

You may think it strange that water is formed in the hot flame; yet this simple experiment shows that this is really the case. If water is formed during the burning, what is the reason we do not see it? Simply because it rises in the form of steam, which is an invisible gas. The visible cloud, often called steam, which is formed in front of the nozzle of a tea-kettle, is not steam, but fine drops of water floating in the air,—a sort of water-dust. All clouds are of the same nature. A cloud always stands over Niagara Falls, even on the clearest days. The water of the river falls a distance of 150 feet, and, striking a bed of rocks below, some of it is dashed into fragments, or dust, which rises in a cloud.

**Experiment 3.** Introduce a candle-flame into a clean glass bottle; after it has burned a few minutes the flame goes out. Why does it go out? See whether the air in the bottle is the same as it was before. Pour a wineglass full of lime-water into the bottle, cover tightly, and shake. Also pour lime-water into a bottle filled with air. What difference do you observe in the results? Does the experiment show that any new substance has been formed during the burning? If so, is it a visible substance? Can you depend upon the sense of sight alone to discover the presence of matter?

Before we can decide whether or not matter is annihilated while burning, it is necessary to collect carefully, not only the ashes, but all the invisible gases that are formed. This is a somewhat troublesome experiment; but it has been frequently performed, and it is found that their collective weight is quite equal to the weight which the candle loses.

Water does not pass out of existence when it "dries up"; nor are raindrops and dewdrops created out of nothing. Matter is everywhere undergoing great and various changes, both chemical and physical. Nature is ever arraying herself in new forms. The sun warms the tropical ocean, converting the liquid into vapor; the vapor rises in the air, is recondensed on mountain heights, and returns in rivers to the ocean whence it came. Geology teaches us that continents and oceans, and even the "everlasting hills," have a birth and decay, as well as whole tribes of animals and vegetables. Although we may be counted among the living ten years hence, our bodies will, ere that, have crumbled into dust; and the matter that will then compose our bodies is to-day to be found mainly in the earth upon which we tread. Change is stamped upon all matter; nothing is exempt. Only the quantity of matter remains unchanged.