

ances. Of course I do not mean to deny that that very minute brilliant point which some are said to have exhibited, may not be a solid body—but it must be a very small one—perhaps not a tenth or a hundredth part the size of the moon; and, indeed, if there be *not* some little solid mass, it seems impossible to conceive how the observations of a loose bundle of smoke, rolling and careering about, could ever be represented by any calculation. Certain it is, that what appears to be the central point of a comet, *is* that point (and no other is) which conforms rigorously to the laws of solar gravitation, and moves strictly in a parabolic or elliptic orbit.

(51.) There is a very curious feature common to all the comets which have little or no tail, and which circulate about the sun in short periods; such as that of Encke, in which it has been especially observed. As they approach the sun, so far from dilating in size, they contract,—I mean in their real bulk, or at least their visible bulk,—and on receding from the sun they grow again to their former size. The only possible explanation of this is, that a portion of their substance is evaporated by the heat—that is to say, converted from the state of fog or cloud into that of invisible transparent vapour. Perhaps I ought to explain what is the difference. Take the case of a light cloud in a clear sky when the sun shines on it. If you watch it attentively, you will very often see it grow thinner and thinner, and at last disappear altogether. It has been converted from *mist* to invisible *vapour*. The material substance, the watery particles are *there*, but they have passed into another