a gas or a vapour. If water, for instance, be exposed for a sufficient time to any source of heat, its temperature will continue to rise till it has attained to that of 212°, but above this it cannot be raised, and the only effect produced by the continuation of the cause is the formation of vapour. It now becomes an interesting question, what becomes of the heat that is imparted to the water after its temperature has been raised to the boiling point. This can only be answered in one of two ways; it must either be supposed that it is carried off by the steam, or that it is applied in a latent state, inappreciable to the thermometer, for the formation of the elastic fluid. That it is not carried off by the steam is certain, for the thermometer gives no evidence of its presence, and therefore it must be combined with it in a latent state; and we might have expected this analogy between the causes of liquidity and the vaporous state.

It is possible, by a very simple experiment, to form an approximate estimate of the quantity of latent heat necessary to convert water into aqueous vapour or steam. Take a vessel containing five and a half ounces of water, at a temperature of 32°, and let the beak of a retort, containing one ounce of boiling water, pass into it. If the water in the retort be thrown off as steam into the cold water, it will be found that when the whole is vaporized, the five ounces and a half will be raised to the boiling point. From this result we learn that the vapour of one ounce of water contains as much heat in a latent state as would raise five ounces and a half at 32° to a temperature of 212°, or, in other words, as can increase its sensible heat 182°. If, then, the heat necessary for the formation of the vapour could have been received in its sensible state into the ounce of water, it would have raised the temperature to 990°, that is, five and a half times 180°. An ounce of water, therefore, in passing from a liquid to a vaporous state, receives as much heat as would, if sensible, raise its temperature 990°.

Aqueous vapour, or steam, is perfectly invisible, and the white cloudy stream which is observed to flow from a vessel containing boiling water, is the condensation of that vapour produced by its meeting with an atmosphere of lower temperature. Dr. Wollaston invented a pretty apparatus to prove the invisibility of steam, which at the same time shows its two most important properties,—elasticity and condensa-