



Philosophical Transactions

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hole full at *Spring*, which was bored that time Twelve-Moneth before, and yielded not any sap at all that *Spring*, as far as could be observ'd, and was not come to its season of bleeding the second *Spring*, when the Jelly was observ'd in the bor'd hole *. The latter, of the *Walnut* not bleeding but in cold weather, being inconsistent with the Observations, often made by me of that Tree, not only bleeding and bleeding longer in warmer weather, but bleeding longer at the roots on the South-side in the Sun, than on the North-side in the Shade, and constantly governing the Course of its Sap in its beginning to rise and to stop daily at the rising and setting of the Sun; I shall betake myself, instead of opining, to make some naked *Queries* for the finding out the matter, *viz.*

* See Numb. 44.
p. 810.

1. Whether this Observation of Mr. *Willoughby's* concerning the *Walnut-Tree*, was in Roots, Body, Branches; all, or some, or one?

2. Whether the Sap of a Tree, as to its motion, be not influenced from the Full or Wane, or other Aspect of the Moon to the Sun, &c?

3. Whether the *Walnut*, being a more solid Wood, have not some alteration as to heat, ascent of Sap, &c. from thence different from *Birch*?

4. What the Age and Bulk of the Tree, consuming perhaps insensibly what rose insensibly in hot, not in cooler Weather?

5. What the time of the Year? The *Aspes* run only, as M. *Midford* relates, before *February*; the *Hopp* about Hopp-harvest. *Withies* in *April*, &c.

6. Whether the weight of the Atmo-sphere will put some check to Sap rising in that part of the Root, which is cut off from the Body? And whether the exclusion of that Impedment, by closing the cut Root in Glass, will cause any sensible alteration: to be tried in several Roots of the same Tree of like Diameter.

I want a good *Thermometer*, *Barometer*, and *Hygro-meter*, (or if you will have English Names for them, a Heat-Weight-and-Wet-Wiser) to make more accurate Observations, how far the ascending of Sap depends on the Air, and the several temperatures of the same.

An Extract of a Letter

Written by Francis Willoughby Esquire to the Publisher, containing some Observations of his made on some Sycamore-Trees, the Black-Poplar, and the Walnut: As also his thoughts about the Dwarf-Oaks, and the Stellar Fish described in Numb. 57.

I Am sorry, I cannot return you a better Answer to yours of *March* 19; the Experiments, which our leisure hath since permitted us to make, being not sufficient to found a new *Hypothesis* on, to

confirm Dr. *Tong's*. Since the Leaves have been explicated, we have observ'd the *Sycamore* after several frosty nights to bleed afresh in the morning, soon after Sun-rising, when it had ceased several dayes before : Though this must not be understood of all *Sycamores*, but of some on-ly that are more sensible and observant of the Weather.

April 3d. and *4th.* all the *Sycamores* quite ceased.

The *5th.* being after a white frost, they began to bleed about 8 a clock, and ceased towards noon.

The *9th,* *12th,* *13th,* *15th* they bled again.

The *10th,* *11th,* *14th* were not observed.

This *16th* they bled not, it being rainy, and the Sun not shining.

From the Observations we have hicherto made, we think it may be certainly inferr'd, that a morning-sun after a frost will make all the Bleeding Tribe bleed afresh, though they had before ceased ; and that this new bleeding towards the latter end of the season commonly ceaseth before morning. Possibly some may bleed after a frost, yet further in the Summer.

I observed last year in *August* a copious and spontaneous exudation, very like bleeding, of a viscous yellow Juice out of the buds of a black Poplar. Our *walnut-trees* bleed here in *January*.

The *Starre-fish*, in the last *Transactions*, is the *Stella arborefcens Rondeletii* p. 121. first described by him, and since by other Naturalists.

There is no such dwarf-*Oak* in *Old England*, growing wild, as was sent you out of *New-England*, nor in any other Country, where we have been, unless it be the *Ilex coccifera*, which is a low shrub, bearing large Acorns, and hath a prickly leaf like Holly. If it prove that, it will be a lucriferos discovery. — *Middleton* in *Warwick shire* *April 16. 1670.*

An Account of some Books.

I. Joh. Sig. Elsholtii, Elector. Brandenburg. Medici, *CLYSMATICA NOVA, sive Ratio in venam seclam Medicamenta immittendi. COLONIÆ BRANDEBURGICÆ. 1667. in 8°.*

THE *Title-page* of this Book, but very lately come into *England*, shews this to be the *second Edition*: and the Author in the Conclusion of it tells the Reader, that the *first Edition* thereof was publick *A. 1665.* at which time he affirms there had been nothing printed (for ought he knew) either by *English, French, or Italians*, of this argument. To which we shall here say nothing, but refer the Candid Reader to what hath been said already (by way of vindicating the Invention, both of *Infusing* Medical Liquors, and of *Transfusing* Blood, from usurpation)