

CHAPTER I.

THE MOTION OF A PARTICLE GEOMETRICALLY CONSIDERED.

1. When the distance between two particles changes continuously during an interval of time, they are relatively in *motion*. Motion of a point

The position, and consequently the motion, of one particle can only be conceived in relation to other particles, but it is convenient to speak of a particle *absolutely* as being at rest or in motion, reference being made to ourselves or to some points in known relation to ourselves, considering these as *fixed*, and referring all motion and change of motion to the particle itself.

By a particle is here to be understood only a geometrical point.

Uniform motion.

2. When a particle is moving in a fixed straight line, its motion is measured by the change of its distance from a fixed point in this line, and the rate of this change of distance at any instant of *time* is called the *velocity* of the particle at that instant. in a straight line. Velocity.

The change of distance in any time is here the linear space described by the particle in that time. If equal spaces are described in equal times, the change of distance in any given time is always the same, and the rate of this change, or the *velocity*, is said to be *uniform*, and is measured by the space described in a given time. Uniform, how measured.

Taking a foot and a second as the units of linear space and time, the velocity v of a particle moving uniformly will be measured by the number of feet described in one second.