

ray (which may always be considered as compounded of two circularly-polarized ones of opposite characters as already stated, *i.e.*, in which the particles of the ether circulate in opposite directions) is incident on a quartz plate, in this manner; the crystal operates an analysis of the ray and *resolves it into* two such rays circularly polarized; which it propagates *as such*, the one as an ordinary, the other as an extraordinary one. On their emergence at the opposite face of the plate they recompound a plane-polarized ray; but, having gained or lost on one another, by reason of their difference of velocity in their passage through it, a number of revolutions or parts of a revolution proportional to the thickness of the plate, the two circular rays at the instant of their reunion have no longer a *common zero-point* as at their entry: and from this it may be demonstrated* that the plane of polarization of the recomposed will not be coincident with that of the incident ray, but will have been turned round, *in the direction of the rotation of the ray which travels fastest within the quartz*, through an angle also proportional to the thickness of the plate. As the angle of displacement, moreover, differs for the differently coloured rays of the spectrum; the effect will be that, when passed through an analyzing tourmaline the different colours will be differently absorbed, and the result will be the production of a compound tint in the beam finally delivered into the eye, the colour of which will vary with the rotation of that plate in its own plane, as observed.

* Our necessary limits forbid us to give the steps of the demonstration, which, however, are very obvious.