ral matters in the soils, and liberates such as plants require it in a proper state for their use.

The action of lime upon soils may, in part, be illustrated by referring to a few experiments.

1. If we take, for example, felspar (rich in silicates of potash and soda,) powdered extremely fine, we find that water, even with carbonic acid, will dissolve nothing out of it for a very long period, and that boiling acids dissolve little of these silicates, even though continued for weeks. When the powdered felspar is well mixed with lime and exposed to heat, silicates may be readily dissolved out of it by acids. If the mixture be made as first above, and kept wet for some weeks the same results are obtained though in less amount.

A weighed quantity of soil or clay, say 1000 grs., may be placed upon a filter and distilled water passed through until it has abstracted all the soluble matter. If we mix what remains in the filter, intimately with lime, and let it remain in a moist state during some weeks, and again filter, we obtain an additional proportion of soluble matters, besides some of the lime used

When we dissolve out of vegetable matters, all that water will extract, we can obtain an additional amount by mixing them with lime, which also promotes the elimination of ammonia from organic matters.

Although these effects upon both vegetable and mineral matters are more *rapidly* produced by means of quick lime, yet they are *equally certain* with the carbonate as it exists in marl, chalk, or in lime if longer exposed.

These important facts, simple as they are, sufficiently explain why it is that lime has long been considered necessary to a proper cultivation of the soil.

Its good effects have been abundantly experienced in our State, and in some of its modifications it has been a most important agent in renovating "worn out" lands.

Previous to the introduction of crushed bones and guanos, lime was, in some of the counties, the only material used, (besides gypsum and the manures of the farm). It has been and continues to constitute a valuable resource to the agriculture of Maryland. Like most good things, however, it may be and has been in some cases the indirect cause of ultimate injury to the soil.

If we refer to the mineral constituents of our crops we find that lime, in a state of purity, furnishes but one of these constituents, and yet by its action on the components of the soil it is incessantly eliminating others equally necessary.

It will therefore happen in the course of time that one or more of these constituents will be exhausted or much diminished in a soil which has been fully supplied with lime and no other manure.