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* Haleſia *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. YOU 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

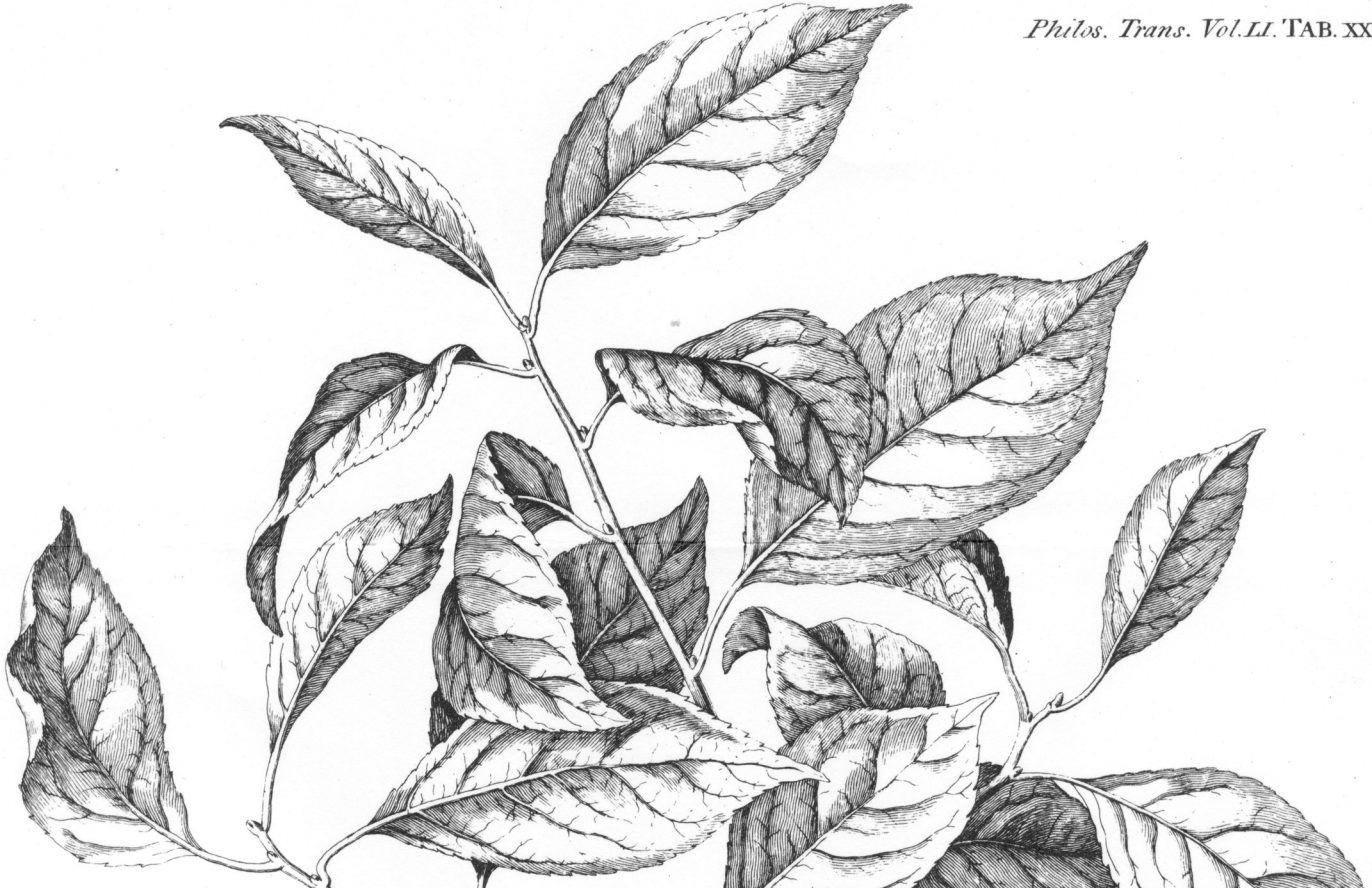
The calling of plants after the names of botaniſts, as well as after the names of thoſe, that have been, or are the promoters and encouragers of this uſeful ſcience, is not without its advantages; and this cuſtom has been followed by Linnæus, and recommended by him in his Philoſophia Botanica. It has 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.

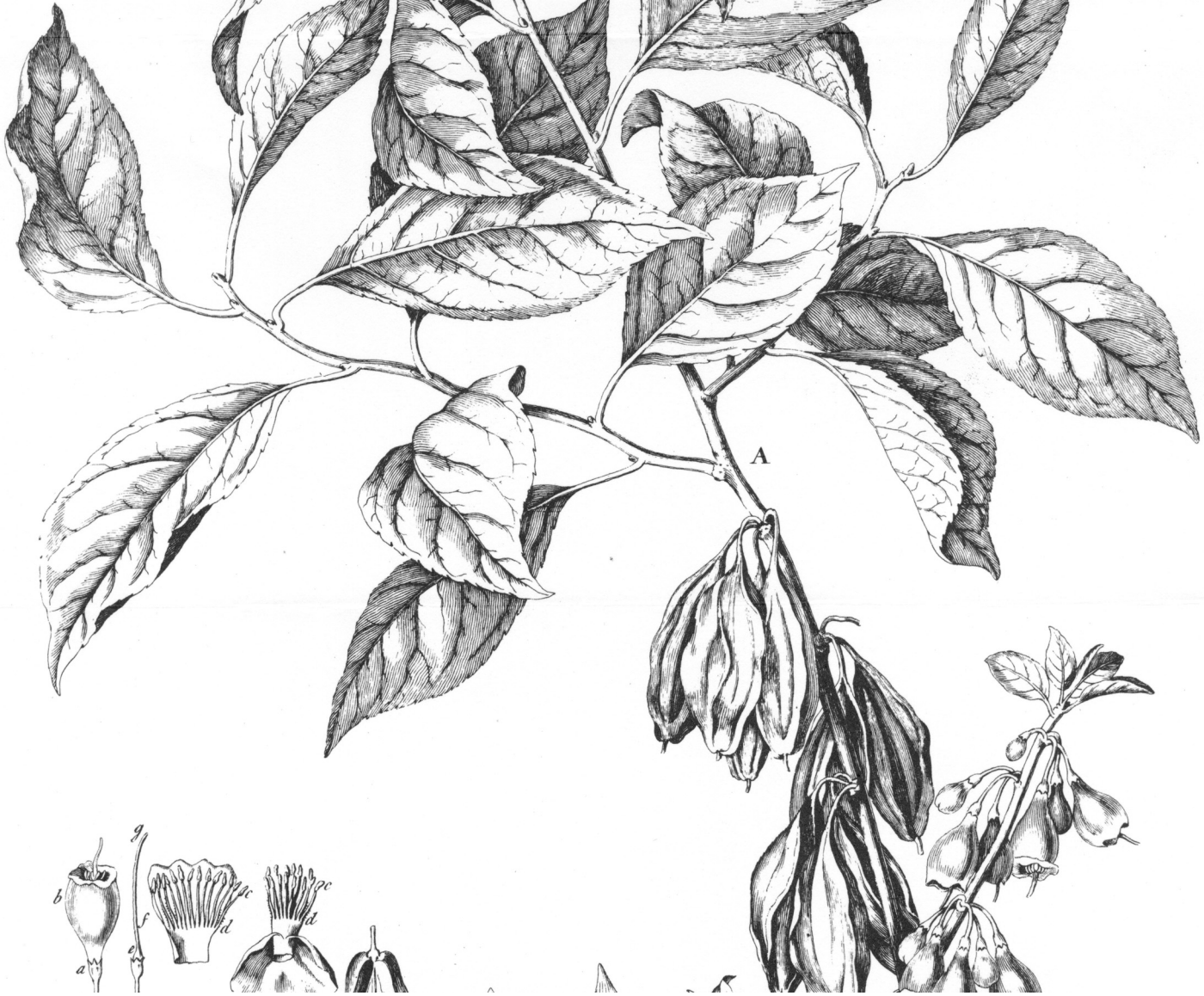
The intent of this letter is to lay before you the characters of two new genera of plants, now growing in your garden, which I ſhall take the liberty to call after our worthy friends Dr. Stephen Hales of Teddington, and Dr. Alexander Garden, phyſician in Charleſtown, South Carolina.

The plant, which I ſhall firſt deſcribe, is the Haleſia; 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

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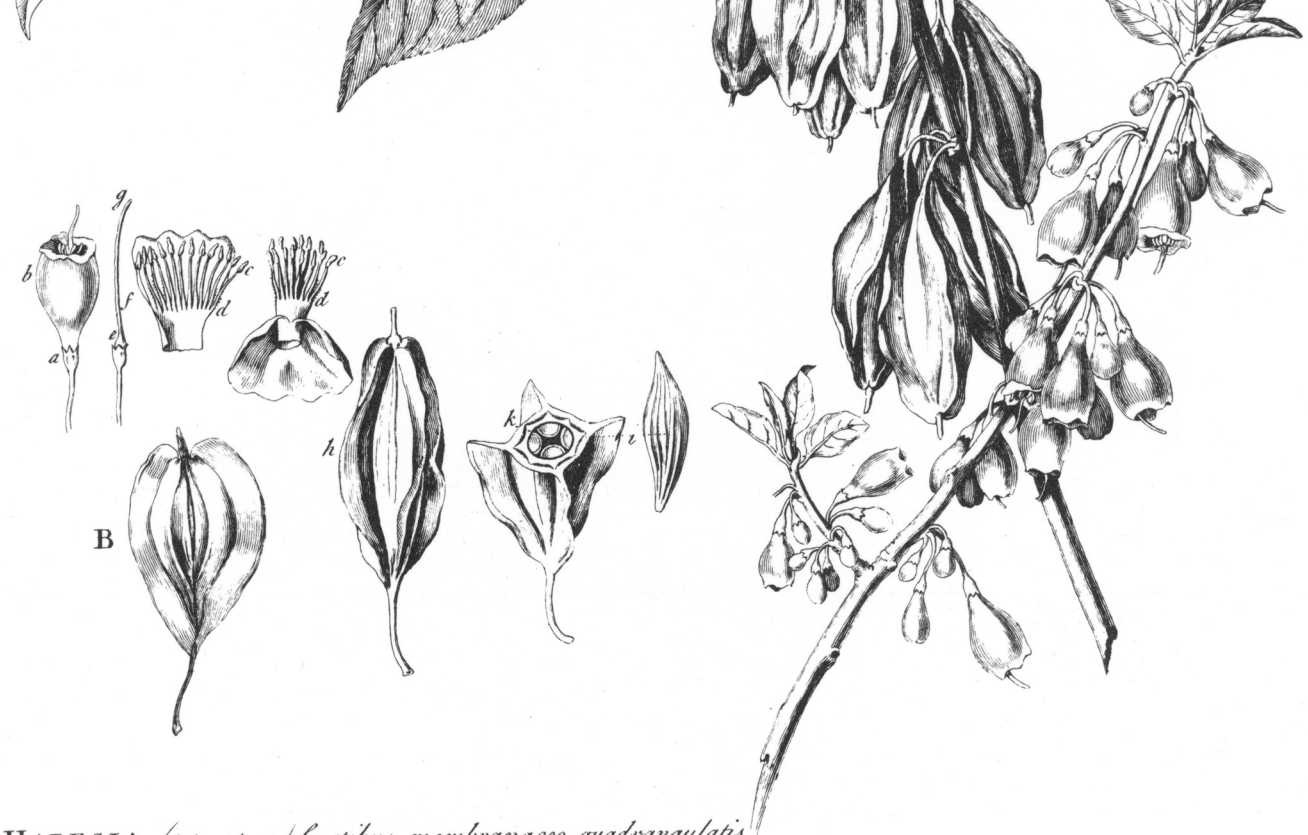


A. HALESIA /tetraptera/ *fructibus membranacco-quadrangulatis*
B. HALESIA /diptera/ *fructibus alatis*

I. Mynde fculp.

" 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 knowlege 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 sedecim) tubo corollæ inserta, basi connata, subulata, erecta, corollâ paulo breviora. *Antheræ* (*c*) oblongæ, obtusæ, erectæ.

PIST. (*e f g*) *Germen* (*e*) oblongum, inferum. *Stylus* (*f*) filiformis, corollâ longior, persistens. *Stigma* (*g*) simplex.

PER. (*h*) *Nux* corticata, sub cortice sulcata, oblonga, utrinque angustata, membranis angulata, quadrilocularis (*k*).

SEM. (*i*) solitaria, lineari-oblonga.

The species are,

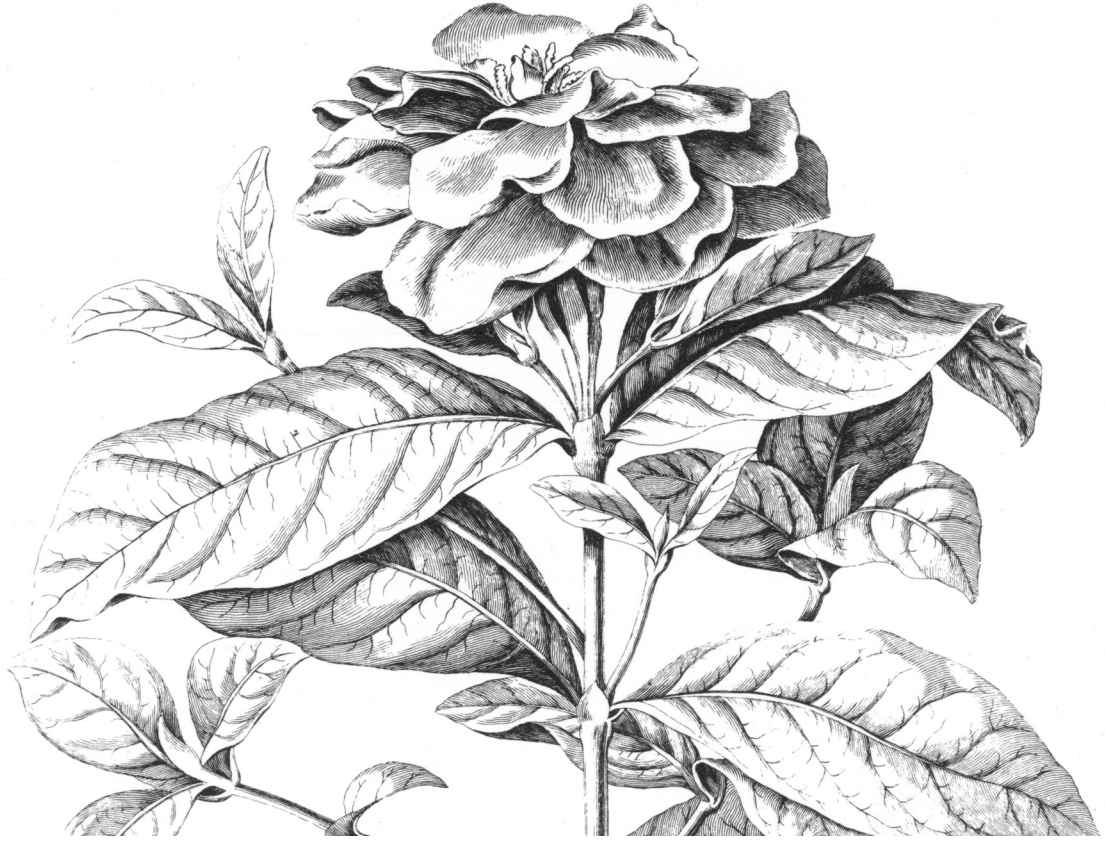
tetraptera. 1. HALESIA fructibus membranaceo-quadrangulatis.

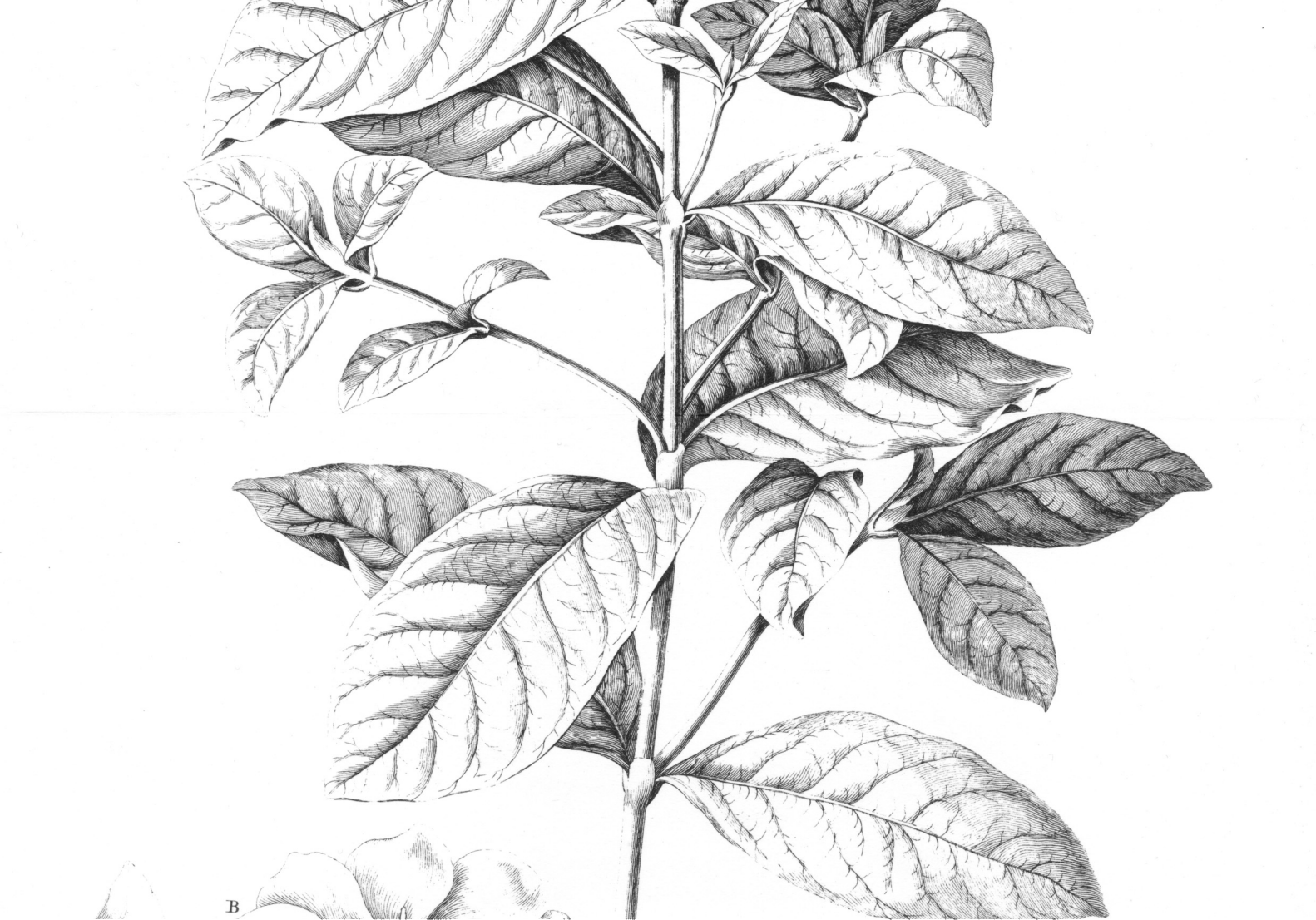
diptera. 2. HALESIA fructibus alatis.

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

GARDENIA *with a double Flower.*




B

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 cut F. G. The Pericarpium cut horizontally to shew the Rudiments of the Seeds below the receptacle of the Flower cut E. 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 Jessamine 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; *Antheræ* lineares ſuberectæ, longitudine dimidii limbi.

PIST. *Germen* infra receptaculum, oblongum. *Stylus* filiformis, longitudine tubi corollæ, deſinens extra faucem in *Stigmata* duo, magna, craſſa, obtuſiſſima.

PER. *Bacca* ſicca, oblonga, bilocularis.

SEM. plurima, minima.

There is but one ſpecies known.

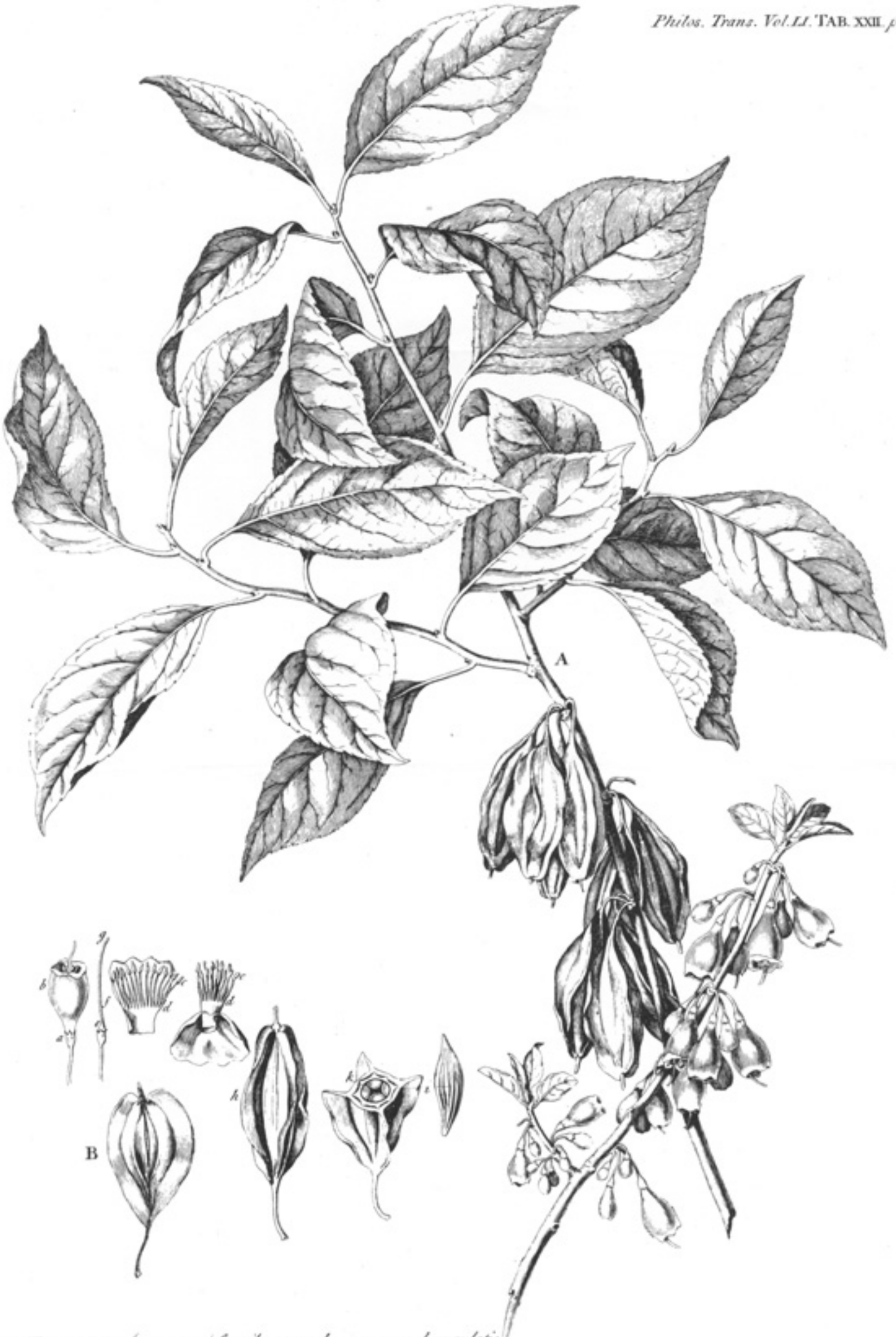
Jaſminoides. 1. GARDENIA.

I am, Dear Sir,

Your moſt affectionate

humble ſervant,

London, Nov. 20, 1760. John Ellis.



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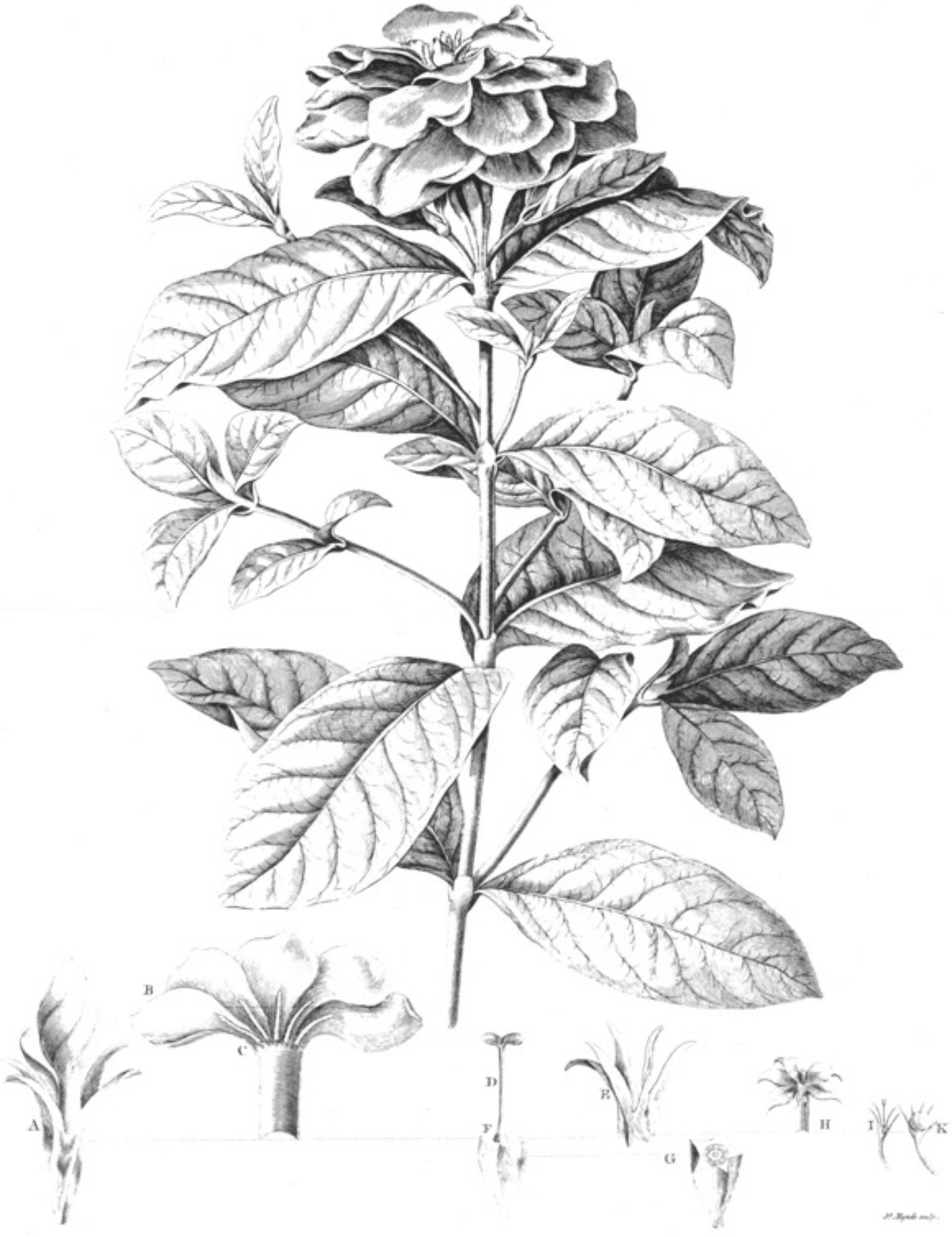
B. HALESIA */diptera/ fructibus alatis*



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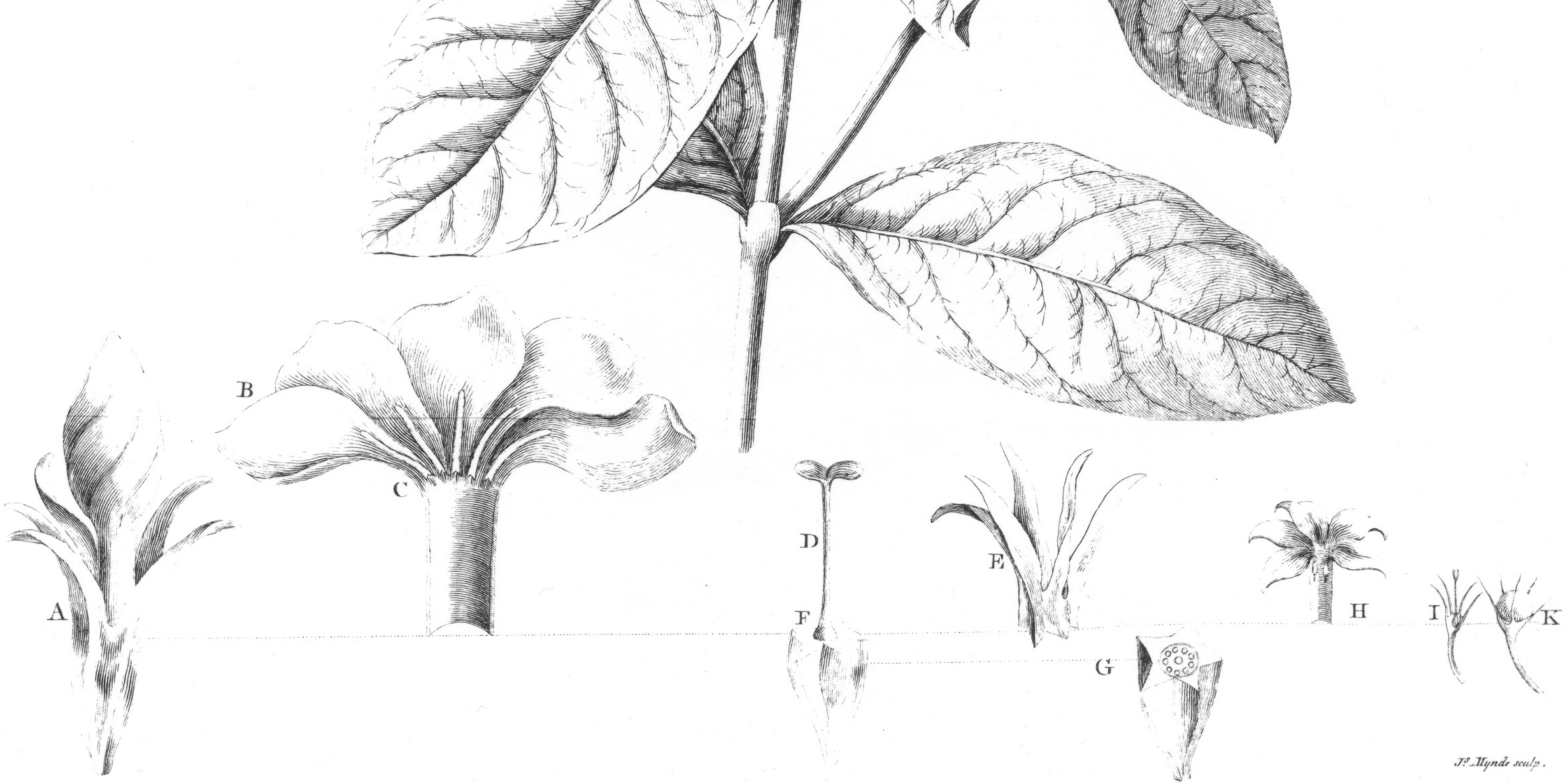

J.ª Mynde sculp.

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 D.r 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* E. — 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.* —