

fulfil. From the principle of gaseous diffusion it necessarily follows, that at all habitable heights above the level of the sea, the air must have a nearly uniform composition; for though the oxygen and carbonic acid must have a decreasing ratio in ascending, yet, at the height of the highest mountains, the alteration of the proportions would be little more than perceptible. If a portion of either gas be consumed in any place, the loss is now immediately made up; but if the principle of diffusion did not exist, then the deficiency could not be compensated, but the whole atmosphere might be described as consisting of patches of different gases; here we should have a patch of oxygen, and there one of nitrogen, while the intermediate space might be divided into parts, each of which would be occupied by the two in some new proportion, or in the order of their specific gravities, according to the force which might be brought into activity in place of the self-repellent power. An atmosphere thus constituted would be evidently unfit to support either animal or vegetable life

#### PROPERTIES OF THE ATMOSPHERE.—TRANSPARENCY.

The general properties of the atmosphere are transparency, fluidity, elasticity, and expansibility.

The surface of the earth is so richly adorned with things calculated to delight the eye, that we can hardly avoid the conclusion, that its Maker had an intention of pleasing as well as of supporting his creatures. But all the display of beauty, so well adapted to cheer the spirits, to enliven the sensibilities, and to excite the adoration of man, would have been devised and formed in vain, if the atmosphere had not been a transparent fluid; and yet we must admit that the Creator might have provided an atmosphere which would support us, though of such a nature that we might wander about in gloom and despondency, or have viewed all objects through a medium calculated to present them to the eye in the most disgusting forms. And if there were no atmosphere, then the entire vault of heaven would be unilluminated, except that part in which the sun itself was situated, while the dim reflection from the illuminated portion of the earth could only increase the horror of the scene.