

its temperatures, till reaching the earth, they exert their utmost influence; and secondly, the increased capacity for heat possessed by air, in proportion as it becomes more rare. From the first of these causes it happens, that the temperature of the lower regions of the atmosphere is derived, not immediately from the sun, but from the earth. The surface of the earth absorbing the solar heat, recommunicates it to the immediately incumbent atmosphere; while all the higher portions of the atmosphere remain unaffected. For though, from diminished specific gravity, heated air naturally ascends, yet as its capacity for heat at the same time increases, ascending air rapidly loses its sensible heat; as in the second place we have to explain.

Dr. Dalton, and afterwards Sir John Leslie more completely, have attempted to show, that the equilibrium of heat in an atmosphere is obtained, when *each of its molecules*, or in other words, when *the same weight of air*, in the same perpendicular column, is possessed of *the same quantity of heat*. Now, since atmospheric pressure diminishes with the height according to a certain law; it is obvious, that the *same weight of air*, at the surface of the earth, and in the higher regions, will occupy *very different spaces*. But since the absolute quantity of heat is exactly the same in both portions; it is likewise obvious, that in the higher regions of the atmosphere,