

which will give to the crop a quick start and increase the action of the Mexican Guano.

These applications were eminently successful.

Specimens of this soil were examined between Emmitsburg and Creagerstown; on the farm of Michael Zimmerman; on the Jefferson turnpike; where the red lands are crossed by the Baltimore and Ohio rail road; a few miles below this point, and on many intermediate points. The conclusions to which these examinations have led me, are these: 1st. That these lands require air-slacked lime—this must be either pure or magnesian, according to the following circumstances. On the hills, and where the soil has been subject to much washing, where the rocks or underlying shales come near to the surface, magnesian lime should be used. On the levels and bottoms, a pure lime will best supply the defects of the soil. It would seem that in this there is a contradiction to what I have previously stated, viz: that these bottoms and level lands were formed by the washings from the hills, and the question will at once arise, why should the bottoms differ in their chemical composition from the hills from which they are formed? The cause is this, water falling on the hills and running down their sides, carries with it all the pure disintegrated particles of soil, and will dissolve most of those matters which are most soluble in it; now the original composition of the soil being the same in the hills, when it reaches the bottom it will relatively contain the most of that which is most insoluble. Magnesia being much more insoluble than lime, it will exist in comparatively greater abundance in the valleys, bottoms and plains, which are the washings of the hills, than lime; hence, though magnesian lime be the best application on the hills and high grounds, yet in the bottoms and plains a pure lime will be found most advantageous.

For a table of the different varieties of limestones, see limestones from Frederick county.

As the varieties of this soil differ, so must their manuring with stable manure and green crops, according to the principles laid down under the head of manures, and which it is unnecessary here to repeat. These soils are uniformly deficient in plaster and salt; these should be applied to the crops in the mode pointed out in the section treating of these articles. Whenever these lands are too wet, and in many places this is the case, they should be thoroughly ditched and drained; without this, no return need be expected from labor, nor remuneration for expenses in manures. Where the rocks and shales lie near to the surface, the first thing to be