

southern borders of Adams county, in Pennsylvania, to the bottom lands of the Potomac. They lie nearly parallel to the Catoctin Mountain, and in the upper part of the county lie between the mountain slope soils and the blue slate soil, lower down the clay lime-stone soils are interposed between them and the blue slates. The surface of these soils is gently undulating or nearly level; their color is a reddish chocolate color, in some places inclining to a bluish slaty color. The surface soil in many places is shallow, being underlaid by hard compact shales, which, on exposure to the air, become broken into small fragments, which will gradually disintegrate and then be converted into soil.

These compact shales underlying the soil at various depths materially influence, the crops grown on it. When they lie near the surface, the crops suffer severely from droughts. When there are heavy rains the surface soil is liable to be washed off, leaving the bare abraded surface of the rocks. Where the soil is deeper it is mostly in basins or large flats, whence it has been washed from the surrounding hills, and has too large a quantity of water in the subsoil, which is continually rising to the surface, and by its evaporation producing a degree of coldness unfavorable to the quick germination of seed, or the vigorous growth of crops. Wheat on this kind of land is exceedingly liable to "freeze out" and be winter killed.

This variety of land, when properly improved and cultivated, is very productive, and being now cheap, offers most profitable chances for investment. No lands in the county will give a more ready return for outlay, either of labor or capital, on them, than these red lands of Frederick and Carroll counties.

These red lands are much modified next to the mountain by washings from it, and gradually intermix with the slate and lime-stone lands, which form their eastern border. In the neighborhood of Frederick city for several miles above the turnpike to Hagerstown, they are so blended with the clay limestone as almost to lose their distinctive character, which they again assume, before the Jefferson road crosses them, they then maintain their peculiar appearance until they mingle with the Potomac bottoms.

The composition of these soils, and the means for their improvement, will be best shown by the following analysis and reports, made from soils in the upper part of Frederick county, the farm of Samuel Motter. I give these reports and analysis because they truly represent each variety of this class of soil.

The samples of soil sent to this office were marked No. 2, No. 3, No. 6, (A,) No. 6, (B,) and No. 9. The examination