so that no new property is needed. Polarization for a moment checks us; but not long; for the direction of our vibrations is hitherto arbitrary;—we allow polarization to decide it. Having done this for the sake of polarization, we find that it also answers an entirely different purpose, that of giving the law of double refraction. Truth may give rise to such a coincidence; falsehood cannot. But the phenomena become more numerous, more various, more strange; no matter: the Theory is equal to them all. It makes not a single new physical hypothesis; but out of its original stock of principles it educes the counterpart of all that observation shows. It accounts for, explains, simplifies, the most entangled cases; corrects known laws and facts; predicts and discloses unknown ones; becomes the guide of its former teacher, Observation; and, enlightened by mechanical conceptions, acquires an insight which pierces through shape and color to force and cause.

We thus reach the philosophical *moral* of this history, so important in reference to our purpose; and here we shall close the account of the discovery and promulgation of the undulatory theory. Any further steps in its development and extension, may with propriety be noticed in the ensuing chapters, respecting its reception and verification.

[2nd Ed.] [In the *Philosophy of the Inductive Sciences*, B. xi. ch. iii. Sect. 11, I have spoken of the *Consilience of Inductions* as one of the characters of scientific truth. We have several striking instances of such consilience in the history of the undulatory theory. The phenomena of fringes of shadows and colored bands in crystals *jump together* in the Theory of Vibrations. The phenomena of polarization and double refraction *jump together* in the Theory of Crystalline Vibrations. The phenomena of polarization and of the interference of polarized rays *jump together* in the Theory of Transverse Vibrations.

The proof of what is above said of the undulatory theory is contained in the previous history. This theory has " accounted for, explained, and simplified the most entangled cases;" as the cases of fringes of shadows; shadows of gratings; colored bands in biaxal crystals, and in quartz. There are no optical phenomena more entangled than these. It has "corrected experimental laws," as in the case of M. Biot's law of the direction of polarization in biaxal crystals. It has done this, "without making any new physical hypothesis;" for the transverse direction of vibrations, the different optical elasticities of crystals in different directions, and (if it be adopted) the hypothesis of finite