

measure as to the capacity and value of the soil in general, as already mentioned. That is, the exterior disposition of a soil is far more highly esteemed by him than the degree of its absolute capability of giving nourishment to plants, inasmuch as by purchasing a farm, it is less valuable for him to know how much of nourishing substances is at present in the soil, than to know whether a soil shows such a condition as to render it capable of producing fair crops by a proper treatment. He looks, therefore, most especially to its physical properties, and proves by manual examinations, as to the compressibility in the wet and dry state, as to the color, the depth of the soil, the quality of the sub-soil, the location, general climatic relations, &c., whether the earth is loose, easily falls to pieces by exposure to the air, possesses the proper degree of consistence, without giving too much resistance to agricultural implements; retains the absorbed moisture in the necessary degree, without becoming wet and cold, &c.

Although these examinations are indeed of quite a practical character, the Chemist still is enabled to aid the farmer in them. For the Chemist knows exactly the nature of the components of soils, and therefore the part which each single substance takes on the general character of them; he knows also the nature of the rocks, by the disintegration of which the soil was formed, and therefore the particular condition, the manner of combination, in which those components are present in soils. The investigations of the Chemist into this matter, assist if not in the judgment of the quality of soils, yet, in the judgment of means and ways, which ought to be taken for the improvement of a particular soil, I say they lead to results which can be expected with more confidence than those which are founded upon the experiment of the farmer alone. We shall see in the following that, in relation to an improvement of the soil in general, as to its texture, the Chemist may give an important judgment about it as well as the farmer; and in many cases a judgment which the farmer would never have reached by himself.

A general geological glance into the localities of those soils, which are in particular under our consideration, will lead us at once to some important conclusions. The soil of the north-east part of Maryland, (Carroll County, Harford County, Baltimore County, and a part of Frederick and Cecil,) is composed chiefly of the fragments of volcanic rocks, upon which the soil directly lies, intermixed with various quantities of alluvial matter. These volcanic rocks, as Granite, Syenite, Mica-Slate, and others, are silicates according to their chemical nature. We meet them in these localities almost every where, covered only by alluvial formations of small thickness. All those formations of aquatic origin, which were formed by precipitation from their solution or suspension in water, and which, in their regular occurrence, we find