

light in the direction which was in a straight line from the origin or centre of light; that the lateral or secondary waves destroyed each other almost entirely by interference or overlapping; and that the so-called inflection, bending, or lateral spreading of light, was occasioned by an incomplete coincidence or overlapping of these lateral undulations. It appears that about the year 1815 Fresnel had, through a study of the phenomena of diffraction, arrived at a conviction, entertained by Young fifteen years earlier, that the projectile theory of light could not explain them. He had also, by a more rigorous and minute study of Young's principle of interference, explained the reason of the rectilinear propagation of light. Yet these results did not materially affect the adherents of the projectile theory, who had been during late years very active in studying another class of optical phenomena, those of polarisation—the power which light possesses of acquiring, either by refraction or reflexion, a difference not discernible merely by the eye. This difference consists in the fact that a ray of light very frequently—as Newton had already expressed it—possesses “sides,” just as a flat strip or narrow tape has sides if compared with an ordinary thread or wire, which has no sides; or as a wire drawn through a specially shaped die acquires sides or edges. This property was later termed polarity,¹ a term which implies that the particles of light

17.
Difficulties
presented
by the
polarisation
of light.

¹ The word “polarity” was introduced by Malus in 1810. It is unfortunate, as it suggests the corpuscular nature of light. Newton's conception of “sidedness” (“laterality,” formed by analogy on Lord Kelvin's term “chirality” to describe right- or left-handedness,

see vol. i. p. 432) is a better description of the phenomenon. It is contained in the 26th query to the second edition of the ‘Opticks’ (1717). Huygens had long before, in his ‘Traité de la Lumière’ (written in 1678, published in 1690), after having given a correct rule for