

less bordered with color, in consequence of this property. The improvement of telescopes was, in Newton's time, the great practical motive for aiming at the improvement of theoretical optics. Newton's theory showed why telescopes were imperfect, namely, in consequence of the different refraction of different colors, which produces a *chromatic* aberration: and the theory was confirmed by the circumstances of such imperfections. The false opinion of which we have already spoken, that the dispersion must be the same when the refraction is the same, led him to believe that the imperfection was insurmountable,—that *achromatic* refraction could not be obtained: and this view made him turn his attention to the construction of reflecting instead of refracting telescopes. But the rectification of Newton's error was a further confirmation of the general truth of his principles in other respects; and since that time, the soundness of the Newtonian law of refraction has hardly been questioned among physical philosophers.

It has, however, in modern times, been very vehemently controverted in a quarter from which we might not readily have expected a detailed discussion on such a subject. The celebrated Göthe has written a work on *The Doctrine of Colors*, (*Farbenlehre*; Tübingen, 1810,) one main purpose of which is, to represent Newton's opinions, and the work in which they are formally published, (his *Opticks*,) as utterly false and mistaken, and capable of being assented to only by the most blind and obstinate prejudice. Those who are acquainted with the extent to which such an opinion, promulgated by Göthe, was likely to be widely adopted in Germany, will not be surprised that similar language is used by other writers of that nation. Thus Schelling¹⁵ says: "Newton's *Opticks* is the greatest proof of the possibility of a whole structure of fallacies, which, in all its parts, is founded upon observation and experiment." Göthe, however, does not concede even so much to Newton's work. He goes over a large portion of it, page by page, quarrelling with the experiments, diagrams, reasoning, and language, without intermission; and holds that it is not reconcilable with the most simple facts. He declares,¹⁶ that the first time he looked through a prism, he saw the white walls of the room still look white, "and though alone, I pronounced, as by an instinct, that the Newtonian doctrine is false." We need not here point out how inconsistent with the Newtonian doctrine it was, to expect, as Göthe expected, that the wall should be all over colored various colors.

¹⁵ *Vorlesungen*, p. 270.

¹⁶ *Farbenlehre*, vol. ii. p. 678.