

We have seen above how the vibratory theory of light was arrived at—mainly in the hands of Young—through dwelling on the analogy of certain optical phenomena, notably those of interference, with the properties exhibited by sound. Among the latter none were more remarkable than those known popularly as consonance and resonance. Sir George Stokes, on the appearance of Kirchhoff's memoir on the relation of emission and absorption of certain rays of light, gave the mechanical explanation in the following words :¹ " In describing the result of a prismatic analysis of the voltaic arc formed between charcoal poles, M. Foucault ' found that the arc presents us with a medium which emits the rays D on its own account, and which at the same time absorbs them when they come from another quarter.' . . . The remarkable phenomena discovered by Foucault, and rediscovered and extended by Kirchhoff, that a body may be at the same time a source of light, giving out rays of a definite refrangibility, and an absorbing medium extinguishing rays of the same refrangibility which traverse it, seems readily to admit of a dynamical illustration borrowed from sound. We know that a stretched string which on being struck gives out a certain note, is capable of being thrown into the same state of vibration by aerial vibrations corresponding to the same note. Suppose now a portion of space to contain a great number of such stretched strings, forming thus the analogue of a 'medium.' It is evident that such a medium, on being agitated, would give out the note above mentioned, while on the other hand, if that note were sounded in air at a distance, the incident vibrations would

¹ 'Phil. Mag.,' March 1860, pp. 194, 196.