

ical texture and nutrient ingredients ; practical advice must only consider these two conditions, and when it can show what will improve the one, or supply the defects of the other, then has it done all that is necessary for the improvement of the soil.

The main body of the soils in this section of the county, may be divided into two classes ; first, those which are shallow and closely underlaid by the rocks and slates, and secondly, those which are deep, having the slates some distance below the surface. The former are always barren and unproductive, the latter generally rich and producing large crops. As the rocks from which these soils are derived are *practically* the same in composition, we must look to their mechanical texture for an explanation of their different degrees of fertility. In the former we have the same mineral substances, but not in a condition to be absorbed by the plant. The soil as formed has been washed off, and that which remains is not deep enough to meet the wants of plants in retaining a sufficiency of moisture for their support ; from the large per centage of *undecomposed* rocks in the soil, a sufficiency of mineral matters is not set free to meet the wants of a large crop. The indications then to be carried out are, first, to deepen the soil ; second, to decompose the undecomposed rocks which are in it. The first of these indications is to be fulfilled by deep plowing and the most thorough cultivation ; the second by the application of *lime*, and lime of the purest kind. No magnesian lime should be used on these soils, as the slates from which they are formed contain it in the greatest abundance, and by its being liberated will, with lime, form a very compact soil, endowed with all the mechanical advantages which belong to the best soils.

These shallow barren soils adjacent to the Baltimore and Ohio Railroad, those near to the Montgomery line, those in that part of the county next to the Carroll border, and indeed in whatever part of this section of the county they may exist, can be made by these means, viz : deep plowing, the application of pure lime, the turning in of green crops, as productive as the valley of Linganore, the bottom lands of Pipe or Sam's creek, or the lands in Middletown valley, so far as that fertility depends on their mechanical texture. This I now say, and this result many who may read these pages will live to witness. Nothing is wanting but the means which I have suggested, and the same practical skill as is exhibited in the different localities that I have named.

The deep soils, such as are found in various parts of this section of the county, particularly in Linganore valley, on Sam's creek and other places where they exist, require small additions of pure lime, except where they have had clover leys turned under, and been well manured with stable or barn-yard manure. These two applications on the deep soils will sufficiently disintegrate the soil, perfect its