

THE GLEANER:

AND NORTHUMBERLAND, KENT, GLOUCESTER AND RESTIGOUCHE
COMMERCIAL AND AGRICULTURAL JOURNAL.

OLD SERIES]

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

[COMPRISED 13 VOLUMES.]

NEW SERIES VOL. IV.]

MIRAMICHI, SATURDAY MORNING, DECEMBER 6, 1845.

NUMBER 9.

Agricultural Journal.

MANURES.

We purpose occupying our Agricultural head for several weeks, with extracts from a most instructive Essay "on the Manufacture of Manures, and the Application of the same to the different varieties of soil." BY ASAHEL FOOT.

From the London Farmer's Magazine. Preliminary Propositions.

That vegetation annually appropriates to itself, and thus removes from the soil, a certain amount of nutritive principles; and that the removal of a succession of the crops, without some compensation in the shape of manures, will gradually impoverish, and, if carried far enough, ultimately exhaust the soil, are propositions so manifestly true as to require no illustration. We every where see that the process last indicated is sure to be followed by a gradual change in the colour and texture of the soil, and by a proportionate diminution of its vegetable products, until, if not arrested, the final result is absolute sterility.

The truth of the converse of these propositions is equally evident. Take an old field which has been reduced to barrenness by an unrelenting system of cropping without compensation, and restore to it a portion of those vegetable matters by the abstraction of which its poverty has been occasioned, and amendment is at once the consequence. Repeat the operation, and a further progress towards fertility is made; extend it sufficiently far, and the face of nature is entirely renewed, and every symptom of a full recovery exhibited.

From these, and kindred considerations readily occurring to the reflecting mind, we draw the following

Inferences.

1. That the appropriate food of vegetation is, for the most part, neither more nor less than the ultimate results of vegetation itself, modified by the action of the animal organism, and the several processes of fermentation.
2. That a limited amount only of the food of vegetation is contained in any given quantity of soil.
3. That a single crop cannot be removed from the soil, without diminishing, to a certain extent, its capabilities for supporting vegetable life.
4. That an uninterrupted cropping of any given portion of soil, without remuneration, will at length infallibly reduce it to sterility.
5. That the original fertility of any given portion of soil can only be maintained by faithfully restoring to it, in the shape of manures, an amount of vegetable matter equal to that which is annually abstracted from it.
6. That an impoverished soil can only be restored to its original fertility by the application to it, of an amount of vegetable matter greater than that which is annually taken from it.
7. That the most exhausted lands can not only be regenerated, by sufficiently increasing the proportion of vegetable matter in the soil, but raised above the highest point of their original fertility.
8. That the deteriorated condition of the major part of our cultivated soil is proof conclusive, that all the resources of the farmer have not in general, been put to requisition.
9. That the secret of all good farming lies in the skillful management and judicious application of the common home-made manures.
10. That it is of the highest importance to the agriculturist to study more carefully the nature of soil the wants of vegetable life, and the mutual relations and dependencies of the soil and vegetation; and above all, to cast about him and explore the sources of those animal, vegetable, and mineral substances, the proper application of which to his cultivated fields is not only an indispensable prerequisite to their increased fertility, but the certain harbinger, if coupled with economy, of competence at least, if not of affluence.

Definition of Manure.

Manure is a term of almost unlimited application, embracing an immense number and variety of substances—including, indeed, whatever can be named in the animal, vegetable, and mineral kingdoms, capable of improving and fertilizing the soil. Says the author of "British Husbandry," "Any thing whatever may be called manure, which, when applied to the soil, rectifies its defects, corrects any bad quality, or either stimulates it to yield, or stores it with nutriment." Any classification of so heterogeneous a mass of substances, which should at once prove satisfactory to the agricultural chemist, and intelligible to the merely practical farmer, cannot, in the present state of agricultural science, be attempted with any prospect of success. A practical classification alone, however, would seem to be called for on the present occasion, and that which is regarded as the simplest will be chosen.

Classification of Manures.

"From the earliest speculations on the nature of manures, down to a very recent period, manures have been divided into two classes—nutritive and stimulative, or such as furnish the direct food of plants, and those which act as stimulants, or excite plants to take up and assimilate such kinds of food as are presented to them. In the first class have been placed all decayed vegetable matter, farm-yard manures, animal excrements, night-soil, and such other matters as, having been derived from plants, are considered as capable of being reconverted into vegetable matter. In the second class, it has been the custom to place gypsum, lime, such salts as are found to produce a favourable effect on vegetation, as the phosphates of lime in bones, and the nitrates existing in saltpetre, soda, &c." [Albany Cultivator, Vol. 8, p. 95.] To these may be added a third class consisting of variable mixtures from the two former, with several kinds of earth, and denominated "composts." Thus we have the simple classification of half the manures into, 1st, Nutritive Manures; 2nd, Stimulative Manures; and 3rd, Composts.

Nutritive Manures.

The great depositories of the manures of this class are the barn-yard, the pig-gery, and the privy vault; each of which will claim our attention, for a moment, in relation to the causes which operate to diminish the amount and value of their contents.

Causes of Waste.

How, then, are the contents of these depositories chiefly liable to waste? We answer, 1st, by infiltration, or soaking away into the earth; 2nd, by evaporation or being taken up by the sun and winds; 3rd, by excessive fermentation, in which the heaps accumulate so great a degree of heat, as to dissolve the salts which they contain, and dissipate them in the form of gaseous exhalations; and, 4th, by drainage, or flowing away in the currents of water, which are suffered but too often to despoil our barn-yards of their richest treasures, and to defile our highways and clog up our ditches with that which might otherwise fatten our corn-fields.

Remedy for Drainage.

To close effectually the last-named waste gate, it is only necessary so to excavate the central portions of the yard, as to form a sufficient reservoir for the liquids that will naturally find their way into it, and carefully convey away the droppings from the roofs of the buildings, by good conductors, and to turn the course of any superfluous waters from higher grounds, by effective trenches.

Remedies for Infiltration and Evaporation.

To guard against infiltration, let the yard, and especially the excavated portions of it, receive a thorough coating (if nature has not been before-hand in supplying one) of the purest clay at command; and to escape the mischiefs of evaporation, furnish it with an abundance of litter, such as refuse straw, oats, weeds, and leaves from the forest, together with muck, surface-soil from the road-sides, hedges, and ditches, or any other convenient matter of a porous na-

ture, to absorb the liquids and protect the whole mass from the influences of the atmosphere. A further security still, will be found in occasionally strewing the yard with plaster, which, by combining with the volatile portions of the manure, and converting them into salts not volatile, will rob the atmosphere of that portion of its prey.

Remedy for Fermentation.

Having taken the above precautions, little danger need be apprehended from excessive fermentation, except in case of considerable piles of horse-dung; and here it will be very easy to avert the evil, either by occasionally spreading open the heaps, or, what is far better by interlarding them, at proper intervals, with muck or surface-soil, which will not only effect the object in question, but, by absorbing the juices of the pile, become of equal value with the dung.

Value of Liquid Manure.

It will readily be perceived, that the principal effort of the farmer, in the preservation of his manures, must be directed to their liquid portions—these portions not only being by far the most exposed to loss, but possessing a superiority in value, which renders their loss irreparable. This last sentiment, involving, as it does, a subject of vital interest in agriculture, we shall take the liberty of illustrating by the introduction of several authorities.

"The greatest value should be attached to the liquid excrements of man and animals, when a manure is desired which shall supply nitrogen to the soil. The greatest part of a superabundant crop, or, in other words, the increase of growth which is in our power, can be obtained exclusively by their means. When it is considered that with every pound of ammonia that escapes, a loss of sixty pounds of corn is sustained, and that with every pound of urine a pound of wheat might be produced, the indifference with which these liquid excrements are regarded is quite incomprehensible. In most places, only the solid excrements impregnated with the liquid are used, and the dung-hills containing these are protected neither from evaporation nor from rain. The solid excrements contain the insoluble, the liquids all the soluble phosphates, and the latter contain likewise all the potash which existed as organic salts in the plants consumed by the animal." [Liebig's Organic Chemistry, p. 191.]

"Liquid manure consists, in a great degree, of the urine of various animals, which, during its decomposition, exhales a larger quantity of ammonia than any other species of excrement. Now, all kinds of corn contain nitrogen, and consequently any manure which yields a ready supply of ammonia must cause a fuller development of those parts of the plants which are of the greatest use to man. Even the kind of animal manure usually employed in this country owes its efficacy, so far as it is dependent on the ammonia present, to the urine, rather than to the solid excrement, of which it is made up, and hence becomes materially deteriorated in this respect, when the more liquid portions are allowed to drain off from it." [Daubeny's Lectures on Agriculture.]

"The quantity of liquid manure produced by one cow, annually, is equal to fertilising one and a quarter acres of ground, producing effects as durable as do the solid evacuations. A cord of loam, saturated with urine, is equal to a cord of the best rotted dung. If the liquid and solid evacuations, including the litter, are kept separate, and soaking up the liquid by loam, it has been found they will manure land in proportion, by bulk, of seven liquid to six solid, while their actual value is as two to one. One hundred pounds of cow's urine afford thirty-five pounds of the most powerful salts which have ever been used by farmers. The simple statement, then, in figures, of the difference in value of the solid and liquid evacuations of a cow, should impress upon all the importance of saving the last in preference to the first." [Dana's Muck Manual, p. 171.]

"Urine is always a most valuable manure. No farmer should permit it to run

to waste, but should so prepare his cattle-yard, by loam or swamp muck, and by plaster, as to save these invaluable products of his stables, and of his own dwelling. As the urine is commonly mixed with the solid excrements in the barn-cellar or cattle-yard, it increases the value of this manure, it promotes its decay, and adds its own salts; but if the whole is exposed to the influence of atmospheric agents, it facilitates their action, and aids in depreciating its value; hence it is generally wholly lost to the farm. Farmers ought to know this, and to be apprized of the fact, that at least one half of their manures is wasted." [Gray's Elements of Agriculture, p. 302.]

"Upon nearly all our farms, the dung of quadrupeds is exposed to the open air, without the protection of a shed, as soon as it is removed from the stables, and is thus washed by the rains, which carry off all the salts, urine, and soluble juices, and form at the foot of the mass a rivulet of blackish fluid, which is either wholly evaporated, or lost in the ground. In proportion as fermentation advances, new soluble combinations are formed, so that all the nutritive and stimulating principles of the dung gradually disappear, till there remain only some weak portions of the manure, intermingled with stalks of straw, which have lost all their goodness." [Chaptal's Agricultural Chemistry, p. 55.]

A Valuable Hint.

"To remedy as much as possible an abuse so injurious to agriculture, it is necessary at least to dig a deep ditch, to receive all the juices which flow from the dunghill, in order that they may be used in the spring upon the corn or grass lands; or that they may be preserved to water the grass-lands with, after the first mowing. A large cask fitted upon a small cart and which can be filled by means of a hand pump, is sufficient for this purpose. Beneath the tap of a cask must be fitted a narrow chest about four feet long, with the bottom pierced with holes, through which the liquor may be scattered. This mode of watering, when used after mowing, produces wonderful effects upon the crop of the following year." [Ib.]

An Experiment.

In confirmation of the statement last quoted, the writer may be permitted to notice an experiment with liquid manure, made by himself during the past year. Some one hundred and fifty gallons of liquid were dipped, in the month of October, from an excavation beneath his horse-stable, and evenly distributed over a small area (perhaps twenty square rods) of old meadow land, the soil a stiff clay loam, on which but little grass had grown for four or five years. When that area was mowed, about the first of August last, it was judged to yield at the rate of at least three tons to the acre an increase of certainly not less than five to one, and attributable to no other assignable cause than that dressing of liquid manure, of which, too, a considerable portion must have been made up of water.

Management of our Stables.

From facts like the above, we should be quick to gather lessons of wisdom; not lessons of knowledge merely (for they may be profitless), but lessons of that practical wisdom, which not only comprehends and appreciates what is good, but employs the best means for its attainment. Let our stables receive a just share of attention, let the ground beneath them be so shaped, as to conduct the urine which falls from it, directly to the common reservoir in the yard; or let it be excavated in a proper form, and supplied with suitable absorbents; or let the floors be made tight, so that the urine can be taken up by the litter or conveyed by gutters to the yard; and there can be no question that at least one-third will be annually added to the value of our stock manures.

Where any of the improved machines for that purpose are in use, the expense of cutting the straw intended for litter will be more than repaid by the greater ease with which the floors may be cleaned, especially in winter, by the greater amount of liquid it will absorb, and by