

lime, (gypsum,) formed by the decomposition of the sulphuret of iron, and of carbonate of lime furnished by shells.

It is, by no means, to be taken as granted, that all sands which are colored green, possess fertilizing properties. Their color is due to the presence of iron, and not of potash or lime. They may, and sometimes do, have a bright green color, and yet have not enough of either of these substances to be of the smallest value as fertilizing agents. The test of value recommended by Professor Rogers, in his geological survey of New Jersey, that of a green stain being made by the sand on white paper, is not correct; though it was also mentioned in a report on the geology of Virginia as an unerring mark, and adopted by the lamented Professor Ducatel of this State. The green color of this marl is caused by the iron and not by potash. It is true, that when potash is present in the sand, the green stain will be made, but it is equally true, that it will be made if no potash is present; hence it is, by no means, an "unerring test" of the value of this kind of sand, and, indeed no test at all. The only means to determine the quantity of potash in green sand, is a chemical analysis made by an *experienced, practical chemist*. Its analysis is complicated and difficult, and liable to many sources of error. No confidence should be placed in any estimate of its worth, that is not based on a chemical analysis made by an experienced hand. This marl is sometimes found in large grains, sometimes the grains are very small, and the mass of it is very close and compact, the color is sometimes a bright green, which, on exposure to the air, becomes a dusky red, from the per oxidation of the iron. Frequently it is of a dull green, approaching to black. No indication of its value, however, is afforded by its external appearance.

The benefits of its action are due principally to the potash which it contains; besides this, its iron, when peroxidised, absorbs ammonia from the air, and improves, very materially, the texture of the soil, especially when the soil is light, loose, porous, sandy, or of a white color. The following are analyses of some of the different specimens examined by me.

MARLS OF KENT COUNTY.

Green sand from Ebenezer Welch, head of Sassafras, in Kent county, 100 parts, thoroughly dried, gave of—

Silica,	58.00
Iron as protoxide,	22.00
Alumina,	5.00
Lime,	6.00
Magnesia,	1.50
Potash,	6.50

A stratum in this bed, about four feet in thickness, intermixed with shell, gave as follows, of—

Silica,	31.00
Lime as carbonate,	57.00
Alumina and iron as phosphates,	1.00