

part of the water with which its channels and pores were filled when you cut it down escapes, even at common temperatures, as the wood dries; you put a stick of the seasoned wood on the fire, and the great heat drives out the rest of the water, while it kindles the wood itself into a blaze; the largest part of its solid structure is entirely broken up, and converted into invisible gases that pass away through the chimney, while a small, insignificant pile of ashes remains behind. You may have, as in the case of milk, a great preponderance of water, but, for all that, there will be something left to burn after the water has been driven off, as many a housewife has learned to her sorrow, when obliged by a call in another direction, to leave the milk for the pudding boiling on the stove; and after the residue left by the water has been completely burned, a careful examination will reveal the presence of the ashes in the bottom of the kettle. Or if it is a lump of dry soil you put on the fire, though there may appear to be no escape of water, and although what is left behind after a thorough heating may seem to be just as much in quantity as what was put on the fire, nevertheless a careful heating in the first place, at a low temperature, would cause a loss of weight, as could easily be proved with the aid of your kitchen scales, by reason of loss of water; and a stronger heating afterwards would cause a further loss of weight as could be proved in the same way as before, by reason of loss of what was burned out. This triple constitution you will not fail to find, if you but seek for it, in all your raw materials, and the products manufactured from them; only you may find the three kinds of matter in very different proportions, in different substances.

Now, just as we have been able to show, in part by calling to mind some fragments of your own experience, that most of the substances with which you are so familiar from constantly dealing with them in your daily operations, are composed of three different parts, or kinds of matter, so the chemist, by going further finds that both the combustible part, and the ash, are themselves composed of several different substances; the number of these, however, seems wonderfully small, in comparison with the almost

infinite variety that is burned behind, in combined together potash, lime, n

In like manner part but six e ing by their found in the these classes importance to soluble non- these are four These four cl aration from cessary in th these more d are yet no le There is no these substa part, for and milk-pan for

Now so facturers, in waters, ame als, and mill materials c tended, acco the lecture, I will there

Of the But every is worth; his while t