

of their constituents proved that they were of the same origin viz: the products of the degradation of the gray and red varieties of clay slate, and that they differ only in regard to the proportion of sand and fragments of undecomposed rocks to the "cement" they contain.

As to the proportion of quartz-sand and rocks to the "cement" in the above soils, it was found to be for No. 2, 38-62; for No. 3, 42-58; for No. 6, (A,) 47-53; for No. 6, (B,) 50-50; and for No. 9, 35-65. Provided that the character of the 'cement' is the same for all these soils, the degree of stiffness is then in ratio to the quantity of 'cement' these proportions exhibit, viz: 50, 53, 58, 62, 65; and if we term the soil containing 50 per cent. of 'cement' a loamy soil, the others must be classed as loams in different degrees of clayeyness; a class of soils which generally exceeds all others in productiveness and which is capable of assuming the highest state of fertility, by comparatively the smallest means for renovation. A class of soils containing 75 per cent. of 'cement' or more, embraces the different kinds of stiff clay soils.

As to the character of the 'cement' contained in the above samples of soil, it may in general be said that the proportion of sand, clay and humus is the same in all of them, and well adapted for this class of soils. In regard to the quantities of lime and magnesia present in the cement, a more particular examination showed as follows: No. 9, containing the largest quantity of 'cement,' had proportionally an abundance (sufficiency) of lime but small quantities of magnesia; No. 2, containing the next largest quantity of cement, had but small and deficient quantities of both lime and magnesia; No. 3, containing an average quantity of cement, had a proportionally small and deficient quantity of lime, but magnesia in too great abundance; No. 6, (A,) containing a smaller quantity of cement than the former, had an abundance of lime, and of magnesia a quantity not able to counterbalance the abundance of the former; No. 6, (B,) containing the smallest quantity of cement, had a good corresponding quantity of both lime and magnesia, the latter being rather predominant.

As to the directly nourishing capacity of the above soils, the analysis showed as follows:

<i>Phosphoric Acid</i> is,	less than 1 bushel of fresh bones contains,	in No. 2
	more than 3 bushels	" " " in No. 3
	less than 1 bushel	" " " in No. 6, (A)
	do	in No. 6, (B)
	do	in No. 9