

(18.) Before we can give any intelligible account of these theories, however, it is necessary to enter a little more particularly into the modes by which a *ray* of light may be deflected from its rectilinear *path*, and the laws of such deflection. By this expression we understand nothing more than that the *line of communication* between the illuminating and illuminated object is, in some way or other *rendered circuitous*. It is so natural to speak of light as *a thing*, and of its line of communication as the *path* along which that thing, be it what it may, *travels*, that we are apt to forget that (except on one hypothesis as to its nature, viz., that it is, actually, a *material substance, bodily transported from place to place*) this form of expression is purely metaphorical, and that by *a ray* nothing more is meant than the mathematical line, be it straight or bent, between two *points*, standing to each other in the relations of *illuminating* and *illuminated*, along which the communication is kept up—the test being, that an opaque body being placed anywhere in that line, the illumination ceases. Such a circuitous line of communication may be established, independent of and in addition to the direct rectilinear one, by placing anywhere in space any material object whatever, provided there be no opaque body interposed between it and either of the two points; and this in two different modes. In the one the whole path of the ray, both before and after its deflection, is *outside* of the deflecting body. In this case the light is said to be “*reflected* :” if at a smooth and polished surface, *regularly*, if at a rough one, *irregularly*; in which case the light is said to be