

THE GLEANER.

AND NORTHUMBERLAND, KENT, GLOUCESTER, AND RESTIGOUCHE

COMMERCIAL AND AGRICULTURAL JOURNAL.

New Series, Vol. III

Nec arancorum sane textus ideo melior, quia ex se fila gignunt, nec noster vilior quia ex alienis libamus ut apes.

No. 14.

Miramichi, Tuesday Afternoon, January 14, 1845.

Agricultural Journal.

From the American Farmer.

MANURES.

MANURES COMPOSED CHIEFLY OF MOULD.

From a Prize Essay, by S. L. Dana.

These are of vegetable or animal origin. And first, of animal mould. Here we shall find, that we come, perhaps, better prepared to understand this part of our subject, than either of the preceding classes. We have explained the principles which enable us to understand why it is that animal and vegetable substances produce, by decay, identical matters. The only difference consists in the quantity of these matters. Let me here, reader, call to your remembrance the facts we stated respecting the two classes of food, and the two classes of substances formed from that food by animals. A certain portion of that food contains none of that principal which forms ammonia. This portion of food makes fat. Another portion of that food contains the substance which forms ammonia. This part of the food forms flesh and blood, and the other parts of the body, skin, hair, feathers, bristles, wool, horns, hoofs, nails and claws, tews and sinews. Now, when a body dies and decays, the mould which it forms will be rich manure, or poor manure, just in proportion as it contains more or less of the substances formed out of that portion of food which furnishes flesh and blood. The fat, therefore, in animal mould, plays a very inferior part to that acted by the flesh and blood. In a word, as I wish to dismiss the fatty matters from our present consideration, I may do this, reader, by stating to you, all that you need know, that in decay, fat forms chiefly carbonic acid. If, therefore you call to mind what we have said about the action of that, you will see how fat acts in manure. But the flesh and blood, and the substances formed from it, give precisely the same things as vegetables do when they decay, that is water, mould and salts. The great difference between the decay of animal and vegetable matters, is this, that as the animal bodies are far richer in the substances, which forms ammonia, so they afford a richer source of manure. The animal body contains that element, in quantity enough, not only to fill the pores of its own mould, but also enough to impregnate a large quantity of mould from other sources. The vegetable body, on the contrary, contains scarcely enough ammonia, to fill its own mould. Vegetables differ in the quantities of the elements of food, which can furnish flesh and blood, and hence these vegetables are best for manure, which furnish most ammonia. We have already remarked on the difference, in this respect, between, straws, grasses, and clover. But without going farther into this comparison, which can have no other practical bearing, than to show you the immense difference in value, in animal and vegetable bodies, in forming manure, we may here resolve the subject into one great principle. The substance which forms flesh and blood, whether derived from plants or animals, alone forms ammonia during their decay, and the mould thence arising, is rich, or poor manure, just in proportion as it contains the substance, fit to form flesh and blood. Starting from this principle, we find that animal substances, as flesh, fish, fowl, the body generally, including its various forms of covering, hair, wool, feathers, nails, hoofs, horns, claws, &c., afford, in the process of decay, about ten times more ammonia, than the straws and grasses usually entering into the compost heap. The animal bodies give more volatile alkali, than their mould can contain.

It is given off in such quantity that decay is rapidly hastened. All the signs of putrefaction, therefore, rapidly take place. The quantity of mould being small, nothing holds the volatile parts, they escape and are lost. Now common sense and practical foresight have stepped in here, from time immemorial, and taught mankind the necessity and the utility of preventing the waste of the volatile and most valuable parts of the decaying animal substances, by covering them

in with earth, soil, &c. These imbibe the escaping virtue or strength, and become rich and fertilizing. It remains to state, that every pound of animal carcass can impregnate ten pounds of vegetable mould; or, taking our arable soils as they usually occur, one pound of flesh, fish, blood, wool, horn, &c., can fertilize three hundred pounds of common loam. You will see, therefore, reader, how little you have now to learn of the necessity of saving everything in the shape of animal matters, and converting them to manure, by turning them into your compost heap. It is to be remarked, that the dry forms of animal substances undergo the process of decay when left to their own action very slowly. Wool, hair, flocks, hornshavings, &c., or even leather chips, and curriers' shavings, bear long exposure, and seem quite indestructible. They yet are rich in all the true virtue of manure. They want something to bring this out, to set them a working, to bring on fermentation. Well, on this head, we may lay down two rules; the first is, that if buried among a heap of fermenting matter, that communicates a similar change to these dry animal substances. This is slow work. The second rule is, that if these dry matters are buried in the soil among the roots of growing plants, then these act more powerfully than fermentation, and the dry substances are converted to manure, at speed which may be called quick, compared to the fermenting process. The practical lesson to be drawn from these differences of action between the fleshy and horny parts of animals is, that when you want a quick and short action of manure, to use the fleshy and fluid parts. Where you want a mere slow and permanent action, to commence and last long after the first is over, to use the dryer and harder parts. If now we turn to the other division of mould, that from vegetables, we find it lacking in the very thing which was superabundant in animal mould. That thing is volatile alkali. The great mass of vegetable mould is always impregnated, but always slightly charged with volatile alkali. There is not enough of the flesh and blood forming element in vegetables to hasten the decay into rich manure. Now here again not science, but practical common sense steps in, and did step in long ago, and as she taught mankind the necessity of adding soil or mould to the decaying animal matter, so here, to enrich vegetable mould, she teaches that animal matter, or that which is its representative, *alkaline salts* must be added to vegetable mould, to make it active. It is not the mould alone which plants want. We have seen all along how nature provides a certain amount of salt in her virgin mould; we by cropping exhaust these faster, than the mould. We have tons of that, yet our fields are barren. They want, as has been explained, salts. And now, reader, having been brought by this course of reasoning to what mould wants, consider what tons and tons of useless mould you have in your swamp muck and peat bogs, your bassocks, and your turfy meadows. All these, foot upon foot in depth as they lie, are truly vegetable mould, in a great or less degree of decay. If you dig this up, and expose it to the air, that itself sets it to work, decay is hastened, volatile matters escape, yea, ammonia, the master spirit among manures, is secretly forming and at work, warming and sweetening the cold and sour muck. Without further preparation, practice confirms what theory teaches, that this process alone furnishes from these beds of vegetable mould, and a very good manure. It is already highly charged with all the salts which a plant wants. But experience, doubtless led by the light of the good result, of mixing mould with animal matter, to preserve its strength, has also reserved the practice, and taught the utility of adding to vegetable mould quickening salts; that is, either the volatile alkali, by composing the mould with stable manure, or alkali in the shape of ashes, or potash, or soda ash, or lime or a mixture of these. In fact, whatever substance can by putrefaction give off volatile alkali, will and must, and does convert vegetable mould, of itself dead and inactive, into a quick and fertilizing manure.

If then, reader, you pause here a moment upon this fact, and then cast your view backward over the principles we have endeavoured to impress on your memory, you will perceive that there is not among all the classes and kinds of manure which we have shown you, one which may not be added, or, as is the phrase, composted with peat, meadow-mud, swamp-muck, or by whatever other name these great storehouses of vegetable matter are called. These are the true sources of abundant manure, to all whose stock of cattle, &c., is too small to give manure enough for the farmer's use. It is the farmer's business to make a choice, if he has any but Hobson's of what substance, or mixture of substances he will use. We have shown him how small a portion of animal matter, one to ten, of pure mould, will impregnate that substance. Taking then a cord of swamp-muck, we shall find it contains in round numbers, about one thousand pounds of real dry vegetable mould. So that the carcass of an animal weighing one hundred pounds evenly and well mixed up with a cord of fresh-dung muck, will make a cord of manure, containing all the elements, and their amount too, of a cord of dung. But it is not from the carcasses of animals that the farmers expect to derive the quickening salts for his muck. This can be the source of that power only to the butchers, (what fat lands they all have!) or to the dwellers near the sea, where fish is plenty. A barrel of alewives, it is said, fertilizes a wagon-load of loam. The carcass of a horse converts and fertilizes five or six cords of swamp-muck. A cord of clear stable dung changes two cords of this same muck into a manure as rich and durable as stable manure itself. These are all the results, reader, of actual practice. The explanation of the principle has only come in since the practice, and showed the how and the why of this action? But the merit of explaining this action, would be, as nothing, if it had not conducted one step further. The explanation of the principle of action of animal matters, animal manures of all kinds, whether solid or liquid, of muck or peat, has led chemistry to propose, where these cheap or common forms of quickening power are not to be had, to mix ashes, or potash, or soda ash with swamp-muck. Now, reader, this is not an idle, visionary, book-farming scheme. It is perhaps one of the few successful, direct applications of chemistry to farming, which speaks out, in defence of such book-farming, in tones and terms which bespeak your favourable consideration for the attempts which science is making to lend you, reader, a helping hand. This proposal, the offspring of science, has been carried out successfully by practical men in our country, and has made its way abroad. Though this is not the place to give you the details of their results, you may rely upon the fact, that alkali and swamp-muck do form a manure cord for cord, in all soils, equal to stable dung. Well now, after your patience in going over these pages, I hope you will find your reward in this statement. To be sure it might have been said at once, and so have done with it, but I hoped, reader, and I am sure I have not been disappointed, that you like to dive a little into the reason of things, and felt that you had farmed too long by the rule of thumb, to be satisfied that it was the road either to improvement or profit. And so among your first attempts at improving your worn-out lands, always supposing you have not a barn-cellar, hogs, and swamp-muck, so aptly called by one of your self-made practical men, the "farmer's locomotive," I presume you may like to know the proportions in which you may mix swamp-muck and alkali. You can hardly go wrong by using too much; the great danger is, you will use too little alkali. But calculating on the proportion of mould in fresh-dug swamp-muck, or peat, it may be stated as a rule, grounded on the quantity of quickening power in a cord of stable manure, that every cord of swamp-muck requires eight bushels of common ashes, or thirty pounds of common potash, or twenty pounds of white or soda ash, to convert it into manure equal cord for cord, to that from your stable. Dig up your peat in

the fall, let it lay over winter to fall to powder, calculate your quantity when fresh dug, and allow nothing for shrinking in the spring; when your alkali is to be well mixed in with the mould, and, after shovelling over for a few weeks use it as you would stable manure.

These quantities of ashes and alkali are the lowest which may be advised. Three or four times this amount may be used with advantage, but both the quantity of alkali and the number of loads per acre, must and will be determined by each for himself. It is a question of ways and means, rather than of practice. But supposing the smallest quantity of ashes or of alkali to be used which we have advised, then at least five cords of the compost should be used per acre. This may be applied to any soil, light or heavy. But there is another form of this same swamp-muck and alkali, which should be used only on light, loamy, sandy soils, to produce its greatest benefit, though even on heavy soils, if not very wet, it may be used with great advantage. This is a compost of one cord of spent ashes to three cords of swamp-muck. This is decidedly the best mixture which has yet been tried. We have in this all that mixture of various salts and mould which plants want, and both by the action of the mould and by that of the air, the alkali of the spent ashes, which no leaching would extract, is soon let lose, and produce all the effects of so much clear potash or soda.

I have thus, reader, given you a view of the ways by which you may convert your peat bogs and swamps into manure when you have neither cattle or hogs. I have not thought it worth while to go into this subject further and give you directions for lime and salt, or other matters which may be used. I have given you the most common, and those well known and at hand. All you want, then, to apply these principles of forming composts is to give them that little attention which will enable you to understand them. And the rest must be left to your common sense, without some share of which, farming, like everything else, would be vanity and vexation of spirit.

I would here, reader, take my leave of you, and in the hope that we may again meet to have another talk. There are a great many other points relating to manure, which can be understood only after we have made ourselves somewhat acquainted with the chemistry of the soil. Then, having explained that before the full action of manure can be understood, we must proceed a step further, and consider what changes take place in growing crops, and the effects of these growing crops upon soil and manure. The quantity and kind of salts they extract, and how soil is exhausted. This would lead the consideration of the quantity and kind of manure to be applied to different soils, and the value of different manures. But there is one other important matter belonging to our subject. Crops exhaust land, but fatten animals. Now this last properly belongs to that part of our subject relating to the changes occurring in vegetables, and their power of exhausting the soil. It will be seen, therefore that the whole covers the grounds called Agricultural Chemistry. This Essay is only its first part. If it meets your acceptance, I trust it may encourage its author to draw up its second part on soils, and its third part on the effect of crops on soil, and their value as food for animals.

Remedy for the Bots.—Having seen many horses die with the bots, and many remedies given without effect, I was induced by a merchant in Cambridge to try the following for a horse of my own, after I had tried most of the remedies in common use without effect, and had given him up for lost:—Half pint of vinegar, half pint soft soap, half pint of gin, and half pint molasses, well shaken together, and poured down while foaming. To my great surprise, the horse was in five minutes wholly free from pain, and ate freely, the next morning I was upon my journey. I have since recommended and given the same in perhaps fifty cases, with the same good effect; not in one instance has it failed to effect a perfect cure.—*Albany Cultivator.*