represented by a fourpenny-piece, and a distance of a thousand miles by a line of less than one-twelfth of an inch in length. A circle concentric with it, representing on the same scale the size of the moon's orbit about the earth, would have for its diameter only thirty-nine inches and a quarter, or very little more than half the sun's. Imagine, now, if you can, a globe concentric with this earth on which we stand; large enough not only to fill the whole orbit of the moon, but to project beyond it on all sides into space almost as far again on the outside! A spangle, representing the moon, placed on the circumference of its orbit so represented, would require to be only a sixth part of an inch in diameter.

(14.) It is nothing to have the size of a giant without the strength of one. The sun retains the planets in their several orbits by a powerful mechanical force, precisely as the hand of a slinger retains the stone which he whirls round till the proper moment comes for letting it go. The stone pulls at the string one way, the controlling hand at the centre of its circle the other. Were the string too weak, it would break, and the stone, prematurely released, would fly off in a tangential direction. If a mechanist were told the weight of the stone (say a pound), the length of the string (say a yard, including the motion of the hand), and the number of turns made by the stone in a certain time (say sixty in a minute, or one in a second), he would be able to tell precisely what ought to be the strength of the string so as *just not to break;* that is to say, what weight it ought at least to be able to lift without breaking. In the case I have mentioned, it