

altogether with the same success, by his not observing, that if the base and one of the sides be completed to semicircles, the second of the two proportions in the supplemental triangle thence formed leads directly to the first in the original triangle.

And to conclude, if two sides, and the angle opposite to one of them, or two angles with the side opposite to one, were given; when the other opposite part is found from the proportion between the sines of parts opposite, the remaining angle, or side, may be found by either of the two proportions foregoing.

LXXXII. *An Account of the Plants Halefia and Gardenia: In a Letter from John Ellis, Esq; F. R. S. to Philip Carteret Webb, Esq; F. R. S.*

Dear Sir,

Read Nov. 20, 1760. **Y**OU must have observed, that as the spirit of planting has increased in this kingdom, the study of botany has become more fashionable; the works of the celebrated Linnæus, heretofore looked on as capricious and strange, are now in the hands of every man, who wishes to study the order of nature.

The great variety of plants, which you have introduced into your garden from North America, as well as from many other parts of the world, must give you double pleasure, when you view them ranged in proper order, and judiciously named.

The

The calling of plants after the names of botanists, as well as after the names of those, that have been, or are the promoters and encouragers of this useful science, is not without its advantages; and this custom has been followed by Linnæus, and recommended by him in his *Philosophia Botanica*. It has this good effect; it stimulates many to the searching after new discoveries, and still further improvements in agriculture and vegetation, a truly wise and laudable end.

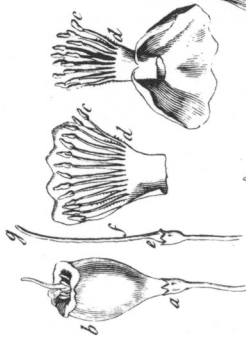
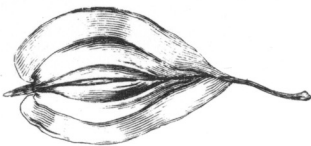
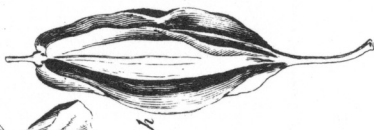
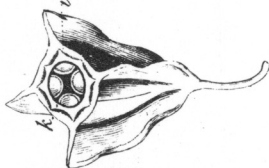
The intent of this letter is to lay before you the characters of two new genera of plants, now growing in your garden, which I shall take the liberty to call after our worthy friends Dr. Stephen Hales of Teddington, and Dr. Alexander Garden, physician in Charlestown, South Carolina.

The plant, which I shall first describe, is the *Halefia*; and in order to give you a better idea of it, I shall transcribe the account Dr. Garden sent me of it, when he sent the specimens and seeds.

“ This beautiful tree grows commonly along the  
 “ banks of Santee river, and rises often to the size  
 “ of middling mulberry-trees. I have seen it some-  
 “ times more southerly, near the small rills of water;  
 “ but of a much smaller size than that which grows  
 “ on Santee. The wood is hard, and veined; the  
 “ bark is of a darkish colour, with many irregular  
 “ shallow fissures. The leaves are ovated, and sharp  
 “ pointed, with the middle depressed, growing al-  
 “ ternately on short footstalks. The flowers hang  
 “ in small bunches all along the branches, each gem  
 “ producing from four to eight or nine flowers, bell-  
 “ shaped, and of a pure snowy whiteness. As they  
 “ blow







A. HALEZIA (*tetraptera*) / fructibus membranaceo-quadrangulatis  
 B. HALEZIA (*dipetala*) / fructibus alatis



“ blow early in the spring, before the leaves appear,  
 “ and continue for two or three weeks, they make  
 “ a most elegant appearance. They are followed  
 “ by pretty large four-winged fruit, which likewise  
 “ hang in bunches, each containing four kernels,  
 “ that are very agreeable to the taste.”

This tree is mentioned by Catesby, Vol. I. p. 64. and called *Frutex padi foliis non serratis, floribus monopetalis albis, campaniformibus, &c. &c.*

I have not heard that it was cultivated in England, till about four years ago, when the Doctor sent me over from Carolina a large parcel of the seeds, which I distributed among many curious gardeners, and others: but I cannot find any one that it has succeeded so well with as Mr. James Gordon, gardener at Mile-end, a man, who seems to be possessed of a knowledge peculiar to himself, in raising all the rarer and most difficult exotics from seeds, layers, or cuttings. He informs me, that it stands our winter in the open air, without any shelter; which confirms what Mr. Clayton of Virginia has lately wrote, that it stands even the severity of the winter of that country. So that it may, in a little time, prove a most agreeable ornament to our gardens in the spring.

About two years ago, I received from Governor Ellis of Georgia another species of this tree, which was sent him by Mr. De Brahme, from Augusta in Georgia, three hundred miles up the river Savannah.

The fruit of this kind has two wings, as described in the Plate, at B. [*Vide Tab. XXII.*]

The characters of the *Halesia* are as follows.

- CAL. (a) *Perianthium* monophyllum, superum, minimum, persistens, quadridentatum: denticulis acutiusculis, erectis.
- COR. (b) *Petalum* campanulatum, magnum, ventricosum; *limbus* quadrilobus: lobis minimis, obtusis, patulis.
- STAM. (c d) *Filamenta* (d) duodecim, (raro fere decim) tubo corollæ inserta, basi connata, subulata, erecta, corollâ paulo breviora. *Anthera* (c) oblonga, obtusâ, erectâ.
- PIST. (e f g) *Germen* (e) oblongum, inferum. *Stylus* (f) filiformis, corollâ longior, persistens. *Stigma* (g) simplex.
- PER. (h) *Nux* corticata, sub cortice fulcata, oblonga, utrinque angustata, membranis angulata, quadrilocularis (k).
- SEM. (i) solitaria, lineari-oblonga.

The species are,

- tetraptera. 1. *HALESIA* fructibus membranaceo-quadrangulatis.
- diptera. 2. *HALESIA* fructibus alatis.

The other plant, which I am to describe, is known by the name of the Cape Jasmine, and is the most rare and beautiful shrub, that has yet been introduced into the European gardens, as well for the refreshing aromatic smell of its double milk-white flowers, as the perpetual verdure of its leaves, which are like those of the lemon-tree. [*Vide Tab. XXIII.*]

It









Pl. Magna. vol. 1.

A. The Calyx of the GARDENIA with the flower not yet expanded to show the evolution of the segments of the Petal. B. The Calyx of a single flower according to G. C. C. The Tube of the Corolla cut open to show the 5. Stamens. D. The Pistil. E. The top of the Calyx cut off to show the upper part of the Germen. at F. G. The Perianthium cut horizontally to show the Rudiments of the Stems below the receptacle of the flower. at F. H. The Corolla of the common, Esamine cut open to show the 5. Stamens. I. The Pistil of the Esamine with its Germen above the receptacle of the flower. K. The part of the Esamine above the receptacle of the flower. —



It promises, from the thickness and woodiness of its stem, together with its free manner of growing, to become a shrub of six or seven feet high.

It bears but one flower at the end of a branch; and the leaves grow opposite to each other on the branches.

We are indebted to Capt. Hutchinson, of the Godolphin Indiaman, for this curious discovery, who, about six years ago, found it growing near the cape of Good Hope, and, on his arrival here, presented it to Richard Warner, Esq; of Woodford in Essex; who finding great difficulty in propagating this valuable plant, either from cuttings or by inarching it on the yellow Indian jasmine, as he had been advised, I recommended him to try Mr. James Gordon, gardener at Mile-end; and, at the same time (August 1757), by the interest of my worthy friend Gustavus Brander, Esq; F. R. S. I procured two cuttings of it for Mr. Gordon. These, with two more, which he afterwards received, he increased to so considerable a number, that, in order to dispose of them, he advertised them for sale, at five guineas a plant; and has had such success in the sale, that, reckoning the value of the plants on hands (with a proper allowance for the falling of the price, as they become more plenty), he computes this plant will be worth at least five hundred pounds sterling to him. I mention this; because I am persuaded it must give you, and all lovers of vegetation, great pleasure to see a man thus amply and deservedly rewarded for his superior merit in this art.

Having dissected many dried as well as fresh specimens of this rare plant, I found sufficient evidence

(notwithstanding the flowers being double) to prove, that it belonged to quite another class of plants, as different from the Jasmine as the Rose is from the Peony: that the fruit was below the receptacle, instead of being above it. But, in order to be more certain, you may remember, in July 1758, I procured a specimen from Mr. Warner, for my friend Dr. Linnæus's opinion. At the same time I wrote to the professor, that if he found it to be a new genus, agreeable to the description I had sent him, that he would please to call it *Warneria*, after its worthy possessor. In his answer, he sets forth the impossibility of his being exact in determining a new genus from a double flower, agreeable to the rules he has already laid down in his *Fundamenta Botanica*. But these objections were soon after fortunately removed, by accidentally finding, among his dried oriental plants, a specimen of the same kind with a single flower, which, upon expanding it in warm water, and dissecting it, he found it to agree very nearly with the description I had sent him. But Mr. Warner refusing to have it so called, and chusing that it should still remain a Jasmine, as it is commonly called, I have thought no man more worthy, as a botanist, than our friend Dr. Garden: accordingly, the professor has agreed to adopt this new genus by the name of *Gardenia*, which he says belongs to the natural order of contorted flowers, that is, to those monopetalous flowers, whose lobes, or sections of the limb of their petals, turn all to the right hand; such as the *Nerium*, *Plumeria*, *Cerbera*, *Cameraria*, *Vinca*, &c. and that it should be placed next to the *Cerbera*.

Mr.

Mr. George Dionysius Ehret, F. R. S. has lately published a most elegant plate of this plant, by the name of, *Jasminum?* ramo uniflore pleno, petalis coriaceis, with a note of interrogation, as a quære, before the word *Jasminum*; leaving the determination, whether it is a *Jasmine* or not, to a future inquiry.

The characters of the *Gardenia* are,

[ *Vide Tab. XXIII.* ]

- CAL. *Perianthium* monophyllum, quinquangulare, quinquepartitum: *laciniis* ensiformibus, verticalibus, strictis, erectiusculis, persistentibus.
- COR. *Petalum* hypocrateriforme; *tubus* subcylindricus, calyce longior; *limbus* quinquepartitus, planus: *laciniis* obovatis, longitudine tubi, altero margine rectiore.
- STAM. *Filamenta* quinque, tubo corollæ adnata, in fauce brevissime libera; *Anthera* lineares suberectæ, longitudine dimidii limbi.
- PIST. *Germen* infra receptaculum, oblongum. *Stylus* filiformis, longitudine tubi corollæ, definens extra faucem in *Stigmata* duo, magna, crassa, obtusissima.
- PER. *Bacca* sicca, oblonga, bilocularis.
- SEM. plurima, minima.

There is but one species known.

*Jasminoides.* 1. GARDENIA.

I am, Dear Sir,

Your most affectionate

humble servant,

London, Nov. 20, 1760.

John Ellis.



A. *HALESIA* (*heteroptera*) *fructibus membranaceo-quadrangulatis*

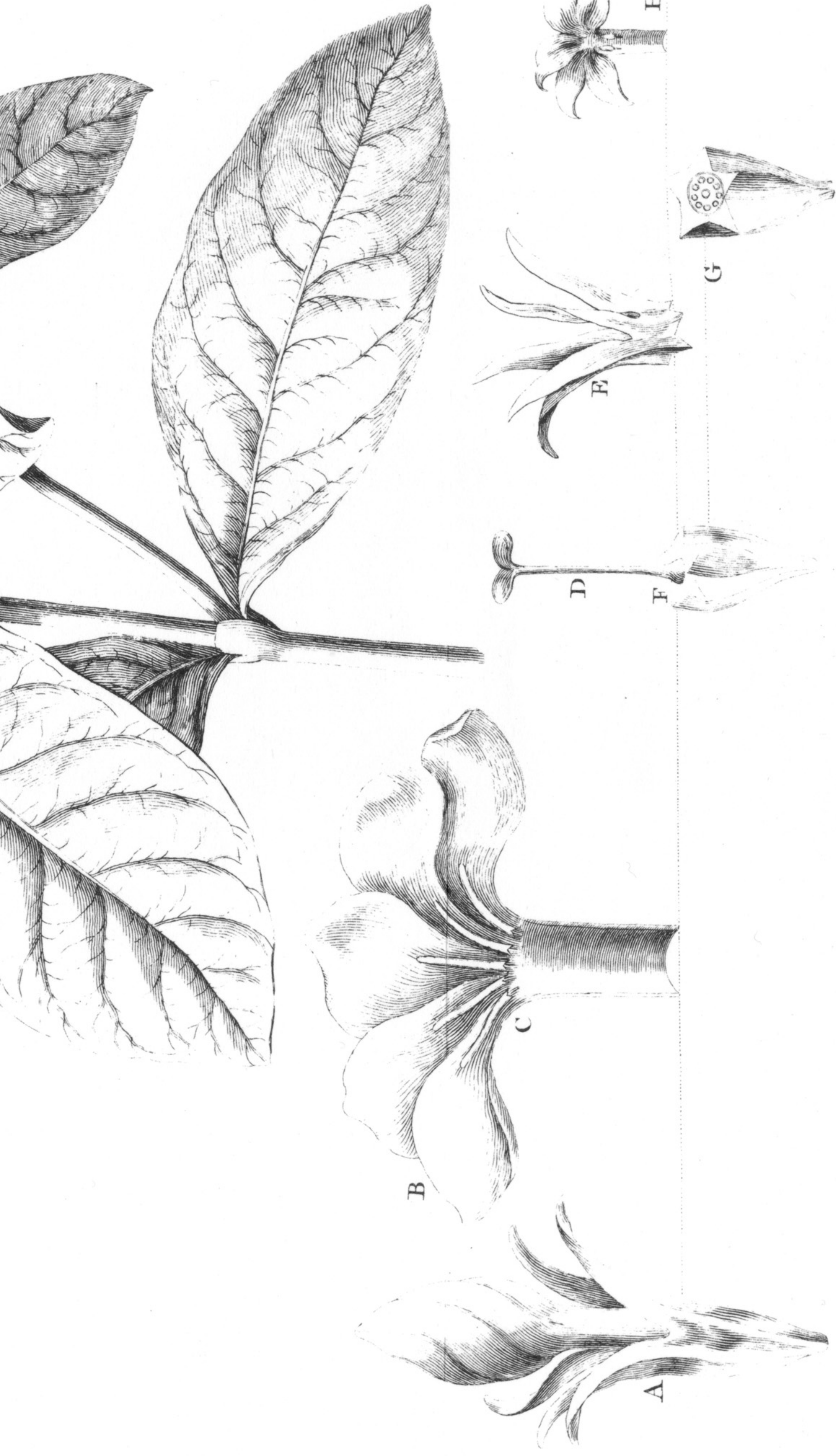
B. *HALESIA* (*dipetala*) *fructibus alatis*





A. The Calyx of the GARDENIA with the flower not yet expanded to show the evolution of the segments of the Petal. B. The corolla of a single flower according to G. Linnaeus. C. The Tube of the Corolla cut open to show the 5. Stamens. D. The Petalium. E. The top of the Calyx cut off to show the upper part of the Germen at F. — G. The Antheridium cut horizontally to show the Rudiments of the Seeds below the receptacle of the flower at F. H. The Corolla of the ovum. I. The fruit of the flower. J. The fruit of the flower. K. The fruit of the flower.





*J. P. Mynster sculp.*

A. The Calyx of the GARDENIA with the flower not yet expanded to shew the contortion of the segments of the Petal. B. The Corolla of a single flower according to Dr. Linnæus. C. The Tube of the Corolla cut open to shew the 5. Stamina. D. The Pistillum. E. The top of the Calyx cut off to shew the upper part of the Germen at F. G. The Pericarpium cut horizontally to shew the Rudiments of the Seeds below the receptacle of the Flower at F.—H. The Corolla of the common Jasmine cut open to shew the 2. Stamina. I. The Pistillum of the Jasmine with its Germen above the receptacle of the Flower. K. The fruit of the Jasmine above the receptacle of the flower.