

came to be arranged, half with their poles in one direction (as regards the sides of the crystal), and half in a direction at right angles to the former. And this is the way in which Newton conceived it, as he himself distinctly states (*Opt.*, Query 21); and as it necessarily must be conceived if the corpuscular theory were to be adopted. How it is explained on the undulatory hypothesis, we shall presently see.

(126.) It was while gazing one evening in 1808, through such a prism of Iceland spar as we have just described, from his study in the Rue d'Enfer at the windows of the Luxembourg Palace in Paris, that M. Malus, at that time engaged in studying the law of extraordinary refraction in this body, happened to notice that the reflexion of the sun on a window of the palace disappeared from one of its images, in a certain position of the prism, and from the other when held at right angles to that position; while in the intermediate situations, the glare was visible in both images, unequally divided, however, between them, except when held in a situation exactly intermediate, or at 45° from its first position:—in a word, that the light reflected from the window had acquired precisely the peculiarity which would have been impressed on it by previous transmission through a similar prism. To this peculiarity he gave the name of POLARIZATION, and light so affected has ever since been said to be POLARIZED.

(127.) *Total and partial polarization of light by reflexion.*—The angle at which a ray of light must be incident on glass that the reflected ray may acquire this property is $56^\circ 45'$ from the perpendicular, or at an inclination of