

Elements.—One of these speculations was that things which we see around us were built up out of elements, just as a word is built up out of letters. Indeed, the word *elemens*, which is the Latin word for element, is probably derived from the letters *l*, *m*, and *n*, and involves that idea. The ancient Greeks surmised that there were four such elements—earth, water, air, and fire. But as it was obvious that some things, for instance gold and silver, did not contain either water or air, the word element was often used to signify, not the constituent of a thing, but rather a property of a thing; and it might have been said that gold partook of the properties of earth and water, because, like earth, it is not altered by being heated, and yet it can take a fluid form like water if heated hot enough. Hence the old word “element” had a double meaning: it was sometimes used in the sense of “constituent,” and sometimes more in the sense of “property.”

If a child is given a mechanical toy, his wish to see how it works generally leads to his taking it to bits. This is unfortunately only too easy; but it is seldom that he succeeds in putting it together again. Now, if we inquire what a piece of wood or stone is made of, we can, after a fashion, take them to bits; we may pull the wood into fibres, or we may crush the stone, and pick out the pieces that appear to differ from each other in colour, if they are large enough. But the fibres have much the same appearance as the piece of wood, and the fragments of stone, though somewhat different from each other, are still pieces of stone. The question is still to be answered, of what do wood and stone consist? It is evident that some plan must be tried by which the wood and stone will be unbuilt, as it were, and by which they will yield their constituents.

It had long been noticed that many things are greatly changed when heated. A piece of wood takes fire and burns; some kinds of stone melt; some metals, such as lead and iron, change into earthy-coloured powders. Surely these changes ought to lead to some knowledge of the