phænomena so apparently paradoxical as to stand in seeming contradiction with all previous optical experience; and which any one, antecedent to their verification by trial, would have pronounced impossible.*

(173.) One highly important conclusion from this theory must, however, be noticed. The directions within the crystal of the two axes of double refraction or the "optic axes" stand in no abstract *geometrical* relation to those of the angles and edges of its "primitive form," or to its axes of symmetry. They are resultant lines determined by the law of elasticity of the luminiferous ether within its substance as related to its crystalline form, and *to the wave-length of the particular coloured ray transmitted.* They are not, therefore, the same for all the coloured rays. In the generality of biaxal crystals, the difference of their situations and of the angle between the two, is but small: but in some, as in the salt called Rochelle salt (tartrate of soda and potash), it is very great, amounting to at least 10°, by which the direction within the crystal of either axis for the extreme red rays differs from that for the extreme violet.† In this salt the variation in position of the optic axes progresses pretty uniformly in passing from a red to a violet illumination. In Carbonate of lead, on the other hand, it varies slowly in

* This alludes to the phænomena of what is called conical refraction, pointed out by the late Sir Wm. R. Hamilton, as a necessary consequence of Fresnel's theory, and demonstrated to exist as a matter of fact, subsequently, by Dr Lloyd.

† See a paper by the author of these pages in *Phil. Trans.*, 1820, "On the action of crystallized bodies on homogeneous light," where the singular phænomena to which this gives rise are fully described.