

to measure the velocity of electricity. Without figures, and without much more verbal detail than would be compatible with our limits, it would be impossible to give a clear conception of the conduct of this delicate and refined experiment. Suffice it to state, as its ultimate result, a velocity of 185,172 miles per second.* As there are other and independent reasons for believing that the sun's distance has been over-rated by about one-thirtieth in our estimate of 12,000 diameters of the earth, and that, in consequence, the velocity of light deduced from the phenomenon of aberration ought to be diminished in the same proportion (which would reduce it to 186,300 miles per second), we are authorized to conclude that in estimating this velocity at 186,000 miles we are within a thousand miles of the truth.

(17.) The form of experiment proposed and executed by M. Foucault has this great advantage over the other,—that it can be carried out within much smaller limits of distance. A few yards of travel suffices for the determination of this enormous speed. And this makes it possible to compare the velocity of light in its passage through air and water, and other transparent liquids—*with this remarkable result, that the rate is found to be slower in the denser medium*; a result of the utmost importance, as we shall presently see, as a *crucial fact* in deciding between the claims of the two great rival theories of light to be received as valid.

* 298 millions of metres. See *Comptes Rendus de l'Institut*, Sept. 22, 1860.