

CHAPTER I.

DEFINITIONS: LAW OF THE CONSERVATION OF MASS

One of the most marked peculiarities of Chemistry as a science is its use of plain language, and the almost total absence of technical terms. Analysis, synthesis, isomorphous, allotropic, valency with its derivatives, and a few others not in common use such as metathesis, artiad, perissad—these are all the foreign words to be found in the index to the "High School Chemistry"—what a contrast to the corresponding volumes on Botany and Zoology!

The custom is international, and the reason commonly given is that Chemists are the spiritual descendants of ignorant metal workers and Alchemists, while Biologists represent the Doctors of Medicine, with their gold-headed canes and classical education. Be that as it may, a new term derived from the Latin or Greek has next to no chance of success in Chemistry, it is almost certain to be ousted by some common word or phrase taken from everyday language.

At first sight it might seem a matter for congratulation that one science, at least, has found it possible to get on without the invention of a new vocabulary, but on closer examination it is apparent that there are very decided disadvantages entailed by the unsystematic use of "plain" language. A new word from the Greek is defined when coined, and its meaning need not be uncertain; but if an English word be adopted and given a scientific signification, its new meaning is apt to be confounded with the loose use of the word in everyday life.

The terms "mixture," "compound," "contain," and many others are instances of such words with a double meaning—restricted in Chemistry, wider in common use—and before they can be employed with advantage it is necessary to define them.

When two substances are brought together, their properties may remain altogether unchanged, in which case the two are said to form a "mechanical mixture" containing both of them; this somewhat clumsy term being adopted instead of the shorter "mixture" because the latter word is universally employed in speaking of "mixtures of gases," "mixtures of alcohol and water," etc., which are not "mechanical mixtures" at all. If on the other hand the properties change, as when water is poured on salt, or hydrogen is burned in oxygen, a "reaction" is said to take place, and a "new substance" is said to be formed,—brine in the first case, and steam in the second. Very often the product is a mechanical mixture of one or more new substances with more or less of the old ones unaltered; as for example when a little water is poured on a lot of salt, when silver nitrate is added to sea water, or when a silver coin is rubbed with sulphur.