

PLASTER, OR GYPSUM.

Many cultivators have expressed great surprise that gypsum, or Plaster of Paris, should operate favourably as a manure on a piece of land for a number of years, and then cease to have any effect. But we do not regard this as at all surprising, for in the first place we must consider that the soil is deficient in the elements of which plaster is composed, else it would not operate as a fertilizer, or a stimulant; and by applying it for several years this deficiency is supplied, and further applications cease to produce any beneficial effect.

As plaster is composed of sulphate of lime, or a combination of sulphur and lime, these ingredients may be taken up into the plants, as they constitute a part of most plants, though a small part; and this may account for a small quantity of plaster producing so powerful effects in the production of crops. For although the amount of lime and sulphur is generally very small in plants, yet that small amount is absolutely necessary in their composition.

When the soil has become saturated, or sufficiently supplied with plaster, and no further applications are made for several years, the plaster may become used up, in some measure, either by cultivated crops, or the spontaneous production of weeds, grasses, bushes, &c.: and then a new application may again prove to be beneficial. Or plaster may have a valuable effect on the soil, in preparing it to supply food for the plants, and after a few years this favourable effect may cease until a further chemical change takes place in the soil, which may, after a while, become a slow process, so that years will pass away before plaster will again act as a manure.

We have in nature a great many analogous cases. Sand may be added to a clayey soil until there is sand enough, and it ceases to be useful; but after a long course of cropping with corn, herdsgrass, red-top, and small grains, a large amount of siliceous sand is taken up in solution, and a new addition of sand would be beneficial. An animal may be in great want of salt, or some other condiment, and it may be given until it is no longer useful. After a while, the condition of the animal may require another supply.

These remarks may explain some of the facts offered in the following interesting article from the Dollar Newspaper:—

GYPSUM AND CLOVER.

For the last seventeen years, my attention has, to some extent, been directed to the peculiarity of the different soils of this and the adjoining counties of Maryland. Much attention has been bestowed on the various modes of improving the soil, more particularly by the use of clover and plaster of Paris. This having been the favourite system for the last twenty years, and indeed long before that time, no other course was considered at all reasonable. I well recollect seeing in nearly every part of our country the most luxuriant fields of clover, rising at least two feet or more from the surface of the land, therefore furnishing the soil with a most splendid covering, sufficient, when ploughed under, to enrich the soil, to make it produce the finest growth of cotton, corn, wheat, or tobacco. Since the time first alluded to, there has been a very general complaint that our lands were not half so valuable as they were

first supposed to be, in consequence of our fields not possessing the capacity of yielding their former crops of clover. One man asks another why this should be so. What has done all this mischief? And, strange to say, no two individuals can agree. Well, now, as we have neither the Ural Mountains of Russia nor the mountains of New Mexico or California to resort to, to enrich our soils, let us be content to use such means as may be within our power to effect this most desirable object.

It is a fact not to be questioned, that land which once produced fine crops of clover, when accompanied with gypsum or plaster, will now scarcely produce any; at least, will not when clover and plaster have been regularly used for seven or eight years. Now, my principal object is to learn, why is all this? Is the land tired of cultivation? Or is it that the gypsum is adulterated, and its properties useless to the application of clover? I think not. I believe too much has been infused into the earth. I cannot suppose the clover can in any way be detrimental to the soil. It must be the bad effects of the plaster; for who doubts for a moment that its effects are various, and there are principles which have been discovered, by which its influence has been traced? Some salutary correction is needed; but what that remedy is, I am at a loss to conjecture. He alone who is familiar with chemistry, and can analyze the soil, can point out the constituents necessary to correct the evil. There is, to my mind, a most mysterious agency in plaster as well as lime, and he who can explain it is a benefactor. Can its advantages or disadvantages be owing to the chemical character of the soil, or the kind and quality thereon produced? We not unfrequently complain that the land is worthless, it is exhausted; and verily we cannot explain what we mean. For myself, I plead ignorance. I will state, however, a few circumstances which have come under my personal observation. I discontinued the use of gypsum on my clover land for nearly five years, believing, when I again commenced its use, that the best results would accompany the experiment; and so they turned out. My most sanguine expectations have been more than realized.

I sowed, this season, (1848,) forty bushels of clover seed, and the most competent judges have affirmed that it has never fallen to their lot to witness a more luxuriant crop of young clover, the greater part of which was bedded, which is very unusual. The entire field was well plastered, and when a row happened to escape the action of the plaster, the clover was small and puny. Now, I will venture a prediction, should plaster be regularly applied, say for the next five years, that this very land will not produce clover sufficient to make even good grazing. It must now be admitted that I have opened a wide and extended field of inquiry, on a subject which is entitled to at least some consideration from an intelligent agricultural community, without attempting to explain the properties of the mineral mostly used, or without any attempt at analysis of the different soils we have to cultivate, for the best reason—my experience in a theoretical point of view does not justify it. What I have obtained has been from long experience, certainly not from theory. What we require is science, fully developed through chemistry; and not till then can the occupation of the farmer