- 3. The inclination of its plane to the ecliptic.
- 4. The *longitude* of its node, or the direction of the line in which its plane intersects the ecliptic, which is called the *line of its nodes*.
- 5. The *longitude of its perihelion*, or, which comes to the same thing, the angle which the axis of the orbit makes with the line of nodes.
- 6. The exact moment when the comet passed through its *perihelion*, or was nearest to the sun.
- 7. The direction of its motion (direct or retrograde).

(15.) It is natural to ask *how* all these particulars ever can be known; and to this the answer is—By the same system of observation and calculation combined, by which we have come to know the form and dimensions of the orbits of the planets, their times of revolution round the sun, and their situation in space.

(16.) I believe it was Tycho Brahè, a celebrated Danish astronomer, who first rose to the conception that comets are beyond the moon, and not mere exhalations. The appearance of a great comet in 1577 set him thinking about it, and he was led by his observations and reasonings on them to a certain knowledge of the fact of its being much more remote than our own satellite; and he was therefore led to conjecture that the motions of comets had reference rather to the sun as their centre than the earth. The elliptic form of the planetary orbits was not then known, and Tycho accordingly supposed that comets moved about the sun in perfect circles. Borelli, a Neapolitan mathematician, suggested the idea.