

parison 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 involatile 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 composition, character and mode of action; and it is but owing to our present knowledge of these relations that we may henceforth rationally decide whether the one or the other kind should be used for the improvement of particular soils.

It is apparent that soils of a proper mechanical texture, such as are, to an equal extent, both binding and porous, which furthermore possess the required power for retaining moisture without permitting, however, an injurious accumulation of water in their body; which also have the capacity of absorbing and retaining gases, or show, in general, such qualifications as are marks of a high state of culture, and more or less characterized by the presence of a proper quantity of humus in them; it is apparent, I say, that soils of this description will be more benefited by the application of the putrefied than fresh variety of stable manure. The latter may even act injuriously on the condition of these soils, by increasing the quantity of humus already contained in them, far