

Letter Bk. IV Line & it is much more difficult they say to run Southward than Northward. In a hot Day the Plumb Lines tho there is not a Breath of Wind have or seem to have a Vermicular Motion which may deceive the Sight, & as the smallest Thread being at the Distance of a few Feet from the Object Glass of the Telescope will cover a considerable Space or a small Rope at the Distance of a quarter of a Mile, how can the Surveyors be they ever so careful be sure that they preserve their exact & true Course. Could they take longer Sights there would indeed be less Danger of Error & therefore we wished to have the Instrument D<sup>r</sup> Bevis recommended with which according to his Account a small Point on the Surface of the Earth may be seen five Miles, however I am afraid that on Tryal the Surveyors will not proceed at so great a Rate, for a small Eminence between the Observer & an Object on the Ground at so great a Distance will interrupt the View & in the Country thro which the Line is to be run many considerable Hills will intervene in the Space of two or three Miles. I have for some time had the Sector fixed up in my Garden & several others of the Commissioners besides myself have frequently taken Observations with it agreeable to D<sup>r</sup> Bevis's Directions but have not for two Nights together found the Star's ( $\alpha$  in Lyra) Zenith Distance to be precisely the same, the Variation being frequently twenty or thirty Seconds & indeed the Silver Wire which is intended to plumb or Rectify the Sector (extremely small as the Wire appears) is thick enough to cover more than ten Seconds. Since then there is little probability of All the Commissioners agreeing if they are by Observations to determine & ascertain the Point (to be found) fifteen Miles South of Philadelphia would it not be most advisable to measure that Distance upon the Surface of the Earth notwithstanding the Difficulties I mentioned to you some time ago as the Surveyors will doubtless in such Mensuration come nearer the Truth than sixty five Perches, which considering the Length of that North Boundary is no inconsiderable Thing, the Area contained in a Paralelogram of 200 Miles by 65 Perches being no less than 26000 Acres. Whether the Surveyors can or cannot run the Line they are now directed to proceed on, we must I presume proceed on some other part of the Work when we meet again in the Spring: As to laying out a Part of the Circle & running a North Line from the Tangent Point I suppose we shall agree on a Mode of doing it, but what may happen among us when the North Boundary & the Way of describing it shall come under Consideration I cannot tell, much depends thereupon & as all the Commissioners on both Sides will probably be then present it is not likely they will be unanimous in their