

Thus, then, lime is a corrector—one which combines with, and fixes redundant vegetable matter, or at least that portion of it that is in any degree soluble in water, or in the solution of soda, potash, and ammonia; and by the substantiation of this great fact, the fixture of the nutritional quality of humus and humic acid has been proved, and the reclaiming power of lime upon old inert mosses and peat-bogs, established upon philosophical principles.

If it be admitted that lime acts beneficially upon surplus vegetable matter, and in peaty or rusty bogs, chiefly by the paramount affinity which it possesses for *humic acid*, the advocates for a very moderate degree of fermentation in the masses of dung, acquire a strong position, since it is obvious that a protracted fermentation terminates in the production of a cold humus mass, which consists of little else than black carbon, effete inorganic matters, and the said humic acid, soluble in the saline alkalies, but fixable by the action of lime. But, independent of the final conversion of manure into a substance replete with matter injurious to crops, the loss sustained in actual bulk is very great, amounting to at least one-fourth. From observing the decrease of a common hot-bed, 5 feet high, the dung of which cost, at the first purchase, 7s. per two horse-load, I should infer the loss to be much greater, for in the space of a year this depth of farm-yard dung was reduced to a little more than a foot, and in substance, to a moderate cart-load. Davy insisted upon the efficacy of absolutely fresh dung, and thought he had prevailed upon the late Lord Leicester to adopt the use of it at Holkham. He, however, was to a certain extent under error, as Mr. Coke himself assured me by a letter, wherein he detailed the method employed to form his compressed manure mass, which, subsequently, obtained the name of Norfolk pie.

Numbers of agriculturists are practically acquainted with it, but others may be curious on the subject; therefore, I refer to the letter itself, which, however, it is extremely difficult to decipher.

"My custom is, to carry out all the manure made in the separate yards during the winter, as opportunity may offer, into the fields intended for turnips, calculating the quantity at 10 loads per acre. In the first instance, I make a platform of earth, (to receive the manure,) and then I cart over it a proportion of cow-dung, which I deem to be the weakest manure; upon that pig, which I hold to be the best; then some from store and fold cattle, followed by horse-dung, and then more of the pig, always compressing the heap by carting over it. Then I plough round it, and throw a light coat of earth over the top and sides to keep it from fermenting. It remains in this state to within a fortnight of sowing the turnips, when I turn it over, and in its fermented state it is put into split ridges of 27 inches, the ground turned over it by the plough, and the seed sown

immediately after."—*Quarterly Journal of Agriculture.*

Rural Chemistry. By Edward Solly (2nd Notice.)

In our further notice of this work we extract the following on "*Manures*," which is of a practical and useful character:—

Amongst the principal animal substances employed as manures are urine, and dung of all kinds, the flesh and blood of dead animals, fat and oily matters, hair, wool, skin, and lastly horns, hoofs, and bones. These substances are all more or less valuable, as yielding to the soil a large quantity of the substances which constitute the food of plants; they putrify, and their elements form new combinations with great rapidity. Those which change most readily of course yield ammonia and carbonic acid most rapidly, and these constitute the most powerful manures; those which decompose more slowly are less powerful, but more lasting in their effects.

Urine, dung, and the decomposing carcasses of all animals are excellent manure; they are for many purposes considered to be too strong, and means are adopted to diminish their power. These manures involve, during their rapid decay, a very large quantity of ammonia, carbonic acid, &c., far more in fact than plants require or can absorb. The excess is hurtful and must be prevented.

There are two ways by which this may be effected; the one is to mix strong manure with a considerable quantity of some substance far less prone to decomposition, so as to dilute it, or check its putrefaction; the other, and certainly infinitely the worst way is to expose it to the air for some time, and not to use it until a great part of the ammonia evolved by its decomposition is dissipated, or combined with acids; acids remains is then sufficiently mild to be used with safety.

In order to preserve as much as possible the valuable parts of these manures, they should be mixed with a certain quantity of vegetable refuse matter, such as sawdust, weeds, &c. This addition tends to check their too rapid decomposition, and prevents the great loss which ensues when manure decays too rapidly and becomes hot from the effect of its own decomposition; and at the same time the vegetable matters added are gradually brought into a state of decay, which renders them also a most valuable addition to the soil. Farm-yard dung is a mixture of this kind.

The extremely offensive odour of nightsoil is a great obstacle to its collection and use as a manure. In its fluid state the expense of conveying it to any distance is of course great, and accordingly various plans have been adopted to reduce it to the solid form, both to diminish cost of conveyance, and also to admit of its being used with the drill; in these, however, a portion of the volatile constituents is generally lost, though what remains is undoubtedly a valuable manure.