

necessity that the front of *their* line must to a certain extent fall back and make an obtuse angle at its point of junction with that of the unimpeded line. Thus, in our figure, BE will represent the line of division between the two regions, Bb the advancing front of the troop when the first man arrives at that line, Ee that of the portion still on the good ground after some time elapsed, and EP that of the other portion who have been unable to keep up to the same rate of march. And as the necessity of keeping step and not crossing each other's line of march will oblige each man to step out *right in front* (*i.e.*, at right angles to the new frontage), the progress, BP , made by the first man after crossing the line, will be perpendicular to EP , and will be to what he would have made (BM) had it not been for the retardation, in the proportion of his new to his former velocity of march.

(63.) Thus then we see that when light passes (in this theory) out of what is called a rarer medium into a denser, or when the angle of refraction is less than that of incidence, the velocity of propagation of the undulatory movement is *diminished*, while on the corpuscular doctrine it is increased, and *vice versâ*. Thus, too, we see that on the undulatory hypothesis the connexion between refrangibility and velocity within the refracting medium is *immediate and absolute*, and consequently that it being certain, as we have shown, that light of all refrangibilities travels equally fast in *what we call* empty space (*i.e.*, through the ether alone), it follows with equal certainty that in material media the more refrangible rays are propagated slower than the less so; and all, more slowly than