

tions, and most of the materials of the body. The great operations of digestion, respiration, and secretion, and their products, cannot be understood without this knowledge, nor can the materials which, under the name of food, enter our bodies, and form the subjects of these operations, and hence become of such high importance in reference to health. Chemical research has revealed to us the interesting fact, that our food, whether derived from a vegetable or an animal source, is identical in its nature. It has shewn us that much of our food, though necessary for other purposes, is not qualified to repair our wasted frames, and that we may even die though supplied with abundance of what is usually thought nourishment, as was exemplified in the case of the too zealous Dr. Stark, who fell a victim to his perseverance in the use of non-azotized materials.

The daily, nay constant, waste and repair of the tissues of our bodies furnishes another example of the importance of chemical knowledge to enable us to understand ourselves. Every one, unavoidably, becomes experimentally acquainted with the need of food to support the strength and power of the body; but few, perhaps, out of the profession, are aware that this is effected by the continued addition to our tissues, through the medium of the blood, of those particles of food that are fitted to nourish them, and that, after these particles have served their purpose, and have become effete, they are again removed through the same channel of the blood, and consigned to their appropriate excretories. This wonderful process of waste and repair continues from year to year, renewing us completely, and making us living Paradoxes—the same, yet not the same—same as to identity, different as to material—the same being from childhood to old age; yet every particle altering continually.

But to furnish you with another example. What more beautiful illustration can be afforded of Divine contrivance than the chemical apparatus which nature gives us for sustaining our animal heat, and enabling us to bear the colds of these northern regions, or even to enjoy health and comfort, when the thermometer is 50° or 60° below zero, as was experienced by the searchers of the North West Passage. This important process is effected by the passage of our food, after certain elaboration, into the blood, and then, as it circulates through every fibre of the body, by its gradual change in consequence of union with oxygen: so that it undergoes a process of oxidation quite the same, as the change that takes place in the fuel of our stoves and common fire places, making us, in fact, examples of spontaneous combustion, though not precisely in the common understanding of that term, which is applied to designate a much doubted fact, that may hereafter, perhaps, obtain its confirmation from the mode in which na-