

peculiarly interesting and instructive, it being only on very rare occasions that a comet can be closely inspected at the very crisis of its fate, so as to witness the actual effect of the sun's rays on it. In this instance, the pouring forth of the cometic matter from the singularly bright and highly condensed, almost planetary nucleus, took place in a single compact stream, which after attaining a short distance, equal to rather less than a diameter of the nucleus itself, was so suddenly broken up and dispersed as to give, on the first inspection, the impression of a double nucleus. The direction of this jet varied considerably from day to day, but always declined more or less in one direction from the exact direction from the sun. So far as I am aware, the formation of an envelope disjoined from the head was not witnessed in this comet.

(48.) And now, I daresay, all my hearers are ready to ask—After all what *is* the tail of a comet? Is it material substance in the first place? To this I answer unhesitatingly, Yes! Donati's comet has given a decisive proof on that point. There is a criterion by which, *when it is observed*, it can be positively asserted that the light by which anything is seen has been reflected from a material substance. The light reflected, when it exhibits that peculiar property in which this criterion consists is said to be *polarized*. The direct light of the sun or that of a candle is not polarized, but when reflected at a particular angle on any surface but a metallic one, it *is*, and *if* it is polarized, we may be sure that it is not direct light thrown out by the object seen, but borrowed or indirect light. No matter at present what this polarization