

and sometimes all three exist in the same rock. Soils which have not been produced by matter deposited by water (called transported soils,) are the result of the slow disintegration of rocks, and when sufficient of such finely disintegrated matter accumulates upon the rock, plants begin to grow in the soil so formed. The soils of our territory above tidewater have been thus formed, whilst the soil of the lower country has been for the most part transported by water. We should expect therefore, such matters as existed in the rocks would be in the soil and such is the fact, although portions of some of the constituents are carried off in solution. An important use then of lime, is further to promote the decomposition of the mineral constituents of the soil, in order to eliminate, such as plants require. We cannot conceive an arable soil to exist, in which lime will not, in this manner, do good service. The mechanical texture of soils is improved by the use of lime. All farmers know how necessary it is that a soil should neither be so stiff as to prevent sufficient access of air and water, nor so light as too readily to permit water to escape by percolation or evaporation. When a soil is loose or friable it is owing to the presence of sand and other small grains of rocks not sufficiently disintegrated. Lime continues the process of decomposition or disintegration and of course produces a finer texture to the soil, at the same time that it liberates a further supply of the alkalies and other useful matters they may contain. So much then for the action of lime upon the mineral constituents of the soil. We incline to the belief, that a more important use to us is in its action upon the decaying vegetable and animal matter in the soil. It has long been known that the beneficial effects of lime are more striking when applied to soils which abound in organic matter, such for instance as grass or clover fields. This is due to its hastening the decay of the vegetable matter.

We should bear in mind that this occasions a more rapid exhaustion of these matters in the soil, in the regular course of cropping, unless supplied by manures containing the same elementary principles which have been abstracted.

SECTION 4.—*Of the effect of lime upon the quality of crops and upon matters injurious to them.*

The settled judgement of observant farmers, both, in Europe and our own country, seems to be, that its application promotes the growth and improves the quality of all our grains and grasses in all soils deficient in calcareous matter, and by its neutralizing effect upon our soils, frees us from many noxious weeds and insects. Would not those who seek to have the standard weight of wheat reduced, find it to their interest to increase both its aggregate and specific weight by the application of lime and marl to their lands, instead of looking to a reduction of the standard below 60 pounds to the bushel? Let us not fall back in this enterprising age.

It seems to be universally admitted in England that lime tends to prevent smut in wheat when applied to the grain before seed-