the light begins to reappear, and gradually increases to its former brightness, in which state of things the obstructing *tooth* has been carried, in that same interval of time, quite clear of the opening, and the next *notch* brought exactly opposite to it. With yet increased speed, the light again vanishes, again reappears, and so on alternately, as the second, third, or fourth tooth or notch is successively brought before the opening; and on comparing the velocities of rotation corresponding, they are found to increase in arithmetical progression; which obviously ought to be the case. In M. Fizeau's experiments,* the distance between the reflector and the revolving wheel was about 8600 metres, thus giving for the whole distance travelled over by the light going and returning 17,200 metres, or about $10\frac{3}{4}$ miles; and for the time occupied in its journey, hardly more than the 18,000th part of a second. A velocity of 196,000 miles per second was assigned by him as their final result, exceeding by about one-sixtieth part that resulting from the astronomical observations.

(16.) The experiments of M. Foucault, however, leave no doubt that this last result is too great. In these experiments, instead of measuring these minute intervals of time by the rotation of a toothed wheel, a revolving reflector was employed in pursuance of an idea suggested by Mr Wheatstone, and applied by him

* The actual details of this experiment, as executed by M. Fizeau, were somewhat more complicated. Telescopes were used, &c. For clearness of explanation, we have reduced the whole process to its simplest form of expression.