

in a second of time, these glimpses run together into continuous vision; and if considerably more numerous (suppose fifty or sixty per second), the light is perceived steadily as if the wheel were at perfect rest—only, however (if the intervals between the teeth be exactly equal to the breadths of the latter), of half the brilliancy, seeing that only half the quantity of light will have entered the eye in the same time. The motion of the wheel still continuing to be accelerated, however, when it has attained a certain very great rapidity the light is gradually perceived to grow feebler and at length altogether disappears. This happens when the velocity of rotation is such as to bring a tooth of the wheel precisely to cover the whole of the orifice in the screen into which the returning beam should be delivered at the very moment of its arrival, so closing it up altogether; that is to say, when the rotation is just so rapid as to carry each tooth over its own breadth during the time taken by the light to go and return. When this happens, suppose the *acceleration* of the wheel to cease, and its motion to be maintained uniform. Then by counting the turns made per minute by the driving-handle of the train of wheel-work, or otherwise registering its speed; and knowing (from the construction of the train) how many turns of the wheel correspond to one of the driver, as also how many teeth it carries, the exact duration of this interval, no matter how minute, can be exactly computed, so that the time and the space run over by the light in that time both become known.

(15.) If the rotation be now still further accelerated,