

it may be necessary to refer to some of the general laws which govern the formation and action of vapour under this circumstance, before any attempt be made to explain the phenomena themselves; and should the reader find the details less interesting than their application, he may find some consolation in remembering that there is not even a royal road to learning.

In all observations upon the process of evaporation, it is absolutely necessary to consider the temperature of the liquid from which the vapour is rising. When the temperature is high, the force exerted against the evaporation by atmospheric vapour is altogether inappreciable, but when the temperature is low it must be taken into account; for then it may have a force almost equal to the vapour itself. It appears from Dr. Dalton's experiments, that at all temperatures between 212° and 138° , the rate of evaporation is exactly proportional to the elastic force or tension of the vapour; but as the temperature lowers, the law becomes subject to greater variations, for the tension of the rising vapour, while that contained in the atmosphere comes nearer to an equality. In order, therefore, to determine the elastic force of the vapour which rises by evaporation from a liquid, it is necessary to determine the amount of pressure exerted by the vapour in the atmosphere.

To ascertain the quantity of vapour suspended in the atmosphere at any particular time, instruments are used called hygrometers. The principle of their construction is the application of a substance capable of absorbing moisture, in such a manner as to measure, by a mechanical contrivance, the amount of aqueous vapour that may be contained in any space.

M. de Luc employed for this purpose a piece of whalebone, a substance that absorbs moisture very readily, and to this attached an index capable of an easy motion round a graduated face. The difference between the several indications will enable the observer to form a proportion between the several conditions of the atmosphere.

M. Saussure's hygrometer consists of a human hair, previously boiled in a caustic ley. The hair is fastened at one end to a hook, and a weight is attached to the other. As the hair expands or contracts, it, moving round a grooved wheel, gives motion to an index which passes over a graduated arch.

The hygrometers generally employed by philosophers give