

each $54^{\circ} 37'$, and a ray P Q, polarized in a plane 45° inclined to the plane of the section A B C D intromitted perpendicularly at the face A B, so as to be reflected internally at Q on the side A C, (in which case, the reflexion being at an angle of incidence $54^{\circ} 37'$ was total); and

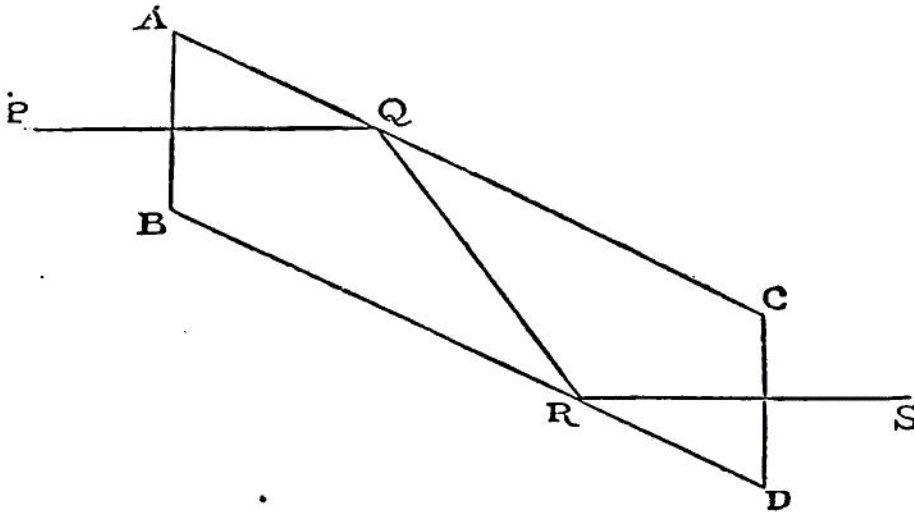


Fig. 16.

again at R, at the same angle, on the opposite side D B, it emerged from the face D C, along the line R S, circularly polarized. In this case, the plane of reflexion making an angle of 45° , with that of original polarization, the reflected ray will consist of two *equal rays*, oppositely polarized; and of these the one in *each* act of reflection has lost, in the other gained, an exact 16th of an undulation, making an 8th *difference* at each reflexion, or a quarter after both; so as to emerge under all the conditions of circular polarization. In consequence, when analysed at its emergence by a tourmaline plate, it is found to undergo no change of brightness on turning the plate in its own plane, whereas the original ray, P Q,