

aim at is to convey to their minds, as matters of fact, what those results *are* in the case of the sun, and to enable them to form a conception of it as a reality. Still it is reasonable for any one to ask how it is possible to prove such a statement, for instance, as that just made : and as the kind of process by which our conclusions as to the size and mass of the sun are arrived at may be put in a few words, it will not be amiss to give a sketch of it.

(7.) The first step towards ascertaining the real size of the sun is to determine its distance. Now, the simplest way to find the distance of an object which cannot be got at, is to measure what is called a base line from the two ends of which it can be seen at one and the same moment, and then to measure with proper instruments the angles at the base of the triangle formed by the distant object and the two ends of the base. Geography and surveying in modern times have arrived at such perfection, that we know the size and form of the earth we stand upon to an extreme nicety. It is a globe a little flattened in the direction of the poles,—the longer diameter, that across the equator, being 7925 miles and five furlongs, and the shorter, or polar axis, 7899 miles and one furlong ; and in these measures it is pretty certain that there is not an error of a quarter of a mile. And knowing this, it is possible to calculate with quite as much exactness as if it could be measured, the distance *in a straight line* between any two places whose geographical positions on the earth's surface are known. Now there are two astronomical observatories very remote from one