

We must not however go farther afield in noticing these products of the transmutation of nitrogen. Il faut que nous revenons à nos moutons ; we must return to our mutton or rather to the substances which make our mutton, for it must not be forgotten that proteids are also to be found in the grassy plants. This has been fully shown by Mr. Shutt in his reports and he has even proved that "the percentage of albuminoids is higher in a grass before flowering or when in flower than when the seed is fully formed." He tells us that, "as the seed matures there is a migration of the albuminoids of the leaf and stalk into the seed," a very interesting fact and only less wonderful than the first formation of these important substances.

Valuable and important substances they are indeed, for the researches of Liebig went to prove, nearly fifty years ago, that these albuminous compounds are formed in the vegetable kingdom alone : that the animal body possesses only the power of appropriating them and converting the one into the other. Animals are entirely dependant on vegetables for a supply of the substances out of which first blood, and then from that fluid all the solids of the body are produced. For this reason the food of animals must contain these albumenoids ready formed.

This is not the first time you have been told that "All flesh is grass," but that has been to you for the most part a figurative expression. It is, however, true in a very literal sense. Flesh, that is to say, the fibrin of the muscles, the insoluble albuminoid of the animal kingdom is derived from the albuminoids of grass, vegetables, cereals, and leguminous plants. With these we follow the fortunes of Nitrogen from the vegetable into the animal kingdom. The great mass of the dry organic constituents of the animal tissues consists of these amorphous, nitrogenous, complicated substances of high molecular weight, and it is very well worthy of remark, that although the carbohydrates, starch, sugar, and even cellulose, play a most important part in animal nutrition and economy, they do not form part of what may be called the permanent constituents of the bodies of animals. Take for instance the body of a man of 11 stone or 154 lbs. ; it has been estimated that