seventy-six years, the first in point of importance with respect to theoretical and physical astronomy is Halley's comet, whose last appearance, in 1835, was much less brilliant than was to be expected from preceding ones; next we would notice Olbers's comet, discovered on the 6th of March, 1815; and, lastly, the comet discovered by Pons in the year 1812, and whose elliptic orbit has been determined by Encke. The two latter comets were invisible to the naked eye. We now know with certainty of nine returns of Halley's large comet, it having recently been proved by Laugier's calculations,* that in the Chinese table of comets, first made known to us by Edward Biot, the comet of 1378 is identical with Halley's; its periods of revolution have varied in the interval between 1378 and 1835 from 74·91 to 77·58 years, the mean being 76·1.

A host of other comets may be contrasted with the cosmical bodies of which we have spoken, requiring several thousand years to perform their orbits, which it is difficult to determine with any degree of certainty. The beautiful comet of 1811 requires, according to Argelander, a period of 3065 years for its revolution, and the colossal one of 1680 as much as 8800 years, according to Encke's calculation. These bodies respectively recede, therefore, 21 and 44 times further than Uranus from the Sun, that is to say, 33,600 and 70,400 millions of miles. At this enormous distance the attractive force of the Sun is still manifested; but while the velocity of the comet of 1680 at its perihelion is 212 miles in a second, that is, thirteen times greater than that of the Earth, it scarcely moves ten feet in the second when at its aphelion. This velocity is only three times greater than that of water in our most sluggish European rivers, and equal only to half that which I have observed in the Cassiquiare, a branch of the Orinoco. It is highly probable that, among the innumerable host of uncalculated or undiscovered comets, there are many whose major axes greatly exceed that of the comet of 1680. In order to form some idea by numbers, I do not say of the sphere of attraction, but of the distance in space of a fixed star, or other sun, from the aphelion of the comet of 1680 (the furthest receding cosmical body with which we are acquainted in our solar system), it must be remembered that, according to the most recent determinations of parallaxes, the nearest fixed star is full 250 times further removed from our sun than the comet in its aphelion. The comet's distance is only 44

* Laugier, in the *Comptes Rendus des Séances de l'Academie*, 1843, t. xvi., p. 1006.