

ON THE ECONOMY OF MANURES.

Were we to announce that we had discovered a chemical process, by which, for the mere trouble of collecting, we could supply every farmer with abundance of that inestimable manure—guano, doubtless our table would groan with the weight of applications for information as to the means to be used. We do announce that such discovery has been made; and without putting those under whose notice this may fall to the trouble of farther application, we tell them the secret consists in the proper management of the manures constantly accumulating, and, we regret to say, as constantly going to waste on most farms. Every particle of manure which lies for an hour exposed to the air, or to rain, is parting with its ammonia—the principle which renders guano so valuable; every pound of the fluid from the cattle-house, or even from the house-bucket or wash-tub, which is allowed to flow down the stream, or be absorbed by the yard or the air, is so much of the essence of manure thrown away, or, in other words, of food wasted. We have repeatedly endeavoured to bring the matter under the notice of farmers; it is a subject, however, of such importance that we must not omit any opportunity which may present itself of recommending it to their attention.

The following is from "Trimmer's Chemistry for Farmers:"—"The waste of the most valuable part of farm-yard manure is so great under the English system as to render it desirable that, without abandoning the use of it for that of liquid manure, till the superiority of the latter has been fully proved by experiment, the farmer should endeavour to introduce improvements in the present management of it, based upon a knowledge of the chemical properties of the substance with which he has to deal, by which a vast amount of manure may be saved, which is now lost. Not contented with promoting the escape of as much ammonia as possible in the volatile form during the process of heating, turning, and spreading the dung, and during the time which it is frequently allowed to lie on the land before it is ploughed in, we appear to endeavour to deprive it as much as possible of all soluble matter, by making the dunghill the channel through which all the water which is collected from the roofs of the buildings passes by the main drains of the farm-yard into the nearest stream. The annual waste of manuring matter which takes place on most farms, from this mode of management, is immense. In order to prevent it, the eaves of all the buildings should be supplied with spouts, which would lead the water away without allowing it to reach the dunghill, which should receive, except in very dry weather, only the water which falls on it directly from the atmosphere; and a drain should convey a surplus moisture from the dunghill to a covered tank, in which it should be preserved in a separate state. The brown or blackish fluid thus collected will consist partially of urine, partly of water, with many dissolved particles of the solid excrements. It must be putrefied before it can be used, in order to neutralize the caustic ammonia, with carbonic acid; but if putrefaction be allowed to proceed so far that the smell of ammonia is entirely gone, it will have lost the greater part of its manuring properties. It will be better, however, to convert the ammonia into sulphate of ammonia during the process of putrefaction, by means either of sulphuric acid or gypsum. The liquid thus prepared may be applied, by means of the water-cart, to some of the most accessible of the growing crops, but not during wet weather; for, holding, as it does, so many salts in solution, it may convey too much nutriment to the plants, and injure instead of benefiting them, should the ground not contain moisture enough to dilute it properly. If it contain more than four or five pounds in the hundred of solid matter in solution, it will be too concentrated to be applied with safety to growing crops in dry soils. If derived from a manure-pit flooded by rain from the roofs of the buildings, it will scarcely contain two per cent. of solid matter, and will then be of little value. If the farmer dislike the use of the drainings of the dunghill in a liquid state to growing crops, they may be distributed upon uncropped land immediately before ploughing or harrowing it, or they may be used for the purpose of saturating heaps of

compost; but to such compost, and indeed to any, containing, like all dunghills, salts of ammonia, burnt lime should on no account be added, as it decomposes most of the salts of ammonia, and causes the escape of volatile ammonia.

MODE OF FIXING THE AMMONIA BY MEANS OF SULPHATES.—The dunghill, thus freed from superfluous moisture, and the fluids which drain from it being preserved for use, instead of being got rid of as a nuisance, the next object is to provide that during the heating of the dung, and the subsequent management of it, as little ammonia shall escape in a gaseous form as possible. The best mode of fixing it appears to be by means of gypsum. Liebig recommends the strewing of the floors of stables and cow-sheds with it, for the twofold purposes of removing the offensive smell, which must always be more or less prejudicial to the health of the cattle, and of preventing the escape of the ammonia in the form of the volatile carbonate. Gypsum and carbonate of ammonia cannot be brought into contact at ordinary temperatures without mutual decomposition, and the production of the non-volatile sulphate of ammonia and carbonate of lime. It is stated in a note by the editor of Liebig's work, that the practice thus recommended prevails in some parts of England. In Germany, according to Sprengel, it is usual to strew gypsum over land on which sheep are folded, in order to fix the ammonia of their dung and urine in the soil. The dunghill might also be strewed with gypsum for the same purpose. It is a very cheap substance, easily obtained in most parts of England. Considerable beds of it exist in Cheshire, Derbyshire, and near Watchet, on the Bristol Channel; and it might be raised in much greater quantities than at present, if there were a demand for it. Of the quantity that would be required upon a farm for those purposes, we may form a rough estimate, by supposing that for every horse or head of horned cattle kept, as much ammonia is lost in a volatile state, by our present mode of managing farm-yard manure, as Sprengel calculates is lost in Belgium by putrefying urine without diluting it with water, or saturating it with acids—viz., 162 lbs., requiring for its saturation 373 lbs. of sulphuric acid. This quantity of sulphuric acid might be obtained for somewhat more than five cwt. of gypsum. But as the cattle are not in the yard above six months in the year, this would be reduced to $2\frac{1}{2}$ cwt. per head, which should produce $2\frac{3}{4}$ cwt. of sulphate of ammonia—a powerful manure, not to be bought for less than 25s. the cwt. Of course, however, if the dunghill is to be flooded with water, which will carry this soluble sulphate away from the farm, its formation by means of gypsum will only incur an unnecessary expense.

THE RICK-YARD AT TEDDESLEY.—Lord Hatherton, in his interesting and instructive speech at the recent Lichfield agricultural dinner, adverted to some of the many improvements carried into effect on his farm at Teddesley, under the superintendence of his lordship's agent, Mr. Bright. We had the satisfaction a few days ago of witnessing the completely triumphant results of those improvements, as exhibited in the rick-yard—the true test after all. At a moderate computation there cannot be less than 10,000 or 11,000 bushels of corn of this year's growth in the yard, all secured in excellent condition, and presenting an appearance truly imposing. The wheat comprises more than a third of the whole quantity, and is contained in no less than 21 handsomely formed ricks. This vast quantity of grain is the produce of 350 acres of land, a considerable portion of which but a very few years ago was little better than a barren heath. The quantity of hay is also prodigious, exceeding 400 tons, nearly 300 of which is new hay, the produce of about 150 acres of upland meadow, irrigated solely by the drainage from the adjacent parts of his lordship's farm. That modern and most valuable system of summer stall feeding, or "soiling," is extensively practised at Teddesley, and with such extraordinary and striking success, both with regard to the economy of food and the augmentation of the quantity of manure, as to be almost incredible to any but those who have witnessed it.—*Staffordshire Advertiser.*