are called soils *in situ*, or in place. All the soils resting on and N. W. of the metamorphic rocks (No. 5 in the table) are of this class, except in meadows and in areas of limited extent, to which earthy matters have been transported by water. These soils are as variable in physical and chemical characters as the rocks from which they have been derived, and never contain *water worn* pebbles.

The second class, comprising more than half the surface of Maryland lying south-westward of the first, embraces soils which consist of matters carried by water from the uplands and deposited upon what now constitutes the tide-water counties, before that part of our territory was elevated above the waters of the ocean. They are called *transported soils*.

These consist of the debris of all the varieties of rocks which have been described in my reports: they are very much mixed up, and are consequently less variable in character than the first kind. The differences existing in this class was occasioned by the greater or less velocity of the current of the water by which they were transported. When the current was swift, sand and sometimes gravel was borne along, and even boulders were at seasons transported on ice. The stiff or clay soils were deposited when the currents were gentle. The *transported* soils, like the soils *in situ*, contain all the components of the rock except the exceedingly small portions dissolved and carried into the ocean.

I might perhaps add a third class of soil, very rare in the world, consisting of the tripoli, to be described in Chapter IX., and which is more or less mixed up with sand and other earthy matters. This variety occupies portions of the highlands in the counties of Calvert, St. Mary's, Charles, and the south-eastern portion of Prince George's county.

The soils largely abounding with tripoli are usually classed with the light or sandy soils, whilst in each of the first or second classes we find every variety of texture from very light or sandy to stiff clays, each of which is suited to its appropriate agricultural uses, and requires a proper treatment.

In applying manures we find by experience that certain kinds are best suited to particular soils. For instance, crushed bones will produce a larger increase of crop in a light than in a very stiff soil, whilst the reverse is the case with some other manures.

The prompt action of bones depends in a great measure upon the evolution of ammonia by the putrefaction of their gelatine and other azotic constituents, which is promoted by the means I pointed out in the first report. If bones be *covered* in a stiff soil the access of air is impeded and the decay goes on too slowly. In a light soil decay progresses more rapidly, with elimination of ammonia and a more ready solution of phosphate of lime.