

an atmosphere is said to be *saturated* with vapour.

But, neither at the earth's surface, nor at any height above it, can the degree of saturation of a mixed atmosphere of air and vapour, be quite equal to that which is proper to the temperature of the air; and the difference between these two degrees of saturation, augments from above downwards. The cause of this difference may be thus explained. The rate of increase of the temperature of air, from above downward, being in arithmetical progression; and the air being, in a mixed atmosphere, that ingredient which controls the whole mixture: the rate of increase of the tension of the vapour, instead of following the geometrical rate which belongs to it as vapour; is obliged to conform to the arithmetical rate of increase of the temperature of the air. The result of this controlment necessarily is, that the quantity of vapour present in a mixed atmosphere will, at any successive diminution of the height above the surface of the earth, become successively less and less than that which would be required to saturate the air. An example will make this result evident.

At the Equator, as we have said, the temperature of the air, about 15,000 feet above the level of the sea, is nearly 32°. Now, for the sake of illustration, let us suppose the air at this height to be saturated with vapour. From Dr.