But, as in practice, u will generally be less than $\frac{h}{10}$, in which case, $\sqrt{h^2 - u^2}$ varies from h by only two per cent, it will be sufficiently accurate to substitute h for $\sqrt{h^2 - u^2}$, in the equation $u = \frac{v^2 \sqrt{h^2 - u^2}}{gR}$, by which it becomes $u = \frac{v^2 h}{gR}$. Hence, to determine the proper elevation of the outer rail, we may use the following rule:

Multiply the distance between centres of rails, in feet, by the square of the velocity, in feet per second, and divide the product by $32\frac{1}{6}$ times the radius of the curve, in feet.

For example — let $h = 4.88$; $v = 30$ miles per hour, or 44 feet per second, and $R = 1000$ feet. Then, the elevation (u) should be $\frac{44^2 \times 4.88}{32166.} = 0.293$ ft., or about three and one-half inches.

In what precedes, bodies have been treated without reference to extension, or bulk, and as mere points; which is legitimate, inasmuch as inertia, on which the phenomenon of centrifugal force depends, has its centre coinciding with the centre of gravity, and consequently produces its effects in the same manner, (as far as solid bodies are concerned,) as if the power all resided at that point, instead of being distributed through the whole mass, provided the body be free to rotate on its centre of gravity. Whence, in speaking of the position of a body, reference is had to the position of its centre of gravity and of inertia.

If two bodies represented by w and aw, revolve in equal periods about a common centre of gravity, of course their orbits must be in the same plane with said common centre, and their positions on opposite sides of it; while their velocities, and the radii of their orbits, must manifestly be inversely as their respective weights; that is, if the radius of w's orbit be $= R$, and the velocity $= v$,