England and to Young, who learnt from them that, mainly owing to Fresnel's labours, his own researches had "attracted much more notice in Paris than in London, . . . leading to some very warm discussions among the members of the Institute on some public occasions."[1] It is likely that this visit, as well as the discovery of Arago that rays of light when polarised —*i.e.*, possessed of laterality—lose under certain conditions their power of interference, induced Young to resume seriously the consideration of the subject. In January 1817, long before Fresnel had made up his mind to adopt a similar conclusion (suggested to him by Ampère), Young announced in a letter to Arago that in the assumption of transverse vibrations, after the manner of the vibrations of a stretched string, lay the possibility of explaining polarisation or "laterality," and the non-interference of rays whose sides are perpendicular to each other. By introducing this conception of a lateral or transverse movement into physical optics —a conception shortly afterwards adopted by Fresnel— the data were provided for a complete mechanical or kinetic explanation of all phenomena of homogeneous rays of light—*i.e.*, of such rays as, on passing through refracting substances, are not divided into several colours.

19. Young and Fresnel introduce the conception of transverse vibrations.

Two great problems now presented themselves, one of which Fresnel attacked with great success. The other is hardly yet solved. Inasmuch as these two problems have largely occupied physicists and mathematicians all through the century, and guided their reasonings in other

[1] Peacock, 'Life of Young,' p. 389.