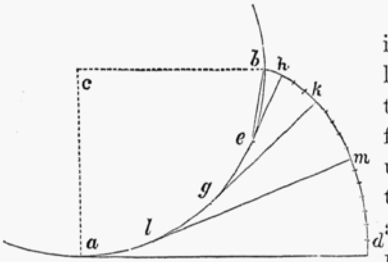
its thralldom, by breaking the string or other means, and fly off in a tangent to the curve it has been describing.



Suppose a body moving uniformly in a circular orbit. It is manifest that the centrifugal force is constant and uniform, for the condition of the body is exactly the same in all parts of the orbit, and there is no reason why it should have a stronger tendency to fly from the centre in one part than another.

If the body revolving in the circle *a b c*, (see diagram,) arrive at the point *b* at a certain instant of time, it is plain that if the centripetal force had been withdrawn at *a*, it would have followed the tangent *a d*, and have arrived at *d*, (the line *a d* being equal to the arc *a b*,) at the same instant at which it arrives at *b*, when subject to the centripetal force.

It follows, then, that the centrifugal force is such as would, if unrestrained, have carried the body from a state of rest at the point *b*, to the point *d*, in the same time occupied in passing from *a* to *b*. But, the direction of the centrifugal force having been constantly changing, being always at right angles with the curve, the path the body would have described from *b* to *d*, must be a curve, of which some portion is perpendicular to the tangent of each portion or point of the arc *a b*, the centrifugal force having acted at right angles with every part of said arc.

Moreover, since this is a constant and uniform force, the portions of the curve representing its effects for succeeding instants, must increase in the arithmetical ratio of $2i$, i being the space which a force equal to the centrifugal tendency is capable of causing the body to move over in