

IX. *An Account of some Trees discovered under-ground on the Shore at Mount's-Bay in Cornwall: In a Letter from the Rev. Mr. William Borlase, F. R. S. to the Rev. Dr. Lyttelton, Dean of Exeter.*

Reverend Sir, Ludgvan, Jan 24. 1757.

Read Feb. 10, 1757. **B**EING an airing the other day with Mrs. Borlase, on the sands below my house, we perceived the sands betwixt the Mount and Penzance much washed into pits, and bare stony areas, like a broken causey. In one of the latter, Mrs. B. as we passed by, thought she saw the appearance of a tree; and, upon a review, I found it to be the roots of a tree, branching off from the trunk in all directions. We made as much haste down to the same place in the afternoon as we could, and with proper help to make a farther examination. I measured and drew the remains; and about 30 feet to the west found the roots of another tree, but without any trunk, tho' displayed in the same horizontal manner as the first. Fifty feet farther to the north we found the body of an oak, three feet in diameter, reclining to the east. We dug about it, and traced it six feet deep under the surface; but its roots were still deeper than we could pursue them. Within a few feet distance was the body of a willow, one foot and a half in diameter, with the bark on; and one piece of a large hazel-branch, with its bark

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on. What the two first trees were, it was not easy to distinguish, there being not a sufficiency remaining of the first, and nothing but roots of the second, both pierced with the teredo, or augur-worm. Round these trees was sand, about ten inches deep, and then the natural earth, in which these trees had formerly flourished. It was a black marsh-earth, in which the leaves of the juncus were intirely preserved from putrefaction. These trees were 300 yards below full-sea-mark; and, when the tide is in, have at least 12 feet of water above them: and doubtless there are the remains of other trees farther towards the south, which the sea perpetually covers, and have more than 30 feet water above them. But these are sufficient to confirm the ancient tradition of these parts, that St. Michael's mount, now half a mile inclosed with the sea, when the tide is in, stood formerly in a wood. That the wood consisted of oak, very large, hazel and willow trees, is beyond dispute. That there has been a subsidence of the sea-shores hereabouts, is hinted in my letter to you, p. 92; and the different levels and tendencies, which we observed in the positions of the trees we found, afford us some material inferences, as to the degree and inequalities of such subsidences in general; as the age, in which this subsidence happened (near 1000 years since at least) may convince us, that when earthquakes happen, it is well for the country, that they are attended with subsidences; for then the ground settles, and the inflammable matter, which occasioned the earthquake, has no longer room to spread, unite, and recruit its forces, so as to create frequent and subsequent earthquakes: whereas, where
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there are earthquakes without proportionable subsidences, there the caverns and ducts under-ground remaining open and unchoaked, the same cause, which occasioned the first, has room to revive and renew its struggles, and to repeat its desolations or terrors; which is most probably the case of Lisbon. I am, Sir,

Your most affectionate

and obliged humble Servant,

Wm. Borlase.

X. *Experiments on applying the Rev. Dr. Hales's Method of distilling Salt-water to the Steam-Engine.* By Keane Fitzgerald, Esq; F. R. S.

Read Feb. 17. 1757. ON reading Dr. Hales's account of purifying salt water, by blowing showers of air thro', it occurred to me, that something of the kind might be applied with advantage to the steam or fire-engine, by increasing the quantity of steam, and consequently diminishing the quantity of fuel otherwise necessary.

As the strength of steam raised from boiling water is always in a fluctuating state, and, by the best experiments hitherto made, has never been found above $\frac{1}{10}$ stronger, or weaker, than air; I was in doubt, whether steam, produced by this method, would