prived of sand, and fed upon grain, died in seven or eight months, and the bones became so brittle that they broke with the slightest touch. Total abstinence from salt, the constituents of which enter largely into the composition of the blood, is productive of various evils, among which, according to Woodward, scurvy is one of the most remarkable, and Dyer ascribes the frequency of tapeworm in the negroes, who eat but little or no salt, to the same cause. The necessity of salt is greater if the food be of vegetables, as less is contained in them than in animal diet. In strange contradiction to these well authenticated facts, accepted by so cautious and critical a writer as Moleschott,* stands the extravagant nonsense of one of the apostles of abstinence, Mr. Sylvester Graham,† that "salt is a mineral substance, and is wholly innutritious and indigestible."—Does this gentleman, and do those who crusade with him against the traditional symbol of hospitality, ignore the fact that bones are necessary, and that without mineral and innutritious articles of food we cannot have them? It is well, perhaps, by such monstrous statements he reveals the unscrupulous character of his mind, for otherwise his earnest denunciation of other dietetic articles of more questionable value might have undue weight.

Besides the salt we take with our food, we obtain a large quantity of mineral substances from the water we use so copiously in all articles of consumption, even if we do not indulge in libations of the limpid element. And it has been observed that waters deprived of their saline ingredients are unfit for domestic purposes. The phosphates, however, we must get either from animal food or from grains, in which they exist in considerable quantity, and Mulder ascribes the frequent fractures he observed in a poor-house to the exclusive potato diet. This disposition was rectified by giving the inmates rye-bread and butcher's meat, and the hint may be useful in dealing with various conditions met with among our own poor.

There is no great difficulty in comprehending how the inorganic materials are used in building up the body, for they undergo no other changes in it than those ordinary chemical de- and recompositions we are familiar with in the laboratory. The component mineral matters of the bones and other parts are all found in the blood, into which they are conveyed by the chyle, the product of the food, and out of the blood they are selected by the capillaries of the bones according to laws of vital affinities, of which we are totally ignorant. But this we do know, that it is now an ascertained fact, that there are no transmutations of elements in the body, that if phosphorus and iron are found in the blood, they must be previously discoverable in the food, and that there is not a tittle of evidence for the assumption that out of silicea, iron can be made, or out of oxygen, phosphorus.

So much for the inorganic components of our frame. A much more difficult task is the description of the organic remainder. This has been divided into those substances which contain nitrogen and those which contain none. The nitrogenous elements (using the word element in a larger sense) of food are chiefly albumen in its simplest form, as it presents itself in the white of egg, and in its modified form of gelatine—for the most advanced chemistry identifies two. The non-nitrogenous elements are chiefly starch, sugar, and fat, in their various forms. Let us then proceed to consider how we obtain these substances, and what changes they undergo during their strange metamorphosis—we might almost say, without irreverence, their miraculous transubstantiation—from dead dry bread into living juicy flesh.

Before doing so, however, it may be well to point out the enormous importance of the facts just mentioned, that the body imperatively demands for its health a supply of certain mineral substances, among which soda and phosphorus hold an important place, and that

* Die Physiologie der Nahrungsmittel, ein Handbuch der Diätetik, von Dr. J. Moleschott.

† Lectures on the Science of Human Life, by Sylvester Graham, people's edition, p. 270.