been devoted to the delicate and difficult department of chemical analysis.

The vast variety which nature produces by the union of a few elements is one of the most wonderful results of chemical affinity. It is true chemists describe a little over sixty of these elements; but sixteen of these constitute almost the entire mass of the globe, and scarcely more than four are essential to form the vast variety of the animal and vegetable kingdoms. It is amazing, also, to see how very great a difference between two compounds is often produced by a slight variation in the proportion of their ingredients. Oxygen and nitrogen, for instance, mixed in the proportion of one of the former to four of the latter, constitute the atmosphere, the very *pabulum* of life to animals and plants. But combine them in the proportion of fourteen parts nitrogen and eight parts oxygen, and you form the exhilarating gas, little better adapted to respiration than the vapor of alcohol or ether. Add eight parts more of oxygen, and a gas results, which, taken into the lungs, would be almost certainly fatal. Add successively eight, sixteen, and twenty-four parts more of oxygen, and three distinct acids would be formed, eminently hostile to life. What perfect wisdom and perfect benevolence must have arranged the chemical constitution and agencies of this world, to adapt them to the delicate organization of animals and plants! And how very slightly the elements of life differ from the elements of death! The most delicious fruits of the vegetable kingdom, for instance, are composed of oxygen, hydrogen, and carbon, and sometimes nitrogen; and the most fatal vegetable poisons have the same composition, differing only in the proportion of the ingredients.

The magic power of chemical affinity is still more manifest in the entire change of properties which takes place in sub-