

by destroying all their confidence in the numerical exactness of their own results, and by involving the subject in a mist of visionary and hypothetical causes in place of the true acting principles. Thus, in the combustion of any substance which is incapable of flying away in fumes, an increase of weight takes place,—the ashes are heavier than the fuel. Whenever this was observed, however, it was passed carelessly over as arising from the escape of phlogiston, or the principle of inflammability, which was considered as being either the element of fire itself, or in some way combined with it, and thus essentially *light*. It is now known that the increase of weight is owing to the absorption of, and combination with, a quantity of a peculiar ingredient called *oxygen*, from the air, a principle essentially *heavy*. So far as weight is concerned, it makes no difference whether a body having weight enters, or one having levity escapes; but there is this plain difference in a philosophical point of view, that oxygen is a real producible substance, and phlogiston is no such thing: the former is a *vera causa*, the latter an hypothetical being, introduced to account for what the other accounts for much better.

(337.) The third age of chemistry—that which may be called emphatically modern chemistry—commenced (in 1786) when Lavoisier, by a series of memorable experiments, extinguished for ever this error, and placed chemistry in the rank of one of the exact sciences,—a science of number, weight, and measure. From that epoch to the present day, it has constantly advanced with an accelerated progress, and at this moment may be regarded as more progressive than ever. The principal features in this progress may be comprised under the following general heads:—

1. The discovery of the proximate, if not the ultimate, elements of all bodies, and the enlargement of the list of known elements to its present extent of between fifty and sixty substances.
2. The developement of the doctrine of latent heat