

comparison \* (an apparent exception to this is the number one, or unity, but here the number is itself equivalent to its standard of comparison). In trigonometry 'square of the diameter' means 'a quantity of magnitude (diameter) taken as many times as there are units contained in that quantity of magnitude (diameter).' An example will at once make the character of this difference quite obvious. Let the two diameters be proportional one to the other in the ratio of 'four' to 'two'—then the square of their diameters in the sense intended by Euclid will be—*four* taken *four* times, and *two* taken *four* times; that is, *sixteen* to *eight*, magnitudes proportional in the same ratio as before. But in the numerical or quantitative sense we get—*four* multiplied by *four* gives sixteen ( $4 \times 4 = 16$ ); and—*two* multiplied by *two* gives *four* ( $2 \times 2 = 4$ ). The numerical proportion becomes therefore  $16 : 4$ , instead of  $16 : 8$ ;—the ratio of the proportion is no longer the same as before.

We have recently made public a notice of very grave errors in astronomical science, certain of which appear to have arisen from a fundamental misapprehension (non-appreciation) as to the relation of the semi-diameter (radial-distance) to the circumference of the circle—*e. g.*; the doctrine of the (supposed) law of equable areas. The question may suggest itself whether the use of the expression 'square of the diameter' with the two different meanings undistinguished, may not have assisted to prepare the deceptive foundation for that superstructure of unsound knowledge which has been since built upon it.

---

\* Which is commonly termed a 'unit.'