

XI. *An Account of a large Quantity of Alcalious Salt produced by burning rotten Wood. By Mr. Robie of Harvard College in Cambridge, New-England. Communicated by the Rev. Mr. Derham, Prebendary of Windsor, F. R. S.*

A White Oak Tree, about two Foot Diameter, is in *Cambridge*, of so wonderful a nature, as that although about a third of it was decay'd, and seem'd really to be rotten Wood, yet this decay'd part, in burning, would turn almost wholly into a good white *Alkali*, and it would run down into hard Lumps white and clean. Such a Lump was brought us at College, to know what it was. We tasted it, and found it to be Salt. and very strong. We dissolved it in clean Water, and upon Decantation and Evaporation, without any Filtration, we produced a very clean, white Salt, exceeding in strength, and whiteness, any to be bought at the Shops. We tried it many of the ways of proving the goodness of an *Alkali*. Now although *Alkali's* may be extracted from common Ashes, yet what was peculiar in this, is,

1. That while it was Burning, the Wood it self would melt, and run down into hard Lumps of Salt; and none of the Wood that was found, would do this, but only that which was decay'd; and what was most decay'd, would yield the greatest Quantity of Salt. And,

2. Whereas

2. Whereas all other *Alkali's* of Wood made thus by Incineration, are blackish at first, and a *Lixivium* made of them, although often filtered, will yet be tinged with a brown colour, occasioned from a kind of Coal, or Ashes so inclosed, or closely united to the *Alkali* in burning, as not easily to be separated by Filtration, though often repeated; yet this *Alkali* was very white, even before Solution, and when dissolved, the *Lixivium* was not in the least tinged, but clear like pure Water, only a very small quantity of Ashes subsided to the bottom of the Vessel, in which the Solution was made. The *Lixivium* thence decanted needed no Filtration, but when boiled up to Dryness, the Salt remained fine and white. And

3. That in the burning of this Wood, as the heat of the Fire grew more intense, the Wood did, as it were, melt and clodder together in great Lumps, and did visibly bubble, and boil, with an hissing noise, like the Frying of Fat in a Pan.

4. That whereas the Weight of the *Alkali-Salt* produced from other Wood, in the common way of Incineration, is very inconsiderable, in proportion to the weight of the Wood producing it; yet this Salt nearly equalled in weight the Wood from whence it was taken.

5. Whereas the Ashes of other Wood are never so replete with Salt, as that Salt can be seen, or in the least cause the Ashes to lump or clodder together; yet this, the whole of it, would gather into hard and solid Lumps of white Salt, as easily to be distinguished from Ashes (tho' white) as the purest Salt of *Tartar* made with *Nitre* would be.

6. That although from other *Rotten Wood* much less of an *Alkali* can be produced, than from *Sound Wood*, yet here it is quite contrary, the decay'd part of this
Tree

Tree yielding, in quantity, as aforesaid; and the other, or sound part, yielding no more than other Wood.

Having thus given you a true and full Account of this strange and unusual Production, we shall give you our Thoughts respecting the Solution of it; which we should not attempt, but that being on the spot, we have examined the Tree, and considered what (by the Marks found on it) hath, in all probability, happened to it; and therefore suppose ourselves, in some measure, capable of giving as true or truer Judgment concerning it, than wiser and more ingenious Men can be, who have not had those Advantages. All which we do with humility and modesty submit to your Censure. And we would first premise, that the Tree, in all probability, was struck with Lightning many Years since, it being torn from the top of its Trunk to the bottom, on that side, which is now decay'd, and which yielded the aforesaid Salt, there being a Channel from top to bottom, about five Inches wide, as we suppose, at first, which the length of time had closed. And under this Bark, the Wood next to it was black; which we suppose was caused by the Lightning.

From which things we conjectured, that the Wood having been thus exposed to the Air and Water, for so long a time, this was the occasion of its becoming defective in that part; and that the Lightning having penetrated the Wood, had so altered and disposed the Parts and Pores of it (the Figure and Texture of the Parts appearing much different from other rotten Wood) to attract, receive in, and retain the *Nitrous* Salt of the Air, which through so long a space of time, could not but be in great abundance. Even as Salt of *Tartar*, or other *Alkali's*, being exposed to the Air for some considerable space of time, will be wholly reduced to a

Nitrous Salt, (as *Glauber* says) and its Quantity also increased very considerably. Not that the Lightning had so calcined the Wood, as to reduce it to a perfect Salt, but yet by penetrating of it, it had calcined it in such measure, as to give it a like propriety or disposition, of attracting the *Nitrous Salt* of the Air, as aforesaid *Alkali's* of Wood that have been fully calcined.

Now if it should be objected, that the *Nitre* in this Wood being *Volatile*, would flee away in the burning of the Wood; we answer, That although *Nitre* can't be fixed, and reduced to an *Alkali-Salt*, by calcining it *per se*; yet it may so by the addition of the powder of Charcoal (as Chymists teach us.) And here we suppose the Wood so altered by Lightning, in which this *Nitrous Salt* was lodged, as served instead of Coal in the Burning of it.

F I N I S.

L O N D O N:

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