

At every transfer of an undulation from one such system into that adjacent, a partial echo is produced. The unity of the propagated wave is thus broken up, and a portion of it becomes scattered through the interior of the body in dispersed undulations from each such system, as from a centre of divergence. In consequence of the continual repetition of this process, after a greater or less number of passages to and fro of the original wave across the body (however perfect we may suppose the reflections from its surface to be), it becomes frittered away to an insensible amplitude, and resolved into innumerable others; crossing, recrossing, and mutually compensating each other, while each of the secondary waves so produced is in its turn undergoing the same process of disruption and degradation.

(6.) In this account of the apparent destruction of motion, I have purposely supposed the body set in vibration to be insulated from communication with any other. In the case of a perfectly or highly elastic body struck in air, it will vibrate so long that a great part of its motion is actually carried off in sonorous tremors communicated to the air. But in the case of an inelastic or imperfectly elastic body, the internal process above described goes on with such excessive rapidity, as to allow of very few, and those rapidly degrading, impulses to be communicated from its surface to the air.

(7.) In my Article on Sound,\* I have explained, on this principle of internal reflection and continual subdivision,

\* Published like that on Light, above cited, in the *Encyclopædia Metropolitana*, 1829-30.