Ammonia.

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It will be our endeavour to point out some of the leading effects produced by that most energetic and stimulating of all manures, namely, the combinations of ammonia, for, in proportion to its presence or absence, all our notions of fertility and sterility are strictly formed. Ammonia is the simplest of all the compounds of nitrogen and hydrogen. united they constitute the volatile salt or alkali, commonly called hartshorn, it is owing to its presence that we discover the pungent smell emitted on entering closely confined stables, or wherever the putrefaction of animal matter is going on. Ammonia appears to be the universal manure, whilst others appear to act in the more subordinate capacity of carriers or store-keepers, or vehicles to hold and retain it, and to apply it with the smallest waste to its destined purpose, that is, to the growth of plants. We do not attempt to deny that alkaline bases in general are connected with the development of plants; in the form of organic salts they form parts of their constituency; we particularly wish to convey the impression, that it is ammonia which constitutes the very life of vegetable creation.

Ammonia, in all its compounds, is extremely soluble in water, and cannot long remain in its gaseous state, as it absorbs water from the atmosphere and becomes deposited in the form of rain, dew, snow, &c., when it unites with some one or other of the acids found on the earth's surface. This is one reason of the powerful effect of gypsum or sulphate of lime as a manure, the ammonia deposited with rain, &c., becomes gradually absorbed by the gypsum, which parts with its sulphuric acid, and that combines with the ammonia forming its sulphate, whilst the gypsum undergoes this change, it becomes converted into carbonate of lime, taking part of its acid from air and from the ammonia, which also had its change from the atmosphere. This is perhaps one of the best methods of forming ammonia available for the purpose of an energetic manure.

Bousingault informs us that putrid urine is employed in Flanders with the best results. During the putrefactive process ammoniacal salts are formed in large quantities, it may be said exclusively, for under the influence of heat and moisture, urea, the most prominent ingredient in urine is converted into carbonate of ammoni.

It is perfectly evident the action of gypsum really consists in giving a fixed condition to the ammonia which is brought into the soil, and is indispensable for the growth of plants. The advantage of burnt clay as a manure, is simply its readiness to combine with ammonia, and its power of retaining it, this is owing to the presence of the oxides of iron and alumina or alum, it being the basis of all clays or clayey soils, the process being favored from its porous condition.

Liquid animal excrements, such as urine, after the putrefactive process has made some progress, abound with ammonia, chiefly as carbonate. If, in this state, a meadow be saturated with it having been previously strewed with powdered gypsum, its fertility will be the most luxuriant imaginable; owing to the ammonia being fixed by the sulphuric acid of the lime, and prevented from evaporating into the atmosphere,

The carbonate of ammonia being decomposed by the gypsum in the same manner as in the manufacture of sal-ammoniac. Soluble sulphate of ammonia is found together with an insoluble carbonate of lime; this salt of ammonia possessing no volatility, is consequently retained in the soil: the gypsum gradually disappears, but its action on the corbonate of ammonia continues as long as a trace of it exists The decomposition of gypsum by the carbonate of ammonia does not take place immediately, but proceeds gradually, and thus it is that its benefit is apparent for years. It must also be remembered that every shower of rain, snow, &c., adds to its productiveness, from an increased source of atamonia.

Powdered charcoal is known to possess a similar action, surpassing all others in its power of condensing ammonia within its pores. It absorbs ninety times its volume of ammoniacal gas, which may again be separated by simply moistening the compound with water. Professor Liebig thus expresses himself on the subject. "Carbonic acid, water, and ammonia, contain the elements necessary for the support of the animals and vegetables. The same substances are the ultimate products of the chemical processes of decay and putrefaction. All the ultimate and innumerable products of vitality pre-