

IX. *Some Thoughts concerning the Sun and Moon, when near the Horizon, appearing larger than when near the Zenith; being Part of a Letter from James Logan, Esq; to Sir Hans Sloane, Bart. President of the Royal Society, &c.*

* * * *Philadelphia, Sept. 20. 1735.*

IT may, perhaps, be needless now to add any thing in Confirmation of Dr. *Wallis's* Solution (*see these Transactions*, N^o 187.) of the *Sun* and *Moon's* appearing so much larger at rising or setting, than when in a greater Altitude; tho' some have very absurdly still gone on to account for it from Vapours, which I remember was given me in my Youth for the true Cause of it, 'Tis true, indeed, that 'tis these Vapours, or the Atmosphere, alone, that make those Bodies, when very near to the *Horizon*, appear in a spheroidal Form, by refracting, and thereby raising (to Sight), the lower Limb more than the upper, yet these can be no Cause of the other. The *Sun* and *Moon*, each subtending about half a Degree, appear in the Meridian of the Breadth of eight or ten inches, to some Eyes more, and to others less; and in the *Horizon* to be two or three Foot, more or less, according to the Extent of Ground they are seen over: But if one can have an Opportunity, as I have here frequently had, of seeing the *Sun* rise or set over a small Eminence at the Distance of a Mile or two with tall Trees on it standing

ing pretty close, as is usual in Woods without Underwood, his Body will then appear to be ten or twelve Foot in Breadth, according to the Distance and Circumstances of the Trees he is seen through; and where there has been some thin Underwood, or a few Saplings, I have observed that the *Sun* setting red, has appeared through them like a large extensive Flame, as if some House were on Fire beyond them. Now the Reason of this is obvious, *viz.* that being well acquainted with Trees, the Ideas of the Space they take up are in a Manner fix'd, and as one of those Trees subtends an Angle at the Eye, perhaps not exceeding two or three Seconds, and would scarce be distinguishable, were it not for the strong Light behind them, the *Sun's* Diameter of above thirty Minutes takes in several of them, and therefore will naturally be judged vastly larger. Hence 'tis evident, that those Bodies appear greater or less, according to the Objects interposed or taken in by the Eye on viewing them. And to this only is that Phænomenon to be imputed.

I am sensible this Method of arguing is not new, yet the Observations here given may probably tend to illustrate the Case beyond what had been advanced on the Subject. * * *

F I N I S.