the interior wave will be inclined at a less angle B E P to the surface than B E M, or its equal E B F,—and the sines of these angles to a common radius E B are evidently in the proportion to each other of P B to B M, or of the *velocity of light* in the *medium to the velocity out of it.* Now, as the *ray* is perpendicular to the *wave*, the inclination of the latter to the surface is the same as that of the former to the perpendicular, and thus these angles are respectively identical with those of refraction and incidence.

(62.) To such of our readers as may find a difficulty in following out this reasoning, the following familiar illustration will convey a full conception of its principle. Imagine a line of soldiers in march across a tract of country divided by a straight boundary line into two regions, the one smooth, level, and well adapted for marching, the other difficult, rough, and in which from its nature the same progress cannot be made in the same time. Suppose, moreover, their line of front oblique to the line of demarcation between the two regions, so that the men shall arrive at it in succession, and not simultaneously. Each man, then, from the moment he has stepped across this line, will find himself unable to make the same progress as before. He will be therefore unable to keep line with that part of the troop which is still on the better ground, but must of necessity lag behind; and that, by the greater space, the longer he travels. Since each man on his reaching the line of division experiences the same difficulty: if they will not break line and straggle, but persist in still marching *in line* and keeping up their connexion, it will follow of