

elastic force exerted by all bodies in the gaseous state, bears a certain relation to their temperature; but that the degree of this elastic force varies according to other circumstances; particularly, according to whether the gaseous body, at the given temperature, be capable of existing in the fluid or in the solid states, as well as in the gaseous state. Thus, atmospheric air, not only at the temperature of  $32^{\circ}$ , but at all known temperatures, is a gaseous body; and, under ordinary circumstances, exerts an elastic force equal to the weight of a column of mercury 30 inches high: whereas, at the same temperature of  $32^{\circ}$ , water is a solid; and the force of the elasticity of its vapour, is not more than equal to about 1-5th of an inch of mercury. But at, and above  $212^{\circ}$ , its boiling point, water, under ordinary circumstances, can exist only as a gas; and in this gaseous form, and at the temperature of  $212^{\circ}$ , water obeys precisely the same laws, and exerts the same elastic force, as atmospheric air would obey and exert, under similar circumstances. Hence it will be readily understood, that the law of the elastic force of vapour below  $212^{\circ}$ , is very different from the law of that force above  $212^{\circ}$ ; as by experiment is found to be the fact.

From the preceding remarks it will appear, that all other things being the same, the tendency of water to assume the form of vapour,