tra of the light reflected from the moon, from Venus, Mars, and the clouds, we recognize, as might be anticipated, all the peculiarities of the solar spectrum; but, on the other hand, the dark lines in the spectrum of Sirius differ from those of Castor and the other fixed stars. Castor likewise exhibits different lines from Pollux and Procyon. Amici has confirmed this difference, which was first indicated by Fraunhofer, and has ingeniously called attention to the fact that in fixed stars, which now have an equal and perfectly white light, the dark lines are not the same. A wide and important field is thus still open to future investigations,* for we have yet to distinguish between that which has been determined with certainty and that which is merely accidental and depending on the absorbing action of the atmospheric strata.

We must here refer to another phenomenon, which is powerfully influenced by the specific character of the source of light. The light of incandescent solid bodies, and the light of the electric spark, exhibit great diversity in the number and position of Wollaston's dark lines. From Wheatstone's remarkable experiments with revolving mirrors, it would appear that the light of frictional electricity has a greater velocity than solar light in the ratio of 3 to 2; that is to say, a velocity of 95,908 miles in one second.

The stimulus infused into all departments of optical science by the important discovery of polarization,† to which the ingenious Malus was led in 1808 by a casual observation of the light of the setting sun reflected from the windows of the Palais du Luxembourg, has afforded unexpected results to science by the more thorough investigation of the phenomena of double refraction, of ordinary (Huygens's) and of chromatic polarization, of interference, and of diffraction of light. Among these results may be reckoned the means of distinguishing between direct and reflected light,‡ the power of penetrating,

* On the relation of the dark lines on the solar spectrum in the Daguerreotype, see *Comptes Rendus des Séances de l'Académie des Sciences*, tom. xiv., 1842, p. 902–904, and tom. xvi., 1843, p. 402–407.

† *Cosmos*, vol. ii., p. 332.

‡ Arago's investigation of cometary light may here be adduced as an instance of the important difference between proper and reflected light. The formation of the complementary colors, red and green, showed by the application of his discovery (in 1811) of *chromatic polarization*, that the light of Halley's comet (1835) contained *reflected solar light*. I was myself present at the earlier experiments for comparing, by means of the equal and unequal intensity of the images of the polariscope, the proper light of Capella with the splendid comet, as it suddenly emerged from the rays of the sun at the beginning of July, 1819. (See *Annuaire*