

And in the way of experiment, the contrivances of clock-work enable us to register the subdivisions of what we call "an instant" into hundreds, nay, thousands, of equal and exactly measurable portions—applying, so to speak, a microscope to time, and estimating, by undeniable calculation, portions of it utterly eluding all our powers of perception. The question has been asked in both these modes, by astronomical observation and by direct physical experiment, and the answer, from each, has been affirmative ; and from both agreeing, in a manner which may well be considered wonderful.

(9.) The planet Jupiter is attended by four satellites which revolve round it in orbits very nearly circular, and whose dimensions, forms, and situations with respect to that of the planet itself are now perfectly well known. The periodical times of their respective revolutions are also ascertained with extreme precision, and all the particulars of their motions have been investigated with extraordinary care and perseverance. The three interior of them are so near the planet and the planes of their orbits so little inclined to that in which it revolves round the sun, that they pass through its shadow, and therefore undergo eclipse, at every revolution. These eclipses have been assiduously observed ever since the discovery of the satellites, and their times of occurrence registered. As they afford a means of determining the longitudes of places, the *prediction* beforehand of the exact times of their occurrence becomes an object of great importance : and it is evident enough that, all the