

the celestial concave, which is 90° remote from the sun's place, the amount of polarized light which it sends to the eye bears a very considerable proportion to the total illumination, amounting to nearly a fourth of the whole. At every other inclination of the visual ray to the direct sunbeam, the proportion is less, and in the neighbourhood of the sun, or of the point on the horizon directly opposed to it very small. When examined in a mode hereafter to be described, by the intervention of a tourmaline plate, and a crystallized lamina, this gives rise to a series of exceedingly beautiful and brilliant phænomena, productive of the greatest astonishment to those who learn for the first time by their exhibition, that totally different, and even opposite qualities, characterize different portions of an illuminated surface apparently so perfectly uniform and homogeneous. This effect is supposed to originate in the reflexion of the solar rays on the particles of the air itself, an explanation encumbered with many difficulties, but the best (indeed the only one) that has yet been offered.

(139.) *Polarization interpreted on the undulatory theory.*—According to any conception we can form of an elastic medium, its particles must be conceived free to move (within certain limits greater or less according to the coercive forces which may restrain them) in every direction from their positions of rest, or equilibrium. It by no means follows, however, that the nerves of the retina are equally susceptible of excitement by vibrations of the luminiferous ether (in which they may be conceived immersed) in all directions. In the case of sound, the