

gining of this month, the weather was and had been dull for some days previous; it was evening, and an uncomfortable one. Yet on rapping the sides of the pots there was no ring, and on lifting them they were like lead; they had just been watered, and I pitied the poor things from my heart. Now here were present two great errors: First, they did not want water at all; second, they ought not to have been watered in the evening. That they did not need water at all was evident by their droopish shoots and foliage. That they ought not to have been watered at this time of the year in the evening, I presume every Gardener knows; if he does not, the sooner he pulls off his blue apron and puts on a green baize one, the better for his employer; for it would be wiser to clean knives and shoes well, than ruin a set of expensive plants. Let any one that has not duly considered the evil of over-watering plants at this time of year, try the simple experiment upon a soft-wooded one, of withholding water even to death. Let him see how long it will do without. If he sees it flag when the sun appears for an hour or two, let him visit it before he goes to bed and see how it will have stiffened up again. He will soon be convinced that at all times and seasons, whether for giving or withholding, he should 'have a care of the water-pot.'—*Veritas, in Gardeners' Chronicle.*

From the Philadelphia Saturday Courier.

ON THE EARTH'S:—SAND, LIME, AND CLAY; AND THEIR USES TO VEGETATION.

The great use of alumina appears to be in giving fixity and substance to the sandy particles of a soil. In this view, clay is exceedingly beneficial. Many barren sandy soils, which would not produce crops at all—indeed, mere shifting sands have been converted into fine arable land, by spreading clay over the sand; the manner of doing which will be described hereafter, when we come to such subjects as the claying and marling of land.

Besides the mere mechanical benefit of clay in uniting and binding a soil, it is of material service in absorbing and retaining moisture: By reference to the experiments given below, we see that clay absorbs water more quickly and more abundantly and retains it more tenaciously than sand. Clay does not heat so rapidly as sand, with the sun, and it cools again more rapidly; thus helping in hot weather to maintain an equal temperature in the soil. It does not become so cold as sand in winter, and as the action of the frost causes it to contract, it closely surrounds the roots of plants and prevents their being frozen.

Clay has also pre-eminently the property of absorbing ammoniacal and other gases, which are generated by decaying manure in the soil. If in a stable from whence the strong fumes of the escaping ammonia are issuing, you place a quan-

tity of dry powdered clay, that strong smell and gaseous effluvia which almost took your breath, and made your eyes smart, will disappear. Where has it gone? It is still produced as before, and yet its presence is not perceived. The dry clay absorbs it; and the escaping gases are fixed on that earth, adding to its enrichment. (Gypsum or Plaster of Paris has precisely the same effects, in a more striking degree.) A clay soil—or at least one containing clay in its composition, will more beneficially and completely use the manure laid on it. Where manure is put on land and ploughed in, for instance, the ammoniacal and other gases produced by its decomposition are formed in the soil, and are partially taken up into the plants; but being formed faster than the plants can absorb, these products float away to waste, except the soil can attract and absorb them, and thus hold them over until they are required. This clay will do; this sand alone will not do—this lime will not do—and hence it follows that lands, containing clay, constitute the most lasting and prolific soils, and are the most economical for manuring.

Lime is the third chief constituent of soils. It is found in very various proportions in soils, according as they are calcareous or otherwise; in some soils it exists to the extent of 55 to 60 per cent. of the entire soil; in others, not more than 15 or 20 per cent.; while in some it either exists in very small quantities, or may be accounted altogether absent.

The presence of lime is exceedingly valuable to soils, and its artificial application necessary to the production of successful crops, where it does not naturally exist. Its uses may be considered in reference to its action on the soil, and in direct application to living plants themselves.

Lime acts on the soil, in loosening and rendering friable, stiff clays—in binding, and rendering compact, loose sand—but mostly in acting as a solvent to sand, and as a digester and dissolver of animal and vegetable matter in the soil. Where lime finds vegetable fibres which are not only useless, but injurious to sand, it decomposes them, and yields up their substances as *humus* to the living vegetation. Even slugs, worms, and noxious insects, it wholly or partially destroys, and then decomposes them—enriching the soil with their remains. Lime powerfully assists a soil in maintaining its moisture; it readily absorbs moisture, and is long retentive of it. It absorbs also the carbonic acid gas escaping from decaying vegetation in the soil, and retains it as food for plants. By the absorption of carbonic acid gas, it converts itself into carbonate of lime or *chalk*, when its solvent powers greatly cease, and it then becomes direct food for plants, by itself dissolving in the rain water which falls on the soil, and then becomes absorbed into the substance of living vegetables.

In its direct use as a food for plants,

Lime plays a very important part: it is necessary for all grain crops, as it forms an important constituent in their substance. In wheat ashes there is about four per cent. of lime; in oats about 8 per cent., and rather more on Barley and Rye. It is found in the ashes of all trees and plants, whenever those plants have grown on a soil containing lime.

Lime is solvent in water to a great extent; about 400 lbs. of water will dissolve 1 lb. of lime sufficiently to enable plants to take it up by absorption. All plants designed for human food, or for the food of animals, absolutely require lime, as this substance eventually forms the bones of both men and animals. Hence for grazing purposes, limestone lands are much superior to all others, and will rear a superior class of animals. Horses, sheep, and cattle, fed on lands resting on a limestone foundation, will be stronger, firmer, and more compact, than if they were fed on a clayey and sandy soil.

We shall dwell more on the uses and properties of the most valuable of the earths in some future chapter, devoted to "*lime as a manure.*" The above remarks will show the importance of lime to vegetation.

From the Scottish Farmer.

POTATOES.

It is to fashion that the potato owes its general cultivation and use. If you ask me whether fashion can make a nation prefer one sort of diet to another, I ask you what it is that can make a nation admire Shakspeare? What is it that can make them call him a 'Divine Bard,' nine-tenths of whose works are made up of such trash as no decent man, nowadays, would not be ashamed, and even afraid, to put his name to?

It is the fashion to extol potatoes, and to eat potatoes. Every one joins in extolling potatoes and all the world like potatoes, or pretend to like them, which is the same thing in effect.

In those memorable years of wisdom, 1800 and 1801, you can remember, I dare say, the grave discussions in Parliament about potatoes. It was proposed by some one to make a law to encourage the growth of them; and, if the bill did not pass, it was, I believe, owing to the ridicule which Mr. Horne Tooke threw upon that whole system of petty legislation.—Will it be believed, in another century, that the lawgivers of a great nation actually passed a law to compel people to eat pollard in their bread, and that, too, not for the purpose of degrading or punishing, but for the purpose of doing the said people good by adding to the quantity of bread in time of scarcity? Will this be believed? In every bushel of wheat there is a certain proportion of flour, suited to the appetite and stomach of man; and a certain proportion of pollard and bran, suited to the appetite and stomach of pigs, cows, and sheep. But the parliament of the years of wisdom wished to