

feeble than the sunlight which is reflected by a white cloud in the daytime. When, in determining geographical longitudes, it is often necessary to take the distance of the Moon from the Sun, it is not unfrequently difficult to distinguish the Moon between the more intensely luminous masses of cloud. Upon mountain-heights, which lie between 12,791 and 17,057 feet above the level of the sea, and where, in the clear mountain air, only feathery cirri are to be seen in the sky, I found the detection of the Moon's disk was much more easy, because the cirrus reflects less sunlight on account of its loose texture, and the moonlight is less weakened by its passage through the rarer strata of air. The relative degree of intensity of the Sun's light to that of the full Moon deserves a new investigation, as Bouguer's universally received determination, $\frac{1}{80000000}$, differs so widely from the certainly less probable one of Wollaston, $\frac{1}{800000000}$.*

The yellow moonlight appears white by day, because the blue strata of air through which we see it presents the complementary color to yellow.† According to the numerous observations which Arago made with his polariscope, the moonlight contains *polarized* light; it is most perceptible during the first quarter and in the gray spots of the Moon's surface; for example, in the great, dark, sometimes rather greenish elevated plains, the so-called *Mare Crisium*. Such elevated plains are generally intersected by metallic veins, in whose polyhedric figure the surfaces are inclined at that angle which is necessary for the polarization of the reflected sunlight. The dark tint of the surrounding space appears, in addition, to make the phenomenon still more obvious. With regard to the luminous central mountain of the group *Aristarchus*, upon which it has been frequently erroneously supposed that volcanic action has been seen, it did not present any greater polarization of light than other parts of the Moon. In the full Moon no admixture of polarized light was observ-

* *Cosmos*, vol. iii., p. 95, and note †.

† "La lumière de la Lune est jaune, tandis que celle de Vénus est blanche. Pendant le jour la Lune paraît blanche, parcequ'à la lumière du disque lunaire se mêle la lumière bleue de cette partie de l'atmosphère que la lumière jaune de la Lune traverse."—Arago, in *Handschr.* of 1847. "The light of the Moon is yellow, while that of Venus is white. The Moon appears white during the day, because the blue light of that part of the atmosphere which the yellow light of the Moon traverses, mixes with the light of the lunar disk." The most refrangible rays of the spectrum, from blue to violet, unite with the less refrangible, from red to green, to form white. (*Cosmos*, vol. iii., p. 208, note *.)