

Europe in 1825 and 1828, and the circumstances of the last appearance were particularly favourable for determining the absolute amount of the retardation arising from the medium, which the other observations had left undetermined.

The effect of this retarding influence is, as might be supposed from what has already been said, extremely slight; and would probably not have been perceptible at all, but for the loose texture and small quantity of matter of the revolving body. It will easily be conceived that a body which has perhaps no more solidity or coherence than a cloud of dust, or a wreath of smoke, will have less force to make its way through a fluid medium, however thin, than a more dense and compact body would have. In atmospheric air much rarefied, a bullet might proceed for miles without losing any of its velocity, while such a loose mass as the comet is supposed to be would lose its projectile motion in the space of a few yards. This consideration will account for the circumstance, that the existence of such a medium has been detected by observing the motions of Encke's comet, though the motions of the heavenly bodies previously observed showed no trace of such an impediment.

It will appear perhaps remarkable that a body so light and loose as we have described this comet to be, should revolve about the sun by laws as fixed and certain as those which regulate the motions of those great and solid masses, the Earth and Jupiter. It is however certain from observation, that this comet is acted upon by exactly the same force of solar attraction, as the other bodies of the system; and not only so, but that it also experiences the same kind of disturbing force from the action of the other planets, which they exercise upon each other. The effect of all these causes has been calculated with great care and labour; and the result has been an agreement with observation sufficiently close to show that these causes really act, but at the same time a *residual*