

The animal body, we all know, is made up, in a general sense, of a hard bony skeleton, which forms the frame work that acts as a support to the rest of the body. Bone is found, by chemical analysis, to consist of 65 per cent of mineral matter, chiefly phosphate of lime. Upon and attached to this bone are large masses of fibrous flesh, which constitute the muscles of the body.—About 77 per cent of this muscle consists only of water, and the remaining 23 per cent is composed chiefly of fibrin, the characteristics properties of which are supposed to be derived from the large proportion of nitrogen which it contains—about 16 per cent. Large quantities of fat are found dispersed over all parts of the animal body. It is found to be composed chiefly of carbon. The intestines, nerves, veins, are composed chiefly of fibrous matter. Of the juices of the body, the largest proportion consists of water, and of the fluids, the blood composes the largest proportion, and the dry part of the blood has much of the same composition as fibrin.

Now, you have seen, (from what we stated in previous articles of the composition of the several vegetable productions, the subjects of culture, that they contain principally starch and sugar, which consists of carbon, hydrogen and oxygen (all described in a previous article,) and the protein compounds, which last comprehend all the substances which contain nitrogen, such as albumen, fibrin, casein, gluten. And the composition of the ash of such of the vegetable substances as has been given, indicates that it is composed principally of lime, phosphoric acid, and the alkalies, potash and soda. So that the vegetables and grains raised on the farm, contain, in their composition, all the materials necessary to form all the water, bone, fibrin, fat and fluids, which compose the animal body.

In the application of these substances to the peculiar state of the animal economy, it should conform with reason to give such of them as contain phosphoric acid and lime most abundantly to *young animals*, because they are still forming their bones, and will, until the skeleton is fully developed. The substances which supply fibrin freely should be given to animals of all ages, as the enlargement of muscle is one of the principal objects of the breeder of live stock. And those substances which supply fat should chiefly be given, when it is desired to fatten the animals for the butcher or domestic use. This seems a very simple view of the rearing and fattening of animals; but in practice it is not so easy as it is simple in theory, for the vital principle often interferes very influentially with the desired results, by creating differences in the constitution of animals reared exactly under similar circumstances, as to give so complete a base to the results as evidently to place the forming of the condition of any particular animal almost beyond our control. Still, as much of the result accords with expectation as to encourage us to persevere in the improvement in the rearing and fattening of our live stock.

As no one has done so much of late years to explain the process of digestion and, in consequence, to establish the practice of feeding animals upon rational and truly scientific principles, as the now famed Liebig of Gessen in Germany, it is but fair to give his views on the subject, and which I find ably done to my hand by Dr. Gregory of Edinburgh in his edition of a recent work of great merit. "The life of Animals," he says, is distinguished from that of vegetables by the circumstance, that by animals, oxygen is constantly absorbed and replaced by carbonic acid, while, by vegetables, carbonic acid is absorbed, its carbon retained, and its oxygen given out. Consciousness and the power of locomotion, are peculiar to animals. In animals, two processes are constantly carried on—that of respiration, by which the animal heat is kept up; and that of nutrition, by which the matter consumed in the vital functions, and expelled from the body, is restored. Respiration is essentially a combustion of carbon and hydrogen which, in combination with oxygen, are converted into carbonic acid and water,