

salt, the effect is an increase of quantity, but no change of quality. In this case, the mutual action of the particles is entirely mechanical. Again, if a blue powder and a yellow one, each perfectly dry, be mixed and well shaken together, a green powder will be produced; but this is a mere effect arising in the eye from the intimate mixture of the yellow and blue light separately and independently reflected from the minute particles of each; and the proof is had by examining the mixture with a microscope, when the yellow and blue grains will be seen separate and each quite unaltered. If the same experiment be tried with colored liquids, which are susceptible of mixing without chemical action, a compound color is likewise produced, but no examination with magnifiers is in that case sufficient to detect the ingredients; the reason obviously being, the excessive minuteness of the parts, and their perfect intermixture, produced by agitating two liquids together. From the mixture of two powders, extreme patience would enable any one, by picking out with a magnifier grain after grain, to separate the ingredients. But when liquids are mixed, no mechanical separation is any longer practicable; the particles are so minute as to elude all search. Yet this does not hinder us from regarding such a compound as still a mere mixture, and its properties are accordingly intermediate between those of the liquids mixed. But this is far from being the case with all liquids. When a solution of potash, for example, and another of tartaric acid, each perfectly liquid, are mixed together in proper proportions, a great quantity of a solid saline substance falls to the bottom of the containing vessel, which is quite different from either potash or tartaric acid, and the liquid from which it subsided offers no indications by its taste or other sensible qualities of the ingredients mixed, but of something totally different from either. It is evident that this is a phenomenon widely different from that of mere mixture; there has taken place a great and radical change in the intimate nature of the ingredients, by which a new substance is produced which had no existence before. And it has