On comparing the velocities of solar, stellar, and terrestrial light, which are all equally refracted in the prism, with the velocity of the light of frictional electricity, we are disposed, in accordance with Wheatstone's ingeniously conducted experiments, to regard the lowest ratio in which the latter exceeds the former as 3 : 2. According to the lowest results of Wheatstone's optical rotatory apparatus, electric light traverses 288,000 miles in a second.* If we reckon 189,938 miles for stellar light, according to Struve's observations on aberration, we obtain the difference of 95,776 miles as the greater velocity of electricity in one second.

These results are *apparently* opposed to the views advanced by Sir William Herschel, according to which solar and stellar light are regarded as the effects of an electromagnetic process—a perpetual northern light. I say *apparently*, for no one will contest the possibility that there may be several very different magneto-electrical processes in the luminous cosmical bodies, in which light—the product of the process—may possess a different velocity of propagation. To this conjecture may be added the uncertainty of the numerical result yielded by the experiments of Wheatstone, who has himself admitted that they are not sufficiently established, but need further confirmation before they can

associated with a slight degree of refraction, while a smaller amount of velocity involves a slighter degree of refraction. Thus every visible red ray is accompanied by dark rays of the same nature, of which some are more, and others less, refracted than the former; there are consequently *rays in the black lines* of the red portion of the spectrum; and the same must be admitted in reference to the lines situated in the yellow, green, blue, and violet portions."—Arago, in the *Comptes Rendus de l'Acad. des Sciences*, t. xvi., 1843, p. 404. Compare also t. viii., 1839, p. 326, and Poisson, *Traité de Mécanique*, ed. ii., 1833, t. i., § 168. According to the undulatory theory, the stars emit waves of extremely various transverse velocities of oscillations.

* Wheatstone, in the *Philos. Transact. of the Royal Soc. for* 1834, p. 589, 591. From the experiments described in this paper, it would appear that the human eye is capable of perceiving phenomena of light, whose duration is limited to the millionth part of a second (p. 591). On the hypothesis referred to in the text, of the supposed analogy between the light of the sun and polar light, see Sir John Herschel's *Results of Astron. Observ. at the Cape of Good Hope*, 1847, p. 351. Arago, in the *Comptes Rendus pour* 1838, t. vii., p. 956, has referred to the ingenious application of Breguet's improved Wheatstone's rotatory apparatus for determining between the theories of emission and undulation, since, according to the former, light moves more rapidly through water than through air, while, according to the latter, it moves more rapidly through air than through water. (Compare also *Comptes Rendus pour* 1850, t. xxx., p. 489–495, 556.)