ing out from them, in all directions, some sort of resemblances or spectral forms of themselves, which, when received by the eyes, produce an impression of the objects. Vague and clumsy as this hypothesis obviously is, it assigns to the object a power, and to light a diffusive propagation in all directions, which are, the one and the other, independent of our eyes, and therefore goes to separate the phenomena of *light* from those of *vision*.

(274.) The hypothesis of Newton is a refinement and improvement on this idea, instead of spectra or resemblances, he supposes luminous objects actually to dart out from them in all directions, particles of inconceivable minuteness (as indeed they must be, having such an enormous velocity (see 17.), not to dash in pieces every thing they strike upon). These particles he supposes to be acted upon by attractive and repulsive forces, residing in all material bodies, the latter extending to some very small distance beyond their surfaces; and by the action of these forces to be turned aside from their natural straight-lined course, without ever coming in actual contact with the particles themselves of the bodies on which they fall, but either being turned back and *reflected* by the repulsive forces before they reach them, or penetrating between their intervals, as a bird may be supposed to fly through the branches of a forest, and undergoing all their actions, to take at quitting them a direction finally determined by the position of the surface at which they emerge with respect to their course.

(275.) This hypothesis, which was discussed and reasoned upon by Newton in a manner worthy of himself, affords, by the application of the same dynamical laws which he had applied with so much success to the explanation of the planetary motions, not merely a plausible, but a perfectly reasonable and fair explanation of all the *usual* phenomena of light known in his time. His own beautiful discoveries, too, of the different refrangibilities of the differently colored rays, were perfectly well represented in this theory, by simply admitting a difference of velocity in the particles, which produce in the eye the sensations of different colors. And had