4. The centrifugal force, (the velocity being the same,) is inversely as the radius of the orbit.

Again, the radius of the curve representing the centrifugal force, being as the velocity of the revolving body, and (the orbit being the same) the deflection of said curve being also as that same velocity, it follows, since the length of a circular arc is manifestly as the radius multiplied by the deflection, that

5. The radius of the orbit being the same, the centrifugal force is directly as the square of the velocity. Whence, in general,

6. The centrifugal force is directly as the square of the velocity, and inversely as the radius; that is, as the square of the velocity divided by the radius, or as $\frac{v^2}{R}$, v representing the velocity and R, the radius.

Hence, having determined by either of the rules, 1, 2 or 3, previously enunciated, the value (x) of the ~~expression~~ × $\cancel{\frac{v^2}{R^2}}$, for any given values of v and R, we readily obtain the value x' for any other velocity and radius, v' and R', by the simple proportion— $\frac{v^2}{R} : x :: \frac{v'^2}{R'} : x'$.

But a more simple and convenient formula for obtaining the intensity of the central forces, may be deduced as follows.

Suppose a body to revolve in a circle whose radius in feet equals R, with a velocity in feet per second equal to v. Then, let $\pi = 3.1416$, or the quotient of the circumference of a circle divided by its diameter. Also, let $g =$ velocity (in feet per second) generated by gravity in one second of time, being about $32\frac{1}{6}$ feet. Then $2\pi R =$ circumference of the circle or orbit of revolution, and consequently, is equal to the diameter (or twice the radius) of a circle whose circumference equals the involute of said

× centrifugal force