

Sand,	75.72
Organic matter,	1.79
Sulphur,	trace
Carbonate of lime,	5.32
Phosphate of iron,	.44
Magnesia,	trace
Alumina and oxide of iron,	14.77
Potash,	2.53

This specimen contains a large quantity of potash in proportion to its constituents, other than sand. It will doubtless prove useful if applied in large doses to stiff soils.

It is more than probable that a careful survey of that region will bring to light other parts of the same bed containing much less sand.

On the Eastern Shore the Eocene green sand marl occurs along the Chester river, but is in general covered by the shell marl of the middle or Miocene division, of the tertiary formation.

These, with the upper or Pliocene division of the tertiary; embrace what is termed the shell marl of Maryland.

This inestimable gift to the farmer occurs in great quantities in Queen Anne, Talbot and Caroline and in the northern part of Dorchester, on the Eastern Shore. On the Western Shore we find it to underlay St. Mary's, Charles and Calvert, the southern part of Anne Arundel and the southern part of Prince George's county.

I have before me the result of analyses of a large number of samples of these marls from various localities which I made twenty-six years ago. Of these about sixty may be seen in the report of Prof. Ducatel, for 1834. At that period the amount of phosphoric acid was not determined for two reasons. The first was that the absolute necessity for applying phosphates to exhausted soils had not then been fully demonstrated, as it has since been. Secondly, the means afforded by the state of chemical knowledge, twenty-six years ago, gave such unsatisfactory results for determining small proportions of phosphoric acid that I was unwilling to state them in the returns.

It is not necessary to quote those results in full, but I may state that the proportion of carbonate of lime which is made up of shells, and occasionally fossil corals, is very variable, ranging from twenty to over sixty per cent. It would be difficult to assume an average. Of this carbonate of lime, it must be remembered, fifty-six per cent. is lime and forty-four per cent. is carbonic acid. The remaining constituents of the shell marl is principally sand with small proportions of clay, oxide of iron, phosphoric acid and water.

During my recent investigations in counties containing the