

we pour out the whole of the liquid from the peat and pour caustic ammonia over the same, and let it stand a few days to see if the brown color will make its appearance, but no such thing occurs. Well, we have now arrived at this much—the application of lime prevents barren peat soils discoloring rain water, and all fertile soils have a similar property. We will try what liming will do.* We, therefore, lime the barren side, and procure most splendid crops of mangel, babbage, cauliflower, mustard, and rape.† Should any reader be sceptical about this being the true mode in which lime operates in fertilizing soils, we will put him in the way of pursuing the experiments still further, and making the process visible. Let a little barren peat be macerated in a short time in ammonia liquor, in order to procure some of the so-often mentioned brown-colored solution which must afterwards be decanted into a clean glass ready for the purpose; then pour into the decanted solution some lime-water, when the whole, instead of the former transparent brown appearance, will become immediately turbid, and gradually a light flocculent precipitate of a dirty brown color will separate, leaving (provided sufficient lime water is used for the purpose) a perfectly clear liquor, and the humate of lime will be precipitated to the bottom of the glass, and can be obtained in a separate state by filtering the same through paper.

putting a little lime to barren peat soils; but in doing so the experiment is neither so elegant; nor the *modus operandi* so apparent. So strong, however, is the affinity between the humic acid and the peat lime, that if we mix 100 grains of peat and ten grains of quicklime, and pour sufficient water on the same to render it quite moist, it will be found within ten minutes the mixture will cease to have the power of colouring the strongest liquor ammonia that can be procured, and will have all the properties of a rich garden soil.

* This portion of the paper is written in a familiar style merely to illustrate to those who may have a desire for information, but consider the nature or rather deficiency of their education incapacitates them for such experiments, that many experiments can be made of the most important description with the most perfect ease, and apparatus as simple as those above mentioned. In fact, I believe, and will attempt, in a future part of this paper, to prove, from the above experiment, the fallaciousness or truth of Liebig's theories as to the assimilation of nitrogen and carbon.

† These crops were absolutely obtained in the manner stated.

The humate of lime thus obtained for all practical purposes may be deemed insoluble. I think I have now fairly proved that, instead of lime rendering inert matters in soils abounding in carbonaceous matter soluble, its fertilizing effects are caused from quite an opposite operation, viz., the rendering a substance previously existing in such soils, which had a deleterious influence on vegetation insoluble and inert, but which, before the application of lime, was soluble in the presence of some of the alkalis and their carbonates. —*Blackwood's Quarterly Journal of Agriculture.*

We copy the following highly interesting and valuable extract, from D. Thaer's *Principles of Agriculture*, for which we are indebted to our able contemporary *The Farmer's Cabinet*. The true principle of applying manure to the soil, is to give the different classes of plants the particular kinds of food best adapted to their general habits and organization. Soils differ materially in their compounds and proportions, and even those of the same quality, by different degrees of cultivation, are made so different in their component parts, that manure of an uniform quality, would be found to have different and possibly opposite influences. Hence, the importance of watching the operations of nature, in bringing forward vegetation, and by carefully investigating the influences of the various qualities of manure used in this country for forcing crops, the farmer may materially assist in increasing his crops without hazarding much risk in injuring them. Maize, potatoes, and turnips, devour, if we may be allowed the expression, a great quantity of vegetable manure, and those plants thrive so luxuriantly on barn yard manure, that it would be a most difficult matter to surfeit them. Wheat, however, being a more tender plant, requires different treatment. It is worthy of remark that in a majority of cases, where the soil is unproductive in wheat, that the best possible food that could be given to the crop, may be found in the subsoil, lying so near the upper soil, that it may be brought to the surface with a common plough. A manure that could force a heavy yield of straw, might be so barren