

then, with the exception of its mineral constituents, entirely disappear from the ground. This effect is, as we know, actually produced in the body of the soil to which stable manure is applied; our experience teaching us that, in the course of time, no trace of it is left in the soil; but as this final term of existence is, in no wise, intended to be reached at the barn-yard, we may here freely dispense with its consequences as no subject for discussion in this place. All that we desire, for the present, to arrive at, is a knowledge of the changes which stable manure undergoes by putrefaction at the barn-yard, or within a certain period of time previous to its being applied to the soil. The peculiarities of these changes will best become apparent by a single comparison of the composition of stable manure, when in its fresh state, and after having putrefied under necessary precautions. From the result of direct analyses, the following conclusions may at once be drawn:

1. Water, carbonic acid and ammonia, being evolved in the course of putrefaction, reduce the absolute weight of the manure, and thus increase, relatively, the quantity of the insoluble portion, or its mineral constituents.

2. There is relatively more of carbonic acid and water, evolved, and less of ammonia, than is in proportion to the quantities of carbon, hydrogen, oxygen and nitrogen which constitute the manure. The quantity of nitrogen is, therefore, relatively increased in the putrefied manure. And finally:

3. Inasmuch as a part of the oxygen has directly combined with hydrogen and departed in the form of water, the quantity of carbon became also relatively increased, and thus effected a partial change of the original light color of fresh stable manure into the brown, or even black color of that which is putrefied.

These conclusions are very similar to those which we have formerly expressed in relation to the composition of food and excrements; the final products of both processes, of digestion and putrefaction, being richer in nitrogen and mineral matters than the original substances from which they were derived,—the one process is *quasi* a continuation of the other, both producing identical changes. Indeed, the ultimate compositions of food and excrements, fresh stable manure and putrefied barn-yard manure, bear exactly the same relation to each other, and prove, besides, that in each case an entirely new article is produced, provided with specific virtues of its own. Thus barn-yard manure, when putrefied, differs materially from fresh stable manure in composi-