

(120.) As we have already stated when speaking of refraction generally, a ray of light incident on any transparent crystal (certain specified classes of crystals excepted) is subdivided by refraction into two distinct rays, pursuing different paths within the crystal, and of course emerging from it at different points, and so, of necessity, reappearing, not as a single, but as two distinct and separate rays, each pursuing its subsequent course independent of the other through space. Of these, when traced, one is found to have been refracted in the plane of its incidence on the transmitting surface, and according to the ordinary simple "law of the sines" already explained. It is therefore said to be *ordinarily* refracted, and it is called the *ordinary ray*. The other, except in special cases, deviates after refraction from the plane of its incidence, more or less according to the situation of that plane with *respect to the faces of the crystal*: and, moreover, in respect of the amount of its flexure, does not conform to the simple law of the sines, but to a rule much more complex in its expression, called the *law of extraordinary refraction*; this ray being designated as the *extraordinary ray*. Such is the case if the original, incident ray be one directly emitted from the sun, a candle, or any *self-luminous* body. But if in place of such a ray, we employ either of the two rays so separated as above described, for transmission through a second crystal of the same kind, the result will be very different. If it fall upon such second crystal in the same manner, according to the same angles and with the same relative situation as to its plane of incidence with the sides of the crystal,