in free space. In other words, this amounts to supposing the elastic force of the ether either to be enfeebled in the interior of material bodies, or else that the movements of its particles are *in some way or other* clogged or burthened by some sort of connexion with or adhesion to the material molecules among which they are disseminated, and *that* more for the more refrangible rays than for the less so.

(64.) Until lately this difference of velocity between the differently refrangible rays had always been considered an insuperable obstacle to the admission of the undulatory hypothesis. All sounds of whatever pitch (it was contended) travel equally fast in one and the same elastic medium. The profounder researches of later mathematicians, however, have shown that this conclusion is not absolute, and that on certain suppositions which are not altogether inadmissible in respect of the vibrations of light, the difference is not contradictory to strict dynamical laws.

(65.) As we have attempted to form an estimate of the intensity of the forces required to account for observed facts on the corpuscular hypothesis, let us now attempt a parallel estimate on the undulatory. And here the way is equally open and obvious. Starting with the observed facts, that sound travels in air at the rate of 1090 feet per second, while light is propagated through the ether 186,000 miles in the same time (that is to say, 901,000 times as fast), we are enabled to say how many fold the elastic force of the air, or its resistance to compression, would require to be increased *in proportion to*