

pensed with. Indeed, the sulphate of lime, whether directly added in the form of plaster of Paris, or subsequently produced in it by the application of the other two substances, will be of good service only in the case that enough of water is present to favor the formation of sulphate of ammonia (a fixed ammoniacal salt) on one side, and of carbonate of lime on the other. If, on the contrary, the heap should happen to remain dry for some time, the effect produced by such applications will be quite the reverse. Carbonate of ammonia is then evolved and sulphate of lime regenerated; and a neglect of attendance to this condition, therefore, much harder felt than when no applications of this sort have been made to the heap at all.

We have thus far, exclusively treated of the organic part of stable manure, particularly of its composition and the changes to which it is subject by the process of putrefaction. With regard to the inorganic part, or mineral portion of stable manure, it is evident from its origin that it must be composed of all the various constituents requisite to the development of vegetable life, and to contain them in a quantitative proportion best adapted to meet the wants of the growing crop. This state of things, though sufficient in itself to justify the most favorable expectations, gives nevertheless, no full exposition of all the virtues of this valuable part in stable manure. There are besides, two other instances to be mentioned which add materially to its efficiency as a fertilizer, and secure to it its acknowledged superiority over all other mineral compounds that have been brought in competition with it. The one relates to the particular form, the other to the state of association in which the mineral part exists in the great mass of stable manure; both acting most powerfully in promoting its assimilation by the plants. For being, as to the first instance, only a small integrant part of the whole voluminous mass of the manure, it must necessarily exist there in a state of indefinite fineness and subdivision, and therefore, most liable to yield to the action of solvents. And if we ask what solvent should probably most powerfully act on the constituents of the mineral portion of stable manure, we must, according to the results of practical experiment, answer in favor of water impregnated with carbonic acid, the very substance which is furnished by the second instance, that is, in consequence of the intimate connection of the mineral matters with the organic part of stable manure. The humus, as we know, provides during the whole course of its decay, for a regular source of gaseous carbonic acid, which, in the moment of its being evolved from it, is most liable to become incorporated with the water contained in the soil, and thereby to impart to it the power of dissolving freely the earthy substances of which the mineral portion of the manure is composed.