

For, as I have said, the theory professes only to explain the phenomena of *radiant visible* light. We know very well that light has other bearings and properties. It produces chemical effects. The optical polarity of crystals is connected with the chemical polarity of their constitution. The natural colors of bodies, too, are connected with their chemical constitution. Light is also connected with heat. The undulatory theory does not undertake to explain these properties and their connexion. If it did, it would be a Theory of Heat and of Chemical Composition, as well as a Theory of Light.

Dr. Faraday's recent experiments have shown that the magnetic polarity is directly connected with that optical polarity by which the plane of polarization is affected. When the lines of magnetic force pass through certain transparent bodies, they communicate to them a certain kind of circular polarizing power; yet different from the circular polarizing power of quartz, and certain fluids mentioned in chapter ix.

Perhaps I may be allowed to refer to this discovery as a further illustration of the views I have offered in the *Philosophy of the Inductive Sciences* respecting the *Connexion of Co-existent Polarities*. (B. v. Chap. ii.)]

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## CHAPTER XII.

### SEQUEL TO THE EPOCH OF YOUNG AND FRESNEL. RECEPTION OF THE UNDULATORY THEORY.

WHEN Young, in 1800, published his assertion of the Principle of Interferences, as the true theory of optical phenomena, the condition of England was not very favorable to a fair appreciation of the value of the new opinion. The men of science were strongly pre-occupied in favor of the doctrine of emission, not only from a national interest in Newton's glory, and a natural reverence for his authority, but also from deference towards the geometers of France, who were looked up to as our masters in the application of mathematics to physics, and who were understood to be Newtonians in this as in other subjects. A general tendency to an atomic philosophy, which had begun to appear from the time of Newton, operated powerfully; and