

V. *A short Account of the Cause of the Saltness of the Ocean, and of the several Lakes that emit no Rivers; with a Proposal, by help thereof, to discover the Age of the World. Produced before the Royal-Society by Edmund Halley, R. S. Secr.*

There have been many Attempts made and Proposals offered, to ascertain from the Appearances of Nature, what may have been the Antiquity of this Globe of *Earth*; on which, by the Evidence of Sacred Writ, *Mankind* has dwelt about 6000 Years; or according to the *Septuagint* above 7000. But whereas we are there told that the Formation of *Man* was the last Act of the *Creator*, 'tis no where revealed in Scripture how long the *Earth* had existed before this last Creation, nor how long those five Days that preceded it may be to be accounted; since we are elsewhere told, that in respect of the Almighty a thousand Years is as one Day, being equally no part of *Eternity*; Nor can it well be conceived how those Days should be to be understood of natural Days, since they are mentioned as Measures of Time before the Creation of the Sun, which was not till the Fourth Day. And 'tis certain *Adam* found the *Earth*, at his first Production, fully replenished with all sorts of other *Animals*. This Enquiry seeming to me well to deserve Consideration, and worthy the Thoughts of the *Royal Society*, I shall take leave to propose an Expedient for determining the Age of the World by a *Medium*, as I take it, wholly new, and which in my Opinion seems to promise success, though the Event cannot be judged of till after a long Period of Time; submitting the same to their better Judgment.

ment. What suggested this *Notion* was an Observation I had made, that all the *Lakes* in the *World*, properly so called, are found to be *Salt*, some more some less than the Ocean Sea, which in the present case may also be esteemed a *Lake*; since by that term I mean such standing Waters as perpetually receive Rivers running into them, and have no Exite or Evacuation.

The Number of these Lakes, in the known Parts of the World is exceeding small, and indeed upon Enquiry I cannot be certain there are in all any more than four or five, *viz.* first, The *Caspian Sea*; secondly, The *Mare Mortuum* or *Lacus Asphaltites*; thirdly, The Lake on which stands the City of *Mexico*, and fourthly, The Lake of *Titicaca* in *Peru*, which by a Channel of about fifty Leagues communicates with a fifth and smaller, call'd the Lake of *Paria*, neither of which have any other Exite. Of these the *Caspian*, which is by much the greatest, is reported to be somewhat less salt than the Ocean. The *Lacus Asphaltites* is so exceedingly Salt, that its Waters seem fully fated, or scarce capable to dissolve any more; whence in Summer-time its Banks are incrustated with great Quantities of dry Salt, of somewhat a more pungent nature than the *Marine*, as having a Relish of *Sal Armoniac*; as I was informed by a curious Gentleman that was upon the place.

The *Lake of Mexico* properly speaking is two Lakes, divided by the *Causways* that lead to the City, which is built in Islands in the midst of the *Lake*, undoubtedly for its Security; after the Idea, tis probable, its first Founders borrowed from their *Beavers*, who build their Houses on Damms they make in the Rivers after that manner. Now that part of the *Lake* which is to the Northwards of the *Town* and *Causways*, receives a River of a considerable magnitude, which being somewhat higher than the other, does with a small Fall exonerate it self in the Southern

part, which is lower. Of these the lower is found to be salt, but to what degree I cannot yet learn; though the upper be almost fresh.

And the Lake of *Titicaca*, being near eighty Leagues in circumference, and receiving several considerable fresh Rivers, has its Waters, by the Testimony of *Herrera* and *Acosta*, so brackish as not to be potable, though not fully so salt as that of the Ocean; and the like they affirm of that of *Paria*, into which the Lake of *Titicaca* does in part exonerate it self, and which I doubt not will be found much saltier than it, if it were enquired into.

Now I conceive that as all these Lakes do receive Rivers and have no *Exite* or Discharge, so 'twill be necessary that their Waters rise and cover the Land, until such time as their Surfaces are sufficiently extended, so as to exhale in Vapour that Water that is poured in by the Rivers; and consequently that Lakes must be bigger or lesser according to the Quantity of the fresh they receive. But the Vapours thus exhaled are perfectly fresh, so that the saline Particles that are brought in by the Rivers remain behind, whilst the fresh evaporates; and hence 'tis evident that the Salt in the Lakes will be continually augmented, and the Water grow saltier and saltier. But in Lakes that have an *Exite*, as the Lake of *Genesaret*, otherwise call'd that of *Tiberias*, and the upper Lake of *Mexico*, and indeed in most others, the Water being continually running off, is supply'd by new fresh river Water, in which the saline Particles are so few as by no means to be perceived.

Now if this be the true Reason of the Saltness of these Lakes, 'tis not improbable but that the Ocean it self is become salt from the same Cause, and we are thereby furnished with an Argument for estimating the Duration of all Things, from an Observation of the Increment of Saltness in their Waters. For if it be observed what Quantity of Salt is at present contained in a certain Weight of the

Water of the *Caspian Sea*, for example, taken at a certain Place, in the dryest Weather; and after some Centurys of Years the same Weight of Water, taken in the same place and under the same Circumstances, be found to contain a sensibly greater Quantity of Salt than at the time of the first Experiment, we may by the Rule of Proportion, take an estimate of the whole time wherein the Water would acquire the Degree of Saltness we at present find in it.

And this Argument would be the more conclusive, if by a like Experiment a simular Encrease in the Saltness of the *Ocean* should be observed: for that, after the same manner as aforesaid, receives innumerable Rivers, all which deposite their saline Particles therein; and are again supplied, as I have elsewhere shewn, by the *Vapours* of the *Ocean*, which rise therefrom in Atoms of pure Water, without the least admixture of Salt. But the Rivers in their long Passage over the Earth do imbibe some of the saline Particles thereof, though in so small a Quantity as not to be perceived, unless in these their Depositories after a long Tract of time. And if upon repeating the Experiment, after another equal Number of Ages, it shall be found that the Saltness is further encreased with the same Increment as before, then what is now proposed as *Hypotheticall* would appear little less than Demonstrative. But since this Argument can be of no use to Ourselves, it requiring very great Intervals of time to come to our Conclusion, it were to be wished that the ancient *Greek* and *Latin* Authors had delivered down to us the degree of the Saltness of the Sea, as it was about 2000 Years ago: for then it cannot be doubted but that the Difference between what is now found and what then was, would become very sensible. I recommend it therefore to the *Society*, as opportunity shall offer, to procure the Experiments to be made of the present degree of Saltness of the Ocean, and of as many of these Lakes as can be

come at, that they may stand upon Record for the benefit of future Ages.

If it be objected that the Water of the *Ocean*, and perhaps of some of these *Lakes*, might at the first Beginning of Things, in some measure contain Salt, so as to disturb the Proportionality of the Encrease of Saltness in them, I will not dispute it : But shall observe that such a Supposition would by so much contract the Age of the World, within the Date to be derived from the foregoing Argument, which is chiefly intended to refute the ancient Notion, some have of late entertained, of the Eternity of all Things; though perhaps by it the World may be found much older than many have hitherto imagined.

Accounts of B O O K S.

- I. *Linear Perspective, or a New Method of representing justly all manner of Objects, &c.* By Brook Taylor, L. L. D. and R. S. Secr. 8vo. London, 1715.

THE Author of this Book, finding the Art of Perspective to be very imperfect in the Books that have hitherto been publish'd on that Subject, thought it worth his while to consider the whole matter anew; and from a careful Examination of the Principles this Art is founded upon, he has endeavoured to establish some Theorems, by means of which the Practice of it might be render'd more general and easy than has yet been done. In order to this, at first sight he found it necessary to make use of new Terms of Art; the old ones seeming not to