

The *visibility* of distant objects is modified by the absorption of the rays passing from the terrestrial object to the naked eye at unequal distances, and through strata of air more or less rarefied and more or less saturated with moisture; by the degree of intensity of the light diffused by the radiation of the particles of air; and by numerous meteorological processes not yet fully explained. It appears from the old experiments of the accurate observer Bouguer that a difference of $\frac{1}{60}$ th in the intensity of the light is necessary to render objects visible. To use his own expression, we only *negatively* see mountain-tops from which but little light is radiated, and which stand out from the vault of heaven in the form of dark masses; their visibility is solely owing to the difference in the thickness of the atmospheric strata extending respectively to the object and to the horizon. Strongly-illuminated objects, such as snow-clad mountains, white chalk cliffs, and conical rocks of pumice-stone, are seen *positively*.

The distance at which high mountain summits may be recognized from the sea is not devoid of interest in relation to practical navigation, where exact astronomical determinations are wanting to indicate the ship's place. I have treated this subject more at length in another work,* where I considered the distance at which the Peak of Teneriffe might be seen.

The question whether stars can be seen by daylight with the naked eye through the shafts of mines, and on very high mountains, has been with me a subject of inquiry since my early youth. I was aware that Aristotle had maintained†

* Humboldt, *Rélation Hist. du Voyage aux Régions Equinox.*, tom. i., p. 92-97; and Bouguer, *Traité d'Optique*, p. 360 and 365. (Compare, also, Captain Beechey, in the *Manual of Scientific Inquiry for the Use of the Royal Navy*, 1849, p. 71.)

† The passage in Aristotle referred to by Buffon occurs in a work where we should have least expected to find it—*De Generat. Animal.*, v. i., p. 780, Bekker. Literally translated, it runs as follows: "Keeness of sight is as much the power of seeing far as of accurately distinguishing the differences presented by the objects viewed. These two properties are not met with in the same individuals. For he who holds his hand over his eyes, or *looks through a tube*, is not, on that account, more or less able to distinguish differences of color, although he will see objects at a greater distance. Hence it arises that persons *in caverns or cisterns are occasionally enabled to see stars.*" The Grecian *Ὀρύματα*, and more especially *φρέατα*, are, as an eye-witness, Professor Franz, observes, subterranean cisterns or reservoirs which communicate with the light and air by means of a vertical shaft, and widen toward the bottom, like the neck of a bottle. Pliny (lib. ii., cap. 14) says, "Altitudo