

	Felspar.	Mica.	Hornblende.	Augit.
Silica, - - - -	65.72	47.50	45.69	50.11
Alumina, - - - -	18.57	37.20	12.18	6.68
Peroxyd of Iron,	trace	3.20 Protoxyd	7.32 }	7.55
“ Manganese,	trace	0.90 Protoxyd	0.22 }	
Lime, - - - -	0.34		13.83	18.66
Magnesia, - - - -	0.10		18.79	15.72
Potash, - - - -	14.02	9.60		
Soda, - - - -	1.25			

All of the volcanic rocks, without exception, are composed of mixtures of various portions of the above-named minerals, which in their composition show substances of high importance to agriculture, but inasmuch as the single substances are united in them to each other, forming as a whole, a silicate of indifferent character, like sand, they can form in this condition nothing but a poor soil, which in no way can answer the demand which the plants require from it. These substances only require to be liberated, to exercise in full their influence on the quality of the soil; from a light and sandy soil of small depth, would then at once arise a soil containing a sufficient quantity of clay to become tenacious and binding, a sufficient quantity of Peroxyd of Iron to exercise an attractive influence on atmospheric ingredients, on heat, &c., and finally of alkalis and soluble silicic acid, which are direct nourishments for plants. We know that by the influence of air and water, all of these substances will be decomposed, the manner of which has been shown already and indeed, the quantity of sand, clay, oxyd of iron and lime on one side, and soluble substances on the other, which we find in these soils already in a liberated condition, indicates in what degree the disintegration of them has advanced during past ages. But as this process goes on very slowly, the agricultural question therefore arises, by what means this process of disintegration can be quickened; and here theory as well as practical experience gives us at once the remedies which are required.

We know by experience made on many localities, the geological character of which was similar to that of the soils under consideration, that the action of water-slaked lime on them, was always accompanied by a wonderful success in relation to their culture. This success is also well sustained by a theoretical contemplation of the properties of water-slaked lime, as far as they are brought into action. Water-slaked lime is an *hydrate* of the *oxyd of calcium* mixed with carbonate of lime, the proportion of which depends on the length of time during which the former compound was exposed to the air, and into which, finally, it will be totally transformed. The hydrate of the oxyd of calcium is remarkable for its great affinity to silicic acid, as it exists in silicates, viz: in its combination with alkalis, oxyd of aluminum, (clay) or iron; in consequence of