carried from its point of repose, or its medium situation, in the act of vibration; the acting or coercive force must suffice to bring it back from that distance in one fourth part of that inconceivably minute fraction of a second by which, as above shown, the period of a complete vibration is expressed. Taking the case, then, of any particular ray (as for instance that between the green and blue rays of the spectrum, corresponding to a wave-length of one 50,000th of an inch, and to a period of one 589 billionth of a second), if we assume the extent of excursion, we can very readily calculate the intensity of the force (as compared with that of gravitation) which, acting uniformly during that time, would urge it through that space. Let us suppose then, that the nerves of the retina are so constituted as to be sensibly affected by a vibratory movement of no greater extent or *amplitude* than one trillionth* part of an inch either way; and the calculation executed, we shall find that a force exceeding that of gravity in the proportion of nearly thirty thousand millions to one must be called into action to keep up such a movement. Our choice lies between two immensities, we had almost said between two infinities. If we would bring the force within the limits of human comprehension, we must in the same proportion exaggerate the delicacy of our nervous mechanism, and *vice versâ*.†

* A trillion is a million of billions = 10^{18}, or 1,000,000,000,000,000,000.

† The hypothesis of a uniform action of the coercive force in the text is only assumed for the convenience of such of my readers