

*Page 309.—Of the effects of foreign bodies in the atmosphere.*—Many years ago, particular circumstances led us to form the opinion, that a combination of water and oxygen is a frequent, if not a constant, ingredient in the atmosphere. This ingredient, which we suppose to be a vapour, and analogous to (we do not say identical with) the deutoxide of hydrogen, may be imagined to act as a foreign body, and thus to be the cause of numerous atmospheric phenomena, which at present are very little understood. Among such phenomena are those of evaporation considered in the text.

When treating of the composition of atmospheric air, we observed that the best analyses almost invariably indicated a slight excess of oxygen above the amount of 20 per cent., which there ought to be in the atmosphere, if its composition were, as there can be little doubt that it is, determined by the laws of chemical proportions. Now this excess of oxygen in the atmosphere, we have every reason to think, becomes periodically associated in some way with the vapour which is also in the atmosphere; and thus not only modifies the properties of the vapour, but at the same time materially influences the rate of evaporation from the earth's surface. This excess of oxygen may operate in the following manner. The vapour in union with oxygen (deutoxide of hydrogen?) ceases, of course, to act as vapour; hence in air saturated with vapour, and as moist as possible, if a portion of the vapour were suddenly to combine with oxygen, the air would as suddenly *appear* to become dry, though in reality it contained the same quantity of water in solution as before. Moreover the rate of evaporation would be increased by such a combination of vapour and oxygen; for its effects, whatever these might be, would be superadded to the ordinary effects of atmospheric air in producing evaporation, and would thus more or less increase the quantity of water converted into vapour.

Oxygen in this state of combination with vapour seems to be particularly grateful, if not necessary to animal life. The air in which it abounds is dry, bracing, and exhilarating; while the