

and organized bodies in particular, we may proceed to inquire into the probable height to which the atmosphere extends. It has been already stated, that the pressure of the atmosphere decreases according to the increased elevation above the level of the sea. This decrease of density for equal ascents is in geometrical progression, that is to say, at an elevation of three miles, the density would be only one half what it is at the seashore; at six miles one fourth; at nine miles one eighth: so that at the height of fifteen miles the pressure of the superincumbent air would not support a column of mercury of more than one inch. It is evident, therefore, that the greater portion of the atmosphere is within fifteen miles of the earth's surface; and yet it is supposed, and it may be considered as satisfactorily determined, that the atmosphere extends to a height of more than forty-five miles.

Some persons have imagined that the atmosphere has no limit, but is spread in a state of extreme rarefaction through all space. Now if space were filled with an atmosphere, however great its rarity, the planets would have atmospheres, for these bodies would accumulate, by their attractive power, a portion of the fluid medium around them, which would increase in density with its proximity to their surfaces. But it does appear that some planets have no atmosphere, and, therefore, that which surrounds the earth does not extend through space.

But this supposition may be objected to on another ground, as opposed to the known influence of the forces by which matter is governed. As the density of the atmosphere decreases with its height above the surface of the earth, on account of a diminution of pressure, there must be some point where the elasticity of the air and the force of gravity are equal, and there the atmosphere must terminate.

Another argument in proof of the limitation of the atmosphere might be adduced from a consideration of the elementary constitution of matter. Substances are combinations of ultimate particles, united in definite proportions. The atmosphere, must therefore have a limit, and that is a stratum of ultimate particles, beyond which it cannot be supposed to extend without investing it with hypothetical properties.

As we know the pressure exerted by a column of atmo-