about 27 cubic feet, were suddenly brought into mixture with a pound of water at a temperature of 32°; the effect would be an instantaneous condensation of the greater part of the steam into water. For, the resulting mean temperature would obviously be far short of 212°, below which temperature, the elastic force of vapour most rapidly diminishes. On this property of vapour, depends the working of the common steam-engine.

The reader is thus at length prepared to enter on the complicated subject of a mixed atmosphere of vapour and of air.

We have shown, that the rate of decrease of the temperature of an atmosphere of vapour, in ascending from the earth's surface, would be very much slower than that of an atmosphere of air. Now, at all temperatures, the existence of atmospheric air is permanent; while the very existence of vapour is dependent on temperature: it follows, therefore, that in a mixed atmosphere of vapour and of air, the quantity of vapour contained in the mixture, is regulated solely by the temperature of the air : that is to say, the quantity of vapour present in an aerial atmosphere, can never exceed, though it may be less than, the quantity which is proper to the temperature of the air. If the quantity of vapour in such a mixed atmosphere, be precisely the quantity that is proper to the temperature of the air; such