

of a long ellipse or parabola as the possible form of a comet's orbit; and Dörfel, a German astronomer in 1681, upon a careful consideration of all the observations of the great comet of 1680, came to the positive conclusion that that comet did really move in a parabolic orbit with the sun in its focus. This was an immense step; but neither Dörfel nor any one else could at that time give any account of the *reason why* this should be the case, or in what *manner* the comet was made to conform its sweep through space in so singular a way to the sun.

(17.) The wonderful discoveries of Sir Isaac Newton made all this clear. He first showed that the sun controls the movements of these wanderers by the very same force acting according to the very same law which retains the planets in their paths—that marvellous law of gravitation—the same power which draws a stone thrown from the hand back to the earth (in a parabolic curve)—which keeps the moon from flying off, and holds her to us as a companion—which keeps the planets in their circles, or rather ellipses, about the sun—and which we now know holds together several of the stars in couples, circulating one about the other.

(18.) The great comet of 1680, which occurred while Newton was brooding over these grand ideas which broke upon the world like the dawn of a new day in his "Principia," afforded him a beautiful occasion to test the truth of his gravitation theory by the most extreme case which could be proposed. The planets were tame and gentle things to deal with. A little tightening of