

to be altogether untenable, because gypsum absorbs much less moisture from the air than the same weight of clay, chalk, and most kinds of soil.

As it had been found to increase the efficacy of composts and putrescent manures, many farmers supposed that it promoted the decay of vegetable matters, but well conducted experiments proved that in the small proportions usually applied, it rather retarded than promoted decay.

Agricultural chemistry at length made such progress as to indicate that certain mineral matters (among which are sulphur or sulphuric lime, the components of gypsum) were essential constituents of plants. It was therefore concluded that the use of gypsum was to furnish these matters.

The fact that ammonia or its carbonate would decompose gypsum and would form sulphate of ammonia, (a non-volatile salt,) suggested to Liebig that the principal effect of gypsum was to absorb ammonia from the atmosphere and from rain water. Boussingault and some others attach little importance to this source of ammonia, because of certain estimates they have made of the quantity of ammonia in the rain-water which falls during the growth of a crop of wheat.

The result of one of the experiments of Boussingault was that about three times more lime was found in a crop of clover to which plaster had been annually applied, than in the part of the field not plastered.

This, with other experiments, go to show that lime is, at least in part, supplied to plants from gypsum. Boussingault's investigations seem to prove that lime is more readily obtained by plants from gypsum, owing to its greater solubility, than from carbonate of lime.

We cannot pretend in the present state of agricultural knowledge to state the precise action of plaster in all its phases, and it does not at present seem necessary to record the many facts and experiments made in this connection, or the reasonings founded thereon. It may be useful, however, to state some of the most important purposes served by gypsum which seem to be certainly established.

1. It supplies the crop with both sulphuric acid and lime, whilst this last material, in the form of quicklime and marl, is mainly useful in its action upon the soil and its organic matters as before explained.

2. It absorbs ammonia from the atmosphere, from rain-water, and from the manures and organic matters in the soil, and retains it as sulphate of ammonia for the use of the plant, (unless it be washed off by excessive rains.)

3. Direct experiments have repeatedly proven that the cy of stable and other putrescent manures is materially ased by being mixed with gypsum.