

A P P E N D I X.

NOTE (A), p. 15.

THE paragraph here referred to requires no explanation to any one instructed in the first principles of physical astronomy. The following note is therefore addressed exclusively to those who are unacquainted with the severe parts of inductive philosophy.

In order to understand the nature and importance of Newton's discoveries, we must remember that, in the preceding century, the Copernican system had been promulgated; and that Kepler, after incredible labour, had established the following general propositions on the evidence of direct observations.

1. That if each planetary orbit be considered as a space traced out by a line drawn from the sun to the revolving body; this line traces out equal successive areas in equal successive times.

2. That the planets move in elliptical orbits, having the sun in a common focus.

3. That the squares of the times of revolution of the several planets and the cubes of their mean distances from the sun, are in a fixed proportion to each other.

It must also be admitted that, before the discoveries of Newton, there was current in the philosophic world, a vague and general notion of some material action of the planets on each other. No