who should found an absolute Distinction upon one Specimen.

'Tis certain the CHINESE gather the Bohea and the Green Tea at different Periods of Growth: and they have many other Particularities relating to an Article of such Importance. But tho' the Accounts of these led EUROPEANS to believe the same Shrub produc'd both; they did not fairly induce that Opinion. It may be true, that Bohea Tea is gather'd at one Period of Growth; and Green Tea at another: and yet it may be true also, that they are separate Shrubs which produce them. The Time of gathering would make some Difference if they were the Leaves of the same Species; but this does not prove that they are so: nor has any Writer of sufficient Accuracy for the Observation said it.

The Flowers have not at all the Taste or Flavour of the Leaf. They are harsh, rough, and very pleasant: the Buds, before they open, have indeed a high and very fine Flavour, like that of the finest Green Tea, but more delicate.

We are not to wonder, that the Seeds brought over into EUROPE do not grow; for it is an Observation of the honest KAMPFER, who had seen the Culture of the Shrub in Japan, that even there, not above two in ten succeeded when they were sown for raising the Plant for Use. He attributes this to an oily Matter in them, which grows quickly rancid. How philosophical this Solution may be, I shall not take upon me to determine; but Doubtless it is owing to some Change wrought in the Substance of the Seed itself, that it is so apt to fail. If any Thing can prevent this, and preserve it during so long a Voyage, probably it will be now found.

F R A-

## FRAGRANT HIBISCUS.

**T**HIS robust Plant has every Thing except Colour to recommend it to the Notice of those who value the Exotic Botany : but Nature, to make amends for what she has with-held in that Respect, has given it Fragrance ; an Article of Value deny'd to all the others. This is not in its Flower, or at best, it is but faintly perceiv'd there ; but is perfect in the Seeds: they have the Sweetness of Musk without that Faintness, which attends the animal Perfume. This was seldom perceiv'd more delicately than in the Seeds which accompany'd the Specimen from which this Figure is taken : and they preserv'd their vegetative Power as strongly as their Scent ; for scarce any of them fail'd. They have added a Multitude of the Plants to our Collections.

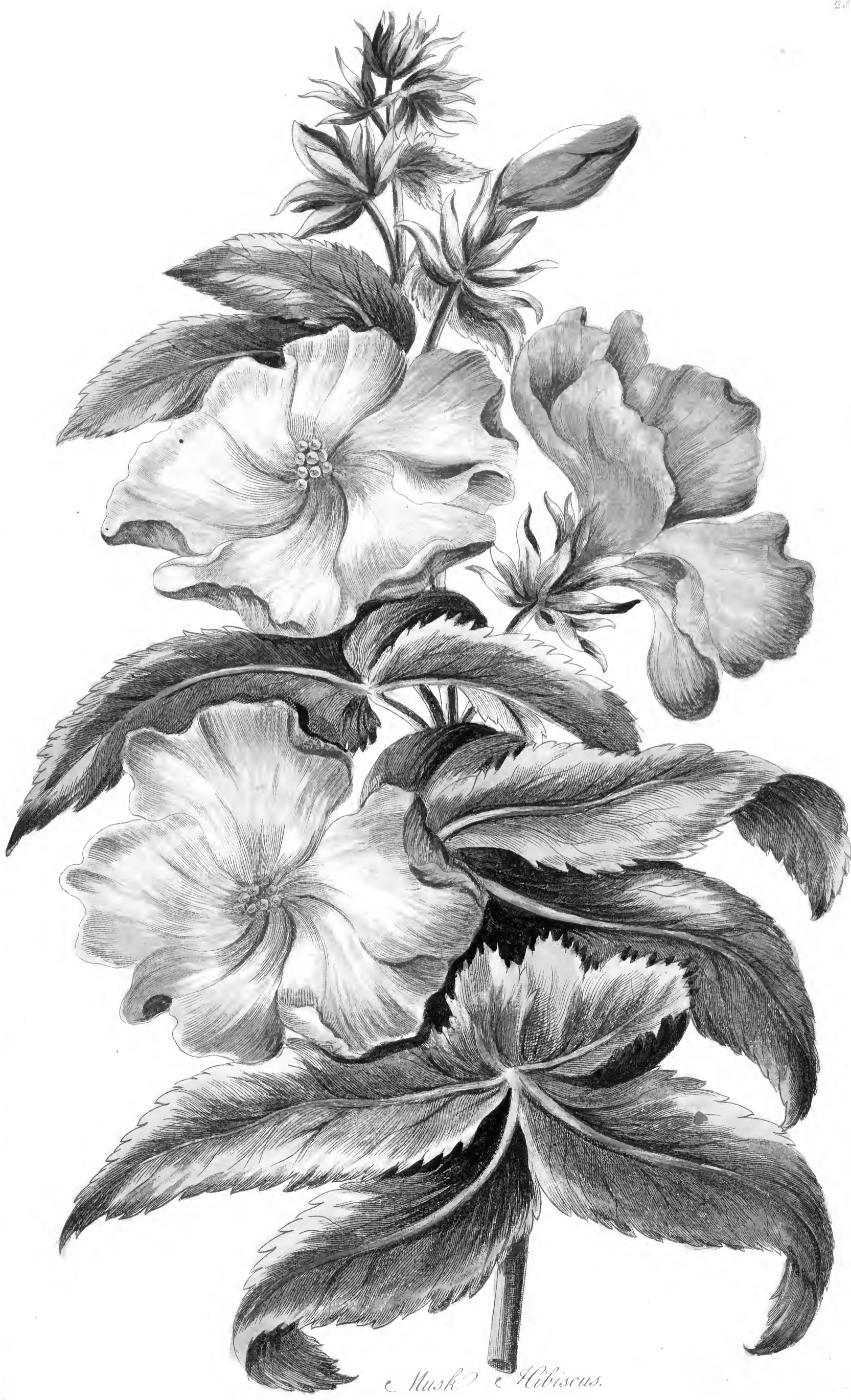
All that could well be given a Plant in Form, Nature has bestow'd on this : the whole Out-line of the Figure is in the common Growth of the Plant, great and graceful ; the Parts are all great, and the Aspect is at once wild and noble. The Form of the Leaf, pentangular in the upper Part, and toward the Ground heptangular, rough, serrated, and with irregular Points, is much above any of the four elegant flower'd Kinds which follow ; and tho' the Bloom has only a pale Yellow for its Colour, except the small Variation in the Eye, the Disposition of the Petals makes great amends, for scarce any Kind has them so beautifully waved.

It has the double Cup of all the Hibisci: the outer one has eight Leaves, and the inner one is entire at the Base, but divided upwards into five Segments. The Plant is a Yard high, and from these Cups burst out, at least, as many Flowers as there are Leaves, in a continu'd long Succession.

The Filaments appear in a peculiar Form, and constitute the Character of Clafs; which we have not before had Occasion to name, and which will be seen yet more distinctly in the following Plant. Their Number has no Place in this peculiar Character, it is their Arrangement. They are united in their Bases, so as to form one regular Column, or tubular Body, thro' the Hollow of which, runs a Style, whose five Heads, or Stigmata, shew themselves beyond the Extremity of the Tube. The whole under Part of the Filaments, indeed, in a Manner, their whole Bodies are thus united into one uniform Substance; but their extream Points are loose, and seem so many short Filaments themselves, rising from the Head of the Tube, and supporting their Antheræ. This Union of the Filaments constitutes the Character of the Clafs. As they form only one Body, the Term is Monadelphia. The common Mallow, and all its Kind, have the same Conformation, and are of the same Clafs. We shall illustrate this in some succeeding Instances; and shall afterwards have Opportunity to shew what are those Classes whose Constitution depends upon this Kind of Union in the Filaments, but where they form more than one Body.

This Plant is a Native of the EAST and WEST INDIES, of the BRASILS, and of SURINAM, and is well known in EGYPT : it is a wild Plant also in CHINA, whence this came.





*Musk Hibiscus.*

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*Crimson Hibiscus.*

## CRIMSON HIBISCUS.

**W**E are still within the Limits of the Monadelphous Class; and we have here a Plant, which, beside its peculiar Beauty, has the accidental Merit of shewing the Character of that Class very distinctly. The Column into which the Filaments unite in all the Monadelphous Plants is in some short, and bury'd in the Flower: in that Case only, the searching Eye of the Botanist discovers it. Here it runs out a vast Length from the Petals; and he must have no Eye, nor no Attention, who does not look on it as something singular. The Ends of the Filaments are loose in this as in the other; but their whole Length beside, forms together this long and slender Column.

The CHINESE have four Plants of the Hibiscus Kind, which they cultivate in their Gardens; and to which we give the very improper Name of CHINA ROSES. Two are single, and two double. I was so happy to receive Specimens of them all; and they follow here: this being the first of them. They are distinguished by their Leaves, and tho' call'd four, they are properly no more than two Species, and their two Varieties from Culture: this, and its double State, are distinguish'd by having simple Leaves; the other two, by their being palmated, or broad like a Hand and divided, tho' not deeply, in the Manner of Fingers. We have begun to get them into our Collections, and probably the Seeds of these will add to the Number: there are several robust Plants of the palmated Kind at Mr. LEE's, rais'd from the Seed that came over with these Specimens, and it is probable some are the single, some the double Kind.

This Shrub is twelve Feet high, and naturally luxuriant in Branches; the Leaves are of a very delicate Green, and their Shape is not unhandsome. The Flowers are vast, and in their Colour baffle the faint Tincts of Art; it is a full and very perfect Crimson, and as the Light plays variously upon it, the fine Tinct gives a thousand elegant Shades. This Account came with the Specimen, and he who wrote it, cannot be suspected of Want either of Accuracy or Truth: we should have been happy if his Observations had extended farther.

This is a Hedge-shrub in CHINA; and they admit it sometimes into the wild Parts of their Gardens, but it is in the following State they plant it in the most conspicuous Places. The Season of flowering returns twice in the Year, when wild; the Beginning of Summer and late in Autumn: but by their easy Management of it in Gardens, taking off the Flowers, without suffering any to remain for Seed, they keep it in full Bloom all the Summer. The Colour of the Flower upon the dry'd Specimen, confirms the Account of its Lustre when fresh; and perhaps the double Kind, tho' full of Beauty in its Way, is hardly superior to it.

The Seeds which came with this have not yet shown their Shoot, tho' sown with the others.

D O U-

*Hibiscus foliis ovatis acuminatis ferratis glabris caule Arboreo.* Linnæus.

Single China Rose. ——— Vulgo.

## DOUBLE CRIMSON HIBISCUS.

**T**HIS elegant Shrub owes its Beauty, as well as Singularity, to the Form and Fullness of the Bloom; for Nature has retrench'd something from the high Crimson which the Flower shews in its single State. This is a Produce of the Gardener's Art from the preceding Plant; and, as in some other Instances, the CHINESE Gardeners tell us, they can bring on the Change at Pleasure: but till they name the Means, we have a Right to doubt.

The Shrub which yields these double Flowers, is scarce of half the Height of that which has them single. It forms a thicker Head, and the weak Branches are thus supported in a Length, they would not otherwise bear. It flowers all the Year, for no Seed ripens on it: and they are careful to preserve the Strength of the Plant, by adding Manure to the Earth about its Roots, and frequently cropping the Flowers, and the extream Branches.

The Specimen I received, came so perfect, that I had an easy and very favourable Opportunity of tracing the Course of Nature in doubling the Flower: this was an Article of the more Curiosity, because the Monadelphous Tribe have the Parts on which Doubleness depends, arrang'd in a peculiar Manner.

On comparing together the single and the double Flower, I could perceive that the five outer Petals of the Double were the same with those of which the single Flower was composed entirely; only they are, in this, smaller and more curl'd. On laying open the double Flower, its whole Length, I could perceive that the Tube or Column, which stands naked in the Centre of the single Flower, was continu'd along the Middle of this, tho' in a very unequal Manner, and bury'd by the Exuberant new Petals.

The Construction of the double Flower in this, was therefore instituted by Nature on the same Principle, and from the same Parts with that of the Tulip, Colchicum, and Gloriosa; namely, from the Filaments only: as those Filaments were in these Plants loose; the new Petals took their Origination from the Base of the Flower; but in this Species, those Parts being united into a long Tube, the additional Petals rose from the Surface of that Tube at different Heights.

This explains the peculiar Shape of the Flower of this Hibiscus, which is not as the Generality of others round; but conic, oblong, and growing smaller to the Top from a broad Base. The extream Length of the tubular Congeries of Filaments in the single Flower, occasions this; for it is the very Body of that Tube which breaks off into Petals and fills up the Flower. The largest of these are those nearest the Base, and they are the most perfect: the others, as they rise higher, are smaller, and they are more wav'd and curl'd. The Antheræ were quite obliterated in the new Petals of this Flower, for the Doubleness was perfect; but in the double Hibiscus following, I could perceive some Remains of them.

This Shrub agrees with the Roseate Nyctanthes, in being smaller than that which bears the single Flower; confirming that System.

M U-



*Double Crimson Hibiscus.*

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*Hibiscus* *Hibiscus*

## M U T A B L E H I B I S C U S.

**T**HE Monadelphia abound in Beauty as the Hexandria do, and they are Classes worthy of a particular Regard from all who study vegetable Nature. This Plant, and the succeeding double One, its Offspring, would be sufficient Proof of it, had not the preceding Three laid in their Claim beside. The Leaf, the Flower, the general Growth in this Species are all elegant; and there is, beside, a Variety in the Colouring of the Bloom according to its Age, which has a most romantick, as well as singular Appearance. We see in EUROPEAN Plants, Flowers differently colour'd, though the Species be the same: thus we have blue Campanulas and white ones, and a vast Variety beside: we also see in some of our Garden Plants, a Change of Colour on the same Stem, but this is slight in Comparison of the peculiar and striking Variation seen in the Flowers of this Hibiscus: they vary every Hour as they stand upon the Shrub; and the name Mutable was given it for this Reason.

At the first opening they are very pale; the Tinct is Crimson, but it is so watery in that State of the Flower, that it amounts, at the utmost, to nothing more than what we call a Flesh-colour: it is that Sort of Blush we see upon some of the naturally white Hyacinths, and on the Blossoms of the double Bramble. When it has stood to be fully open, it glows with a stronger Tinct; from this Time it becomes more and more red, till it approaches to Decay; and then there is seen it in a Colour deeper than ever, but less elegant.

'Tis common to see a Shrub, of twelve Feet high, spread out into a Head of near as much Diameter, and cover'd in a Manner with these vast Flowers, as thick and frequent as the Leaves; some almost white, and others in all the Degrees of Colouring, from the lightest Blush, to that obscure Crimson in which they fade and perish.

The whole Shrub is beautiful, the Leaves are large and of a downy Softness like Velvet: the extrem Branches have the same soft covering; and the innumerable Buds, on these, appear a great Article of its Beauty: they have the double Cup, as all the Hibisci, and they have this ting'd variously with Brown, or Red mix'd with a delicate Green.

The Characters of this Flower are the same as in the preceding, and they are express'd with sufficient Plainness. The numerous Buttons hang upon very short, loose Ends of Filaments, whose Bodies grow together, into a Tube or Column, thicker and shorter than in the single Kind last nam'd, but pierc'd in the same Manner by a Style, whose five Heads are no ill Grace in the single Flower. It shews the Class to be the Monadelphia.

This is a Weed in CHINA. It grows in waste Grounds, and over-runs whole Acres. They admit it sometimes into the remote and wild Parts of their Gardens: but 'tis the following State of it, which they admire and cultivate.

D O U-

*Hibiscus foliis cordato-quinquangularibus, obsolete ferratis, caule arboro.* Linn.

Palmated China Rose. Vulgo.

## DOUBLE MUTABLE HIBISCUS.

**T**HIS is the Shrub the CHINESE value, at that extream Rate we are told; and is, what was first and originally called, by our People, the CHINA ROSE, tho' the double Crimfon was first seen in EUROPE.

The CHINESE plant it every where before their Doors, and about their Pavillions; they raise it in Pots of their own Porcelain, and nurse it as our Florists do their Auriculas and Carnations. They give its Figure upon all their ornamental Works, Paper, Varnish, and their peculiar Ware. Every Place, and every Thing is full of it among them.

Those who saw the small Sprig which came over to me, loaded with three Flowers and as many Buds, varied with such a wonderful Elegance of Colouring, could not wonder at the Estimation wherein these People hold it. 'Tis certain, we have Nothing that comes near it. The Shape, the Colour, and the Disposition of the Flower, exceed whatever we are able to raise of any Kind: and additionally to this, it is larger than almost any other Flower. It covers the whole Shrub which produces it for many Months in a wonderful Profusion; and it has all the Change of Colour just nam'd in the single Kind.

The Shrub is smaller than in that Plant, but yet is of sufficient Stature: Nature seems to have been careful when she bestowed such Elegance upon the Flowers, not to have rais'd them above the Level of the Eyes which should behold them.

Having the same happy Opportunity of examining together the single and double Flower in this, as in the preceding Species, it was not difficult for me to discover the Course wherein Nature had proceeded to form the additional Petals. It was the same exactly, as in that. The Body of the Column lost itself in the double Flower in the Bases of a vast Multiplicity of Petals: but as that Part in the single Bloom of this Species is not long as in the other, the Flower, when double, does not acquire any Thing of that Form; but is as Roses, and other of the large double Flowers nearly globular.

When the Bud bursts, to let this vast Flower forth, the first Appearance shews it nearly white: 'tis greenish toward the Bottom, that is, the Edges of the several Divisions are ting'd a little with that Colour, which shews as singular and beautiful in them, as we sometimes see it in the fine Anemones. The Body of the Flower resembles a white and very thin Silk, glossy and wonderfully delicate; and the extream Part, form'd of the Edges of the Petals, has a Line of a Straw's Bread, or somewhat more of Crimfon.

As the Flower opens, this Colour spreads down the several Petals, and becomes stronger, so that a moderately open'd Flower, is white and red, mix'd in an equal Quantity, and forming a most pleasing Variety.

From this Time, the Red spreads farther, and becomes more glowing; till in the last Stage of all, which borders on Decay, the whole Body of the Flower is Crimfon.

As the Shrub is cover'd thick with Flowers, and shews them at once in all these Varieties of Colouring, and in a thousand Gradations between, all elegant, there cannot be conceiv'd in vegetable Nature, a Sight more pleasing, or more wonderful.



*Double mutabile Hibiscus.*

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*Blood-stained Hypericum.*



## BLOOD STAIN'D HYPERICUM.

**T**HE Lord NORTHUMBERLAND, born to improve as well as patronize the Science, added this elegant Plant to the EUROPEAN Botany. This Nobleman first rais'd it here from Seeds obtain'd from CHINA, a very few Years since; and from his Store, all the curious Gardens now are stocked with it. Tho' a Native of the EAST, it bears the open Air with us, and flowers all Summer: our Winters are too sharp for its longer Continuance in that State, but in any Part of EUROPE, a few Degrees more South, it will doubtless live and flower all the Year. With us only the Superficies dies in Winter; the Root remains, and sends up a new Shrub early the following Spring.

'Tis a Yard high: firm in the Stem, and variously branch'd: it forms a fine wild Shrub for Clumps in Gardens, and its Flowers have an uncommon Beauty; both in the Bud, and when full blown.

The Buds are very large, and tho' their general Colour is yellow, they are always stain'd in irregular Streaks and oblong Blotches, with an absolute Blood-red.

When the Flower opens, the whole inner Surface is a fine Yellow; but behind, this staining of the Bud preserves itself in all its Lustre: and as the Flowers droop or bend accidentally, or as the Winds move them, these Crimson Stains are seen upon the Back, and make a fine Variety.

The Stem is cover'd with a brown, rough Bark, and often from its Ridges has a square Aspect: the Leaves are firm, and tho' there be some Stiffness in the Manner of their Growth, it is singular, and upon the Whole not unpleasing. They are not pierc'd with those small Holes which we see in the Leaves of common Hypericum, when held up to the Light.

The Filaments are numerous in this Flower, but they are collected by Nature into five separate Clusters: this shews the Class to which the Plant belongs, the POLYADELPHIA. The Number of these Arrangements, into which the Filaments are join'd, is not essential, only it must be more than two. This Disposition of the Filaments is not easily seen in the entire Flower, because those of each Arrangement cohere only at their Bases; but if they be pull'd out of the Flower, they come away always in these five Clusters; and the Base of each Cluster is something more than an Union of so many Filaments; it is a solid, oblong, fleshy Substance, from which they take their Rise.

Nature has been very sparing of the Polyadelphous Plants; besides the Hypericums and Ascyrums, we know only the Cocoa and the Orange Kind.

Among the Hypericums, some have five Styles, some three, and others two. This has been supposed to have only one: but the Summit of that one is plainly divided into five; and the Body of the Style is form'd of the Continuations of these five distinct Parts; only cover'd by one slight Membrane, and terminating in five Cells in the Seed-vessel.

L E-

It is discover'd, since Linnæus publish'd his Species, therefore it has not yet been nam'd, except by Gardeners. It may be call'd *HYPERICUM PENTAGYNUM STYLIS INVOLUTIS*.

## L E P I A.

**I** Have the good Fortune here to add a new Genius to the present Stores of Botany : and Men will wonder that I have not follow'd the Custom of the modern Writers, and nam'd it from my Patron ; or from some Friend who could return the Compliment. But in this, I think, the Antients were more wise. A Name is useful when it conveys some Idea of the Plant : I have therefore call'd this LEP<sup>I</sup>A. The Scales of the Cup are its most obvious Distinction from all others ; and that Word expressees it. I have comply'd so far with Custom, as to deduce it from the GREEK ; but in the common Practice of naming Plants from Men, the Folly is extream, and the Flattery fulsome. All laugh to hear a Tulip call'd the King of PRUSSIA, or an Auricula Prince FERDINAND. Why is the Ridicule less to name other Plants Mitchella, or Mille<sup>r</sup>ia ; Catesbæa, or Collinsonia ? The Botanist that can't preserve his Name by better Marks, does not deserve that it should be remember'd.

Singularity is the best Claim this Plant has to our Regard ; for it cannot boast much Beauty. A Specimen of it came with my other CHINA Plants and Seeds, but the present Figure is taken from a Plant produc'd from those Seeds in ENGLAND. Mr. LEE, of HAMMERSMITH, a very excellent Gardener, rais'd it.

The Height is near three Feet ; the Aspect of the Plant, rough and inelegant. The Stalk is firm, and the Leaves are hard. The Flowers are very numerous and considerably large, and they are very lasting. In this Plant the first Flower attain'd a Perfection, none of the Rest reach'd ; and remain'd on the Plant several Weeks.

The radiated Syngenesious Plants, to which this belongs, are different from all others. Each Flower consists of many tubular Floscules, or little Flowers in the disk, and many flat ones at the Verge making the Rays ; but the Character of the Class is taken from a lesser Mark. The Filaments in each little Flower are five, and their Buttons unite into one Body. In some they stand out far beyond the Flower ; in this they are less conspicuous.

In the midst of these five Filaments is a Style, divided into two Parts at the Top, and in the Bosom of each Ray is also a Style ; but there are no Filaments.

The Flower of the Lepia is constructed thus : the Cup is long and hard, and is compos'd of broad hollow Scales ; each swelling forwards, and crown'd with a rounded Rim of a dry and more delicate Substance. The Rays are female Floscules : each rises from the Head of a Seed ; it has in its Bosom a Style, and is divided by three Dents at the End. The tubular Floscules rise in a conic Head which is form'd of young Seeds, cover'd with light Films and crown'd each with two Thorns : in the Hollow, between these rests the Rudiment of the Style. These Parts I have figur'd separately ; together with a Section of the principal Flower, to shew the conic Receptacle ; and of an imperfect Flower exhibiting the Difference of the Cup. The tubular Floscule entire is also shewn fix'd at the Head of the Seed, divested of its shelly Coat.

The Plant has been thought a Bidens, but the scaly Cup and conic Receptacle, shew their Mistake who held that Opinion. It is distinct from all others : but Errors in this Class are more pardonable than in any other, for it is the most obscure of all.

A M-



*Lepus.*

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1876  
1877  
1878



*Ambrosial Aster.*

## A M B R O S I A L A S T E R.

**T**HIS specious Aster has been some Time familiar with us single; but I have not seen it double till the present Year. In any State it is a singular and very elegant Plant: but the Double exceeds the common State of the Flower in this, as much as in the Famous, and now common CHINA Aster. The Stem is robust and a Yard high; the Branches are innumerable; and the small curl'd Leaves run up into the Cup. As the Progression from the single to the perfectly double Flower has been this Year completed under my Eye, I shall take this Opportunity of explaining the Manner wherein the Flowers of Syngenesious Plants are doubled: for it is altogether different from the Course wherein Nature pursues the same Purpose in the other Genera. The Flowers are very lasting, whence I have nam'd the Plant Ambrosial, immortal.

The radiated Syngenesious Flowers we see are complex: each is form'd of many lesser Flowers or Floscules, and these are of two Kinds; those tubular and short which form the Disk of the general Flower, and those long and flat which make the Rim. In this Instance they differ also in Colour, those of Disk being yellow, and those of the Rim Purple: these several Floscules have been suppos'd perfectly distinct; but we shall see they are so nearly ally'd, that Nature, in a State of Luxuriance, converts easily the one into the other. In this Plant the tubular Floscules are thus form'd. Each is made of one yellow Petal fix'd upon the Rudiment of a Seed and cut at the Summit into five small Segments. The Rays rise in the same Manner, each from the Head of a Seed, and these have also a tubular yellow Base, tho it has not been regarded; which, instead of dividing at the Top, into five Segments, opens, becomes lengthen'd, and changes Colour; so that it is continu'd into a Ray or flat Petal; whose Base is hollow. In this Floscule is a Style, as in the others; but there are no Filaments.

The Course by which Nature forms a double Flower in this Plant, is by giving more Growth to the tubular Floscules, and thus they are converted into Rays. I have express'd in separate Figures, all the Gradation. The tubulated yellow Base is the same in these Floscules, and in the Rays; and the Change is thus brought on. First, one of the five Segments, of a yellow tubular Floscule, grows longer than the others: in the next Stage, it joins the two which are next it, to its own Body; and growing yet longer, there is one long Segment, and two short ones: the long one also begins toward its Top to assume the purple Colour of a Ray: the next Stage obliterates the two Segments which were left in the former; and the Floscule is now tubular at the Base, with a plain, long, and partly flat Body. One Stage more perfects the Doubleness: for this flat Part growing more in Length, and acquiring a full purple Colour, becomes a perfect Ray. The Filaments in this Case, fade for Want of Nourishment, but the Style remains; and these Rays of the Centre become the same entirely with those of the Verge.

Thus is the Flower of the Aster doubled: but as there yet remain usually some perfect tubular Floscules in the Middle, tho' they are hid by these numerous Rays, part of which fall over them; the double Flower itself can therefore ripen Seeds. This is not peculiar to the present Plant, the double CHINA Aster is form'd in the same Manner, and also ripens Seeds.

T R A N S

## TRANSCENDANT EPIDENDRUM.

**A**LL Things conspire, which can be valuable in a Plant, to recommend this to our Regard, and establish its just Title to the name Transcendant. We admire some for Colour, others for Smell; some for the pleasing Wildness of their Growth, and many for their vast and numerous Flowers: this has all. Its Height is determin'd only by that of the Tree on which it climbs; for like our Ivy, it takes hold of every Thing, winding its tough Stalk round the Trunk, and scattering its Divisions among the Branches. The Plant from whence the Specimen was taken, cover'd a Tree equal to our tallest Elms, and many hundred Flowers were open upon it together.

The Leaves are not without their Beauty, for they play in many Undulations, and have a fine Colour: the Flowers are as singular as any Thing in Nature. The CHINESE, from their Figure, give the Plant a Name which signifies the Scorpion Flower; for they suppose a Resemblance of a Head, a Body, and four Legs: and they are so indifferent Naturalists, they never think of the Absurdity of a four leg'd Scorpion.

The Colour of the Flower is yellow in the Ground, and they are clouded and spotted variously with a fine deep Crimson. The Petals turn back at the Sides and Ends; otherwise the Body of the Flower would be much fuller, and would appear larger. They have the Fragrance of the animal Perfumes: the Scent is such as an artful Person might produce from a Mixture of Musk and Civet, where neither was predominant, nor the Whole so strong as to be offensive.

The Flower has no Cup: it is plac'd naked upon the Rudiment of the Fruit; which is long and lightly furrow'd. The Body of the Flower is compos'd of five distinct and wide expanded Petals. In the Centre, where Filaments, and a Style might be expected, is plac'd a singular Body, a Nectarium, form'd of four Pieces. Three of these are flat, the fourth, or uppermost, is thick and hollow; and these all unite at their Bases in a tubular Body, which takes its Origin from the very Head of the young Fruit. Within the hollow Part of the Nectarium rises the Style, and upon that are fix'd the Antheræ. They are two, and they have very short Filaments. The Fruit which follows, is a long fleshy Pod like the common Vanilla.

The Characters of a Class, different from all those we have before nam'd, appear in this Flower: it is that of the Gynandria which have their Name from the peculiar Situation of the male Parts upon the Female; the Buttons growing upon the Style.

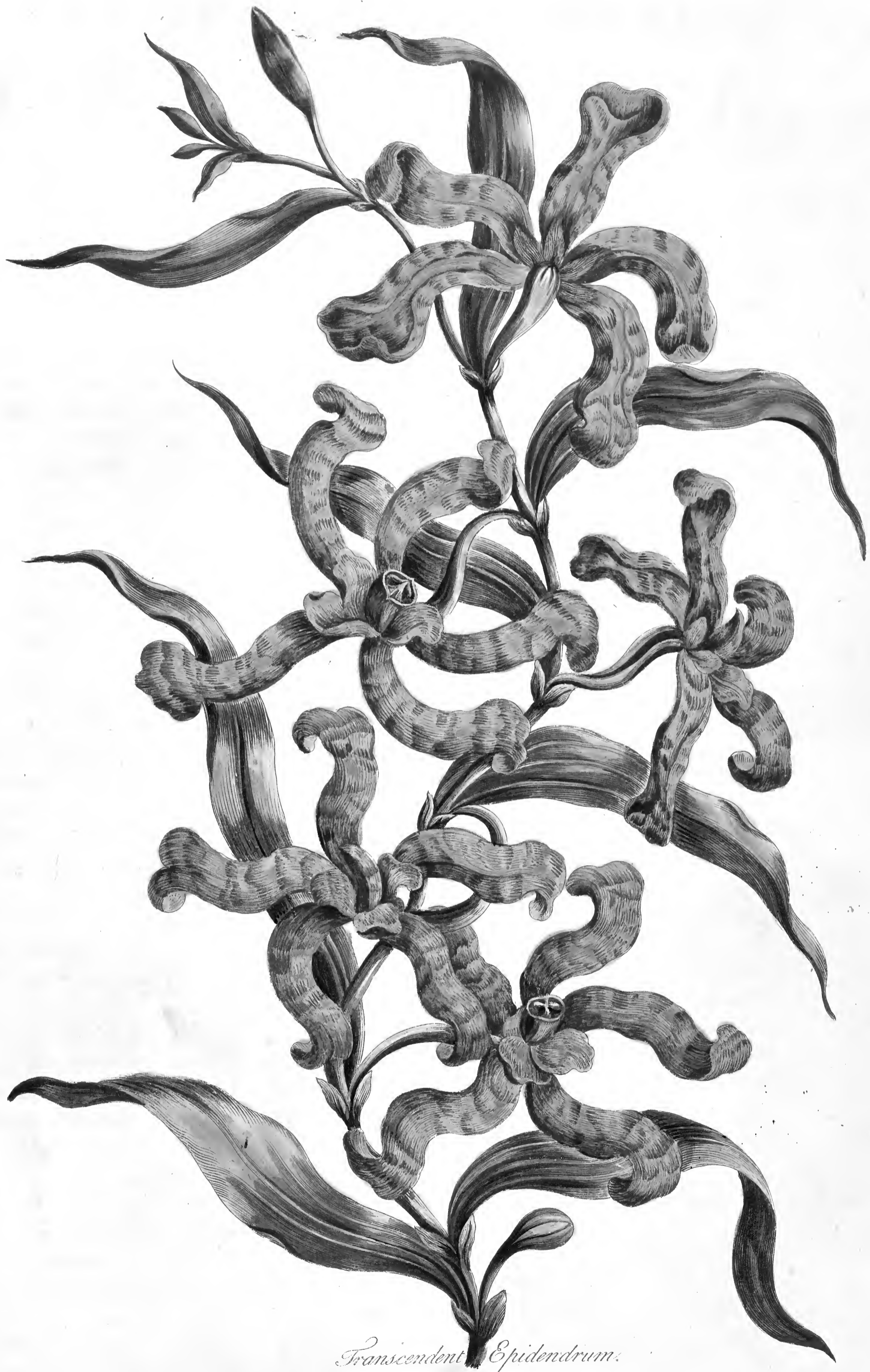
'Tis singular that the fine Scent of this Flower resides in the Nectarium, and the Petal to which that principally adheres; which is that supposed to represent the Body of the Scorpion. It is strongest when the Flower just opens, and grows weaker from that Time, but the Profusion of Bloom makes this less regarded on the Plant.

G O L-

Epidendrum caule adscendente tereti subramoso foliis lanceolatis petalis linearibus obtusis. Linn.

The Scorpion Flower.





*Transcendent Epidendrum.*

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*Golden Momordica.*

## GOLDEN MOMORDICA.

**T**HIS is another of those climbing Plants of the CHINESE, which in their native Wildness cover Trees. The Fruit in this is the most striking Part; large irregularly, rais'd in Tubercles; and of a golden Yellow. This is its first State, and in this 'tis very beautiful; but when it bursts with extream Ripeness, and shews the inner Coat, there is a new Scene of Wonder: the Crimson upon that is much more striking than the rich Colour of the natural Outside; and the Variety the white Seeds form, adds to the general Beauty: they seem so many Crimson Lumps under the Skin, while they are cover'd by it, as they are in a very peculiar Way originally: but when that bursts, and lets them out, they are white.

The Plant is weak and always gets Support; but like the preceding, when it has once fasten'd on a Tree, it climbs to the full height of it; and covers all its Branches. The extream Ends of the Stalk, after this, hang down partly by their own Weakness, and partly by the Weight of the Fruit: and as this is produc'd in vast Profusion, the Wind blowing the Branches one against another, strikes these together in a wild and very whimsical Manner. Nature, perhaps, ordain'd this to favour the Bursting of the Fruit for the Sake of the Seeds being discharg'd; for this is so firm in their Substance, that it would be a great while before they open'd otherwise.

The Flowers, which cover this Plant in great Profusion, are of two Kinds; and they lead us to another Class in the sexual System. They might appear all alike to an incurious Eye, but when their inner Part is examin'd, we find in some the male Organs of Fructification only; and in others only the Female: 'tis thus in Melons, and a Multitude of other Plants; and as in those Kinds, so in the present, the first mention'd, or male Flowers fall off without any farther Use, the Female only being succeeded by Fruit.

The Male and Female Flowers have equally a small Cup cut into five Segments; and one of them, as well as the other, has five Petals, which grow to, or rise from this Cup. In the male Flower the Filaments are three, they are very short, and each supports its proper Button: but these are not alike; for two of them are split at the End and have an Appendage on each Side, but the Third has only one of these Appendages.

In the female Flower there are the Rudiments of three Filaments, but there are no Buttons upon them. There rises in the Centre a Column or Style with three Heads, and under the Flower is the Rudiment of a Fruit which afterwards ripens to the Form here figur'd.

In the Generality of Plants, the Filaments and Style are plac'd in the same Flower; and in those Cases the Classes are characteris'd from the Number and Infertion, or Proportion of those Parts. In this and many others they are in separate Flowers; but those being upon the same Plant, they are call'd Monœcia: in others yet the male Flowers grow upon distinct Plants from the Female, tho' of the same Species; as in Hemp, Spinach, and the like; and these are call'd therefore Dioecia.

There is not a more singular Plant than this, or more worth Culture in the whole Monoecious Class.

S P I-

## SPIRAL VALLISNERIA.

I Had Occasion to mention, in the last Page, those Vegetables which have the Male and Female Flower, not only distinct in themselves, but placed upon separate Plants. This Vallisneria is an Instance; nor is it possible for Nature to produce one more wonderful. The Flowers of the two Sexes are not only distinct, but they are unlike to one another; nor is any Thing so strange as the Method pursu'd by Nature to bring them together, for the Propagation of the Plant: the male Flowers growing under Water at a great Depth, and upon short Footstalks; the Female having very long and wonderful ones, and floating on the Surface.

The whole Account, as given by accurate Writers, seems yet scarce credible; and LINNÆUS laments that he has not seen the Flowers. I obtain'd the Specimen from which this Drawing is made from ITALY, by the Favour of Mr. BROMFIELD, the Princes's Surgeon; whose Interest there procur'd me the perfect Plant and all its Parts.

It takes Root always at the Bottoms of Ditches of three or four Feet deep; and whether the Plant be Male or Female, cannot be known till the Time of flowering: the Root and Leaves being perfectly alike in both. The Root is fibrous, and the Leaves are very long and narrow: their Colour is a fresh Green, and they play about variously with the Course of the Water.

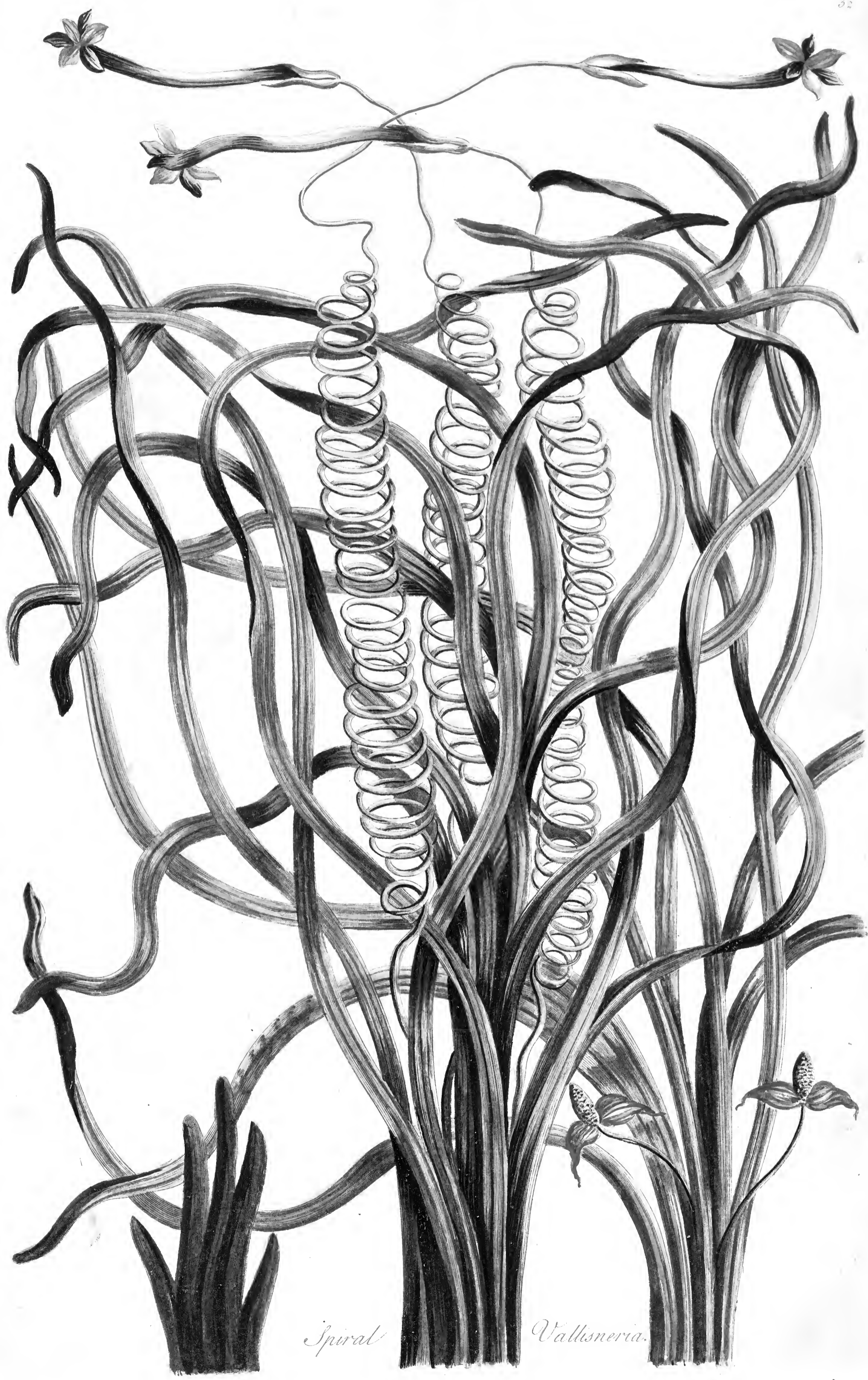
At the flowering Season, the Male and Female shoot up their Stalks together. The male Stem is most inconsiderable, 'tis very short, and has a Spike of little Flowers, whitish and cut into three Parts, and in the Centre of each of these are two short Filaments, crown'd with Buttons.

The female Plant sends up its Stalk even to the Surface of the Water: and by a peculiar Mechanism, always lays the Flower which terminates it, flat upon that Surface; open to the Air. The Mechanism is this: the Stalk is twisted in a spiral Form; and while the Flower is but in Bud, the several Convolutions are apply'd close together; so that it is very short. When the Flower is ready to open, the spiral Coil unwinds itself, and the bursting Bud is laid upon the Surface: there the Sun warms it, and the Flower is open'd perfectly. If the Water be within the Influence of Tides, or by any other Accident is at Times deeper and shallower, the spiral Form of the Stalk winds or unwinds itself just as much as is necessary to keep the Flower upon the level Top of the Water. This is needful for the Impregnation of the Seeds; which is indeed perform'd in a Manner altogether wonderful.

When the male Flowers are ready to burst, they separate of themselves from the Stalk; and being light they rise to the Surface of the Water: there they float loose; and there the female Flower lies upon the same Level ready to receive the Dust from their Buttons. As the Winds, or Current throw the male Flowers about, some of them get at the Female, and thus the Seed-vessel which follows that Flower is impregnated.

Nothing in Nature is more strange than this Production of two Kinds of Plants, so far as the Flowers are concern'd from the same Seed: for the male Vallisneria rises from the Seed of the female Plant as well as the Female; and so it is throughout this Class.

C R I M-



*Spiral*

*Vallisneria.*

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*Crimson Fig.*

## C R I M S O N F I G.

**T**HE Shape as well as Colour of this Fig is pleasing: it is a perfect Globe, and when full ripen'd in its native Climate, it glows throughout, upon the Surface, and within with the most perfect Crimfon.

It grows to five and twenty Feet in Height, but is a weak and ill shap'd Tree; always the better for Support and the more Luxuriant. The Roots are cover'd with a purple Bark, and the same Colour; tho' it be loft upon the Stem, appears upon the young Shoots above the Infertions of the Footstalks of the Leaves; and all about the Fruit.

From various Parts of the Trunk, and of the drooping Branches, where they are within the Reach of the moist Exhalations of the Ground, there grow out certain Threads, which, by Degrees, lengthening and acquiring more Thickness, hang at last to the Ground, and pierce it, in the Manner of natural Roots produc'd below the Surface. The World is well acquainted, that there is a Fig-tree, whose Branches droop to the Earth, and there take Root again. It is a Property common also to our Bramble of the Hedges, and many other Kinds wherein it has pass'd unregarded: this Way of producing Roots in the open Air, tho' less attended to, is really more singular.

The Bark of the Trunk is a pale brownish Grey: The Branches are in a Manner jointed at small Distances; and from every Joint rises a single Leaf supported on a thick, firm Footstalk. The Leaves themselves are of a handsome Shape, oval, undivided, and obtuse. They are of a firm Substance, and of a deep and strong green Colour, diversify'd not inelegantly with bright Crimfon Veins. These would alone recommend the Shrub to our Regard, if it never fruited with us, for they are very elegant, and they are ever green.

The Fruit is nearly of the Size of our most common Fig, but round; and it grows from the Branches in the same Manner, no Flower having preceded.

The Fructification of the Fig has been, till of very late Time, so little understood, that the Shrub was class'd, even by the best Writers, along with Ferns and Mosses among the Cryptogamia. This was a Disgrace to Botany as a Science: but it is since remov'd. The Antients knew, that the wild Fig they call'd *Caprificus*, was necessary to the ripening of Fruit upon the Female; and this, tho' slowly, led the modern Botanists to understand the Course of Nature: which is thus.

That which we call the Fruit of the Fig, is properly a fleshy, juicy Cup, containing many Flowers. These in the common Fig-tree are either Hermaphrodite, or Female; but upon the *Caprificus*, they are Male: and this *Caprificus* is the same Species; as is the male *Vallisneria*, only differing in the Production of simply male Flowers. This is the Character of the Class call'd Polygamia. Without these male Flowers, the Seeds of the common Fig will not well ripen: tho' the Fruit, as it is call'd, becomes pulpy, soft and esculent. Young Trees will be rais'd by the Seeds of such as have been impregnated from the male Plant; and not from those of others.

E N O R-

*Ficus foliis ovatis integerrimis obtusis caule inferno radicato.* Linn.

Bengal Fig.

## ENORMOUS POLYPODY.

**A** Single Leaf makes but a simple Appearance after the gorgeous Clusters and profuse Elegancies of Nature, represented justly, if imperfectly, in the preceding Plates : But in the fern Kinds, to which this belongs, a Leaf is all. It is the whole Plant entire, and capable of Propagation ; these bear no Stalk for Flowers, but the whole Herb is here. The golden Dots upon the pale Backs of the Leaves are Clusters of minute Flowers and their succeeding Seeds. These are so small, and the Progress of Nature in performing the great Work of Impregnation, is so hid from our Sight by the Minuteness of the Organs, that the whole Class is thence nam'd Cryptogamia ; those which impregnate in Obscurity. It was proper to give one Plant of this peculiar Class ; and Fortune could not have thrown in the Way a nobler : for what Beauty there can be in a Leaf this has ; and there is also a Singularity about the Root, worthy particular Regard. Many of the Ferns, and even of this particular Polypody Kind, have Leaves more complex in their Form, and more divided ; but those who have study'd the Art of Design, will give the Prize of Elegance to this whose Parts are all large, suited to the enormous Whole.

The antient Naturalists have nam'd a Creature, call'd the Scythian Lamb, and told us idle Stories of its Life : nay, some have brought the Body into ENGLAND ; and we have seen the Folly and the Falsity of the Accounts by that unerring Evidence. This Lamb is the thick Root of a Fern, cover'd with a brown and downy Coat, and they cut off four of the Stalks at a due Heighth, which pass upon the credulous for Legs. This Polypody will explain the Miracle ; and as it is evidently a Native of CHINA and the neighbouring Countries, tho' we first had it only from South AMERICA ; it is not improbable the very best of those imagin'd Creatures have been made from it.

Near the decaying Stump of some old Tree, where the Soil is mellowed by the fallen Leaves of many Seasons, rises this specious Polypody. The thick Part of its Root creeps variously and wildly upon the Surface of the Ground, tho' under Shelter partly of the Leaves : this is cover'd in a surprising Manner with a brown silky Manner, and from this shoot the Fibres. A fertile Imagination might find easily the Forms of Bears and Bulls, as well as Lambs in it ; as Children see such Figures in the Fire, or Astronomers in the Heavens. And as Stalks rise from thence in many Parts, Legs enough may be form'd at Pleasure.

The Plant rises to a Yard in Heighth or more ; and its long undulated and fair Divisions, are decorated on the Back with round Clusters of Seeds of a gold Yellow. This is the Character of Polypodies among the Cryptagamous Class ; the rest having the Clusters in long Lines, or on the Edges of the Leaves, or covering their whole Surface.

Nature seems to have consider'd a beautiful Out-line in the Formation of this Leaf in a peculiar Manner : not only the Divisions are elegant and plac'd elegantly, but their Proportion and Disposition are vary'd to favour it. The lower Lobes are kept distinct, and the terminating Part is larger than the rest ; both these Particulars are Sources of Beauty.

*Polypodium frondibus pinnatifidis lævibus pinnis oblongis distantibus infimis patulis, terminali maxima.* Linn.  
Golden Polypody.



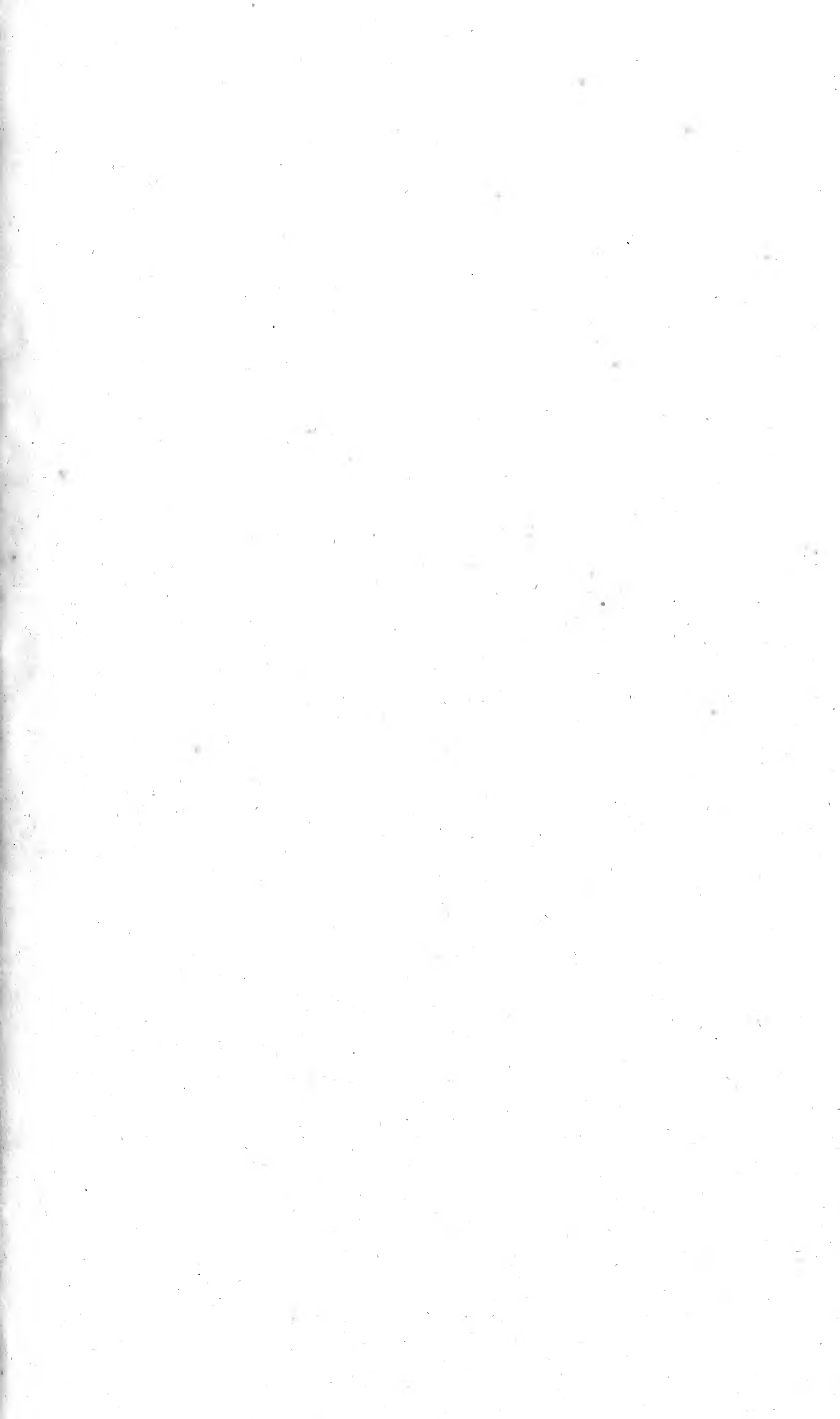
*Sternia Lycopodium*

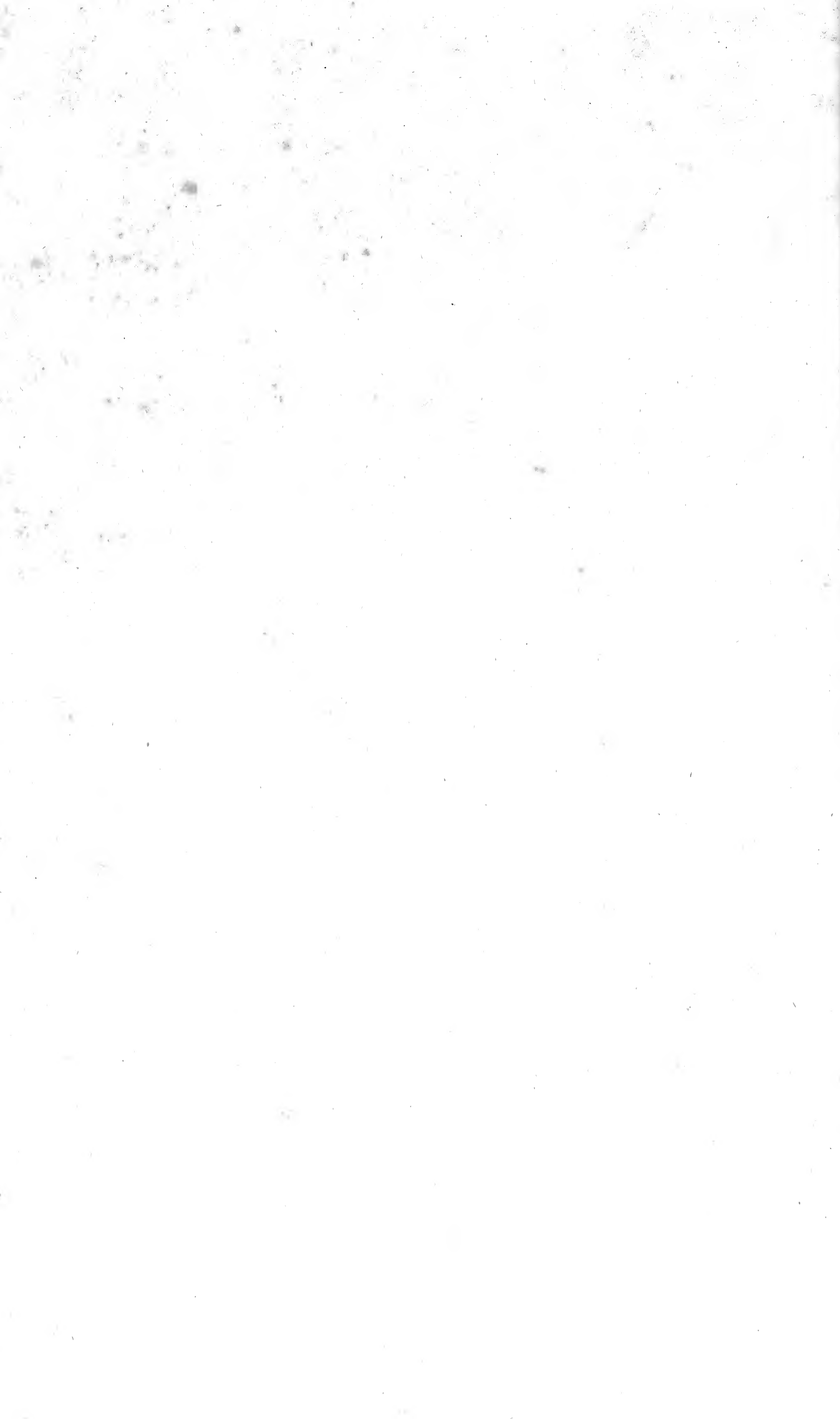
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