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NEWCASTLE FARMER.

VOL. I.—NO. V. COBOURG, DEC. 1, 1846. TERMS.—2s. 6D. PER YEAR.

AGRICULTURAL EXCURSION

TO THE FARM OF MR. MECHI.

Report of the Deputation from the Maidstone Farmers' Club, to inspect the Farm of Mr. Mechi, at Tiptree-Hall, Essex.

The deputation arrived at Tiptree Hall at about nine o'clock on the morning of the 16th July, and were received by Mr. Mechi in the most cordial and friendly manner.

Mr. Mechi purchased Tiptree Hall Farm in 1843. It had been let previously for £150 per annum, when the produce was estimated at only £5 per acre. Mr. Mechi laid out in the purchase of the farm and its improvements (according to his letter of June 11th, 1844,) the following sums:—

Purchase of farm, 130 acres, .	£3,250	0	0
Draining, fencing, levelling, ditching, and roads, ...	2,200	0	0
Barn, stabling, tanks, sheds, yards, &c., ...	2,000	0	0
House and offices, ...	1,000	0	0
Machinery, implements, cooking apparatus, &c., ...	500	0	0
Manure, marl, &c.	500	0	0
	£9,450	0	0

The improvements of Mr. Mechi are thus described in his published "Letters on Agricultural Improvement" [Longman and Co.]:—

"1st. The perfect and permanent drainage of the land with stones and pipes, 4 yards apart, and 32 inches deep —between 80 and 90 miles of drains. 2nd. The entire removal of timber trees, which cannot profitably be grown in corn fields. 3rd. The removal of old, crooked, and unnecessary banks, fences & ditches. 4th. The cutting new parallel ditches and fences, so as to avoid short lands.— 5th. The inclosure of waste, and conversion of useless bog into good soil. 6th. The economising time and distance by new roads, arches, and more direct communications with the extremities of the farm. 7th. The erection of well-arranged farm-buildings, built of brick, iron, and slate, in a continuous range, excluding all cold winds and currents of air, but open to sunny warmth. 8th. The building a substantial and genteel residence, with all due requisites for domestic comfort and economy. 9th. The erection of an efficient thrashing machine, and needful apparatus for shaking the straw, dressing the corn, cutting chaff, bruising oats, &c., so constructed as not to injure the straw; avoiding, by its perfect action, that immense waste of grain visible in almost every truss of straw we examine. 10th. The avoidance of thatching and risk of weather, by ample barn room, with convenience for in-door horse labour at thrashing, &c., when not employable without, so as to have no idle days for man or beast. 11th. The saving of every pound and pint of manure, by a tank (90 feet long, 6 feet deep, 8 feet wide, with slated roof, facing the north, and with well and pump), into which is received the whole drainage from the farm yard and stables. 12th. The conveyance by iron gutters and pipes of every drop of water from the roofs of each building, so as in no manner to dilute the manure in yards. 13th. The perfect drainage of the foundations of the barn, and every building on the farm. 14th. A cooking-house to prepare food for cattle."

Mr. Mechi has removed 200 timber trees; 5,000 yards of fences; filled up a large number of crooked ditches, and dug straight ones. He has since estimated that if his drains had been laid down, as recommended by Mr. Parkes, the engineer, 4 ft. deep, instead of 30 inches, he should have saved £800, and drained his farm equally well, or better. We do not think that a tree or pollard exists on Mr. Mechi's farm, the former high banks have been levelled, and the immense quantity of earth which these contained has been either burned, or mixed with lime ashes, and turned over and over, before being returned to the fields as manure. All the drainage of the house, stables, cow-houses, and piggeries, are drained into the manure-pit, into which all the dung is carried. The distance is in no case farther to carry it, than to the centre of an ordinary farm-yard, and the labour of wheeling it there, being on a smooth road, is not one-fourth of that of wheeling it through a dung-yard. It has been said that Mr. Mechi has no yards. He has no use for yards, except for watering. All his food is given in the manger, and the only use he makes of the iron-horse-racks in his stable is for holding lumps of rock salt. All the buildings have gutters, which carry off every drop of rain-water. The granary is at the north end of the barn, over the horse-wheel, so that both litter and food are close at hand. The horses are fed on cut green tares and straw, and beans and oats crushed.

It is, however, whilst standing on the floor of the thrashing machine in the barn, that the spectator is most struck with the comprehensiveness and completeness of the internal arrangements, of which this is the centre. On one side is seen a large barn, with a level floor, so that several carts can be drawn into the bays; whilst at right angles with the barn is a spacious loft, nearly 100 feet long, to receive the straw. The thrashing machine is a very powerful one, driven by six horses, and the straw is submitted to the operation of three "shaking" cylinders before it leaves the machine (which it does in an unbroken state), so that scarcely a single grain can escape; below is the cleaning machine, and attached to the horse-wheel is a chaff-cutter, which cuts 28 trusses per hour, and a crushing, or rather bruising machine; and a turnip-cutter. All the roots are washed by a washing machine; being then cut, and steamed with chaff, bran, and meal.

The dung-pit is an excellent arrangement, and may be called the laboratory of the farm. Into this receptacle are carried *under* drains from every source of manure on the farm, so as to prevent its contact with the air as much as possible. In these dung-pits, which are perfectly sheltered from the sun and rain, and have a northern aspect, the dung is frequently turned in wet weather, and being nearly all short, it undergoes an incipient fermentation, and can be carried out in about three weeks.

Attached to the manure-pit is the liquid manure-tank, the contents of which are the very essence of the dung, and are prized and preserved accordingly. It is frequently thrown over the dung in the pits, and also carried on to the land in one of Crosskill's liquid manure carts. The great care which is taken to preserve this valuable substance, is one of the best points of Mr. Mechi's management.

The sheep yards are well drained, warm and airy; Mr. Mechi has found that brick paving does not answer as well as he expected, as the bricks absorb too much moisture. He therefore places in each yard a layer of chalk rubbish, which completely absorbs the moisture that is not carried off, and forms a compost highly suitable to the stiffest soil.

The piggeries are exceedingly comfortable, the ranging places being formed of iron hurdles, which freely admit the air and sun. There is no one feature of the farm more striking than the generally comfortable appearance of the animals. Indeed, it is difficult to imagine how any animal can fail to thrive in so well sheltered a place. Mr. Mechi fats a large number of young pigs on steamed swedes and corn, with a little cake. For this purpose, each of his yards is surrounded with a low lean-to against the walls.—

These sheds form capital places for pigs, when inclosed with iron hurdles; and fattening them in such favourable circumstances, is said to be as profitable as fattening any other stock.

Mr. Mechi's land, including some that he hires, consists of 170 acres, landlord's measure, which was ascertained to have been cropped in the following manner:

		Acres.
Cleared off.	Wheat	80
	Beans	25
	Clover	8
	Tares	6
	Rye	8
	Swedes	13
	Potatoes	5
	Mangold-wurzel	8
	Rye-grass	4
	Pasture	1
	Lucerne	2
	Green rye (succeeded by swedes)	4
	Mustard, and seeds, to plough in	3
	Winter tares, followed by cabbages, turnips, and mustard for green food	6

Mr. Mechi proposes to have half his land in wheat every year. He grows no oats, of which he calculates that he should more than lose in price that which he would gain in bulk, in comparison with wheat.

The eighty acres of wheat have cost on an average £1 per acre for manure, being dressed with from 2 cwt. to 3 cwt. of Ichaboe guano. In addition to this, a sack of salt is applied per acre to the lighter of the fields.

In the spring the wheats are thoroughly hoed by Garrett's horse-hoe, drawn by two or three horses, which penetrates the soil from three to four inches deep, and is done at half the cost of hand-hoeing. The hand-hoe is never used excepting between the plants. On the lighter soils the wheat is twice rolled in the spring, with Crosskill's clod-crusher, which effectually destroys the wireworm, and prevents the wheat from being laid. 17 acres of the best wheat on the farm have been partly dibbled by Newberry's dibbling machine, and partly dropped by Bentall's dropper, the quantity of seed sown being rather more than 3½ pecks. The remainder of the land has had put in from five to nine pecks per acre.

These pieces of wheat were admired by everybody, being fine in the straw and in the ear, and promising a very heavy yield.

As respects the proper quantity of seed, the deputation had an opportunity of seeing pieces sown with various quantities, and comparing them with each other. The decided opinion was that the crop was nowhere better than where 1 bushel of seed had been put in per acre, at about one foot in the row. In pieces lying side by side, one the produce of one bushel, and the next the produce of two bushels of seed, the preference was generally given to the piece sown with one bushel. An opportunity was also given of comparing the effects of Bentall's dropper with Newberry's dibbler from the same quantity of seed. The verdict was in favour of the dropper as to yield, the ear being rather finer; but it was considered that this superiority was not a sufficient compensation for not being able to cultivate between the rows, which could be done after the dibbler. Two stitches had been dibbled in with 2½ pecks of seed, but this was not deemed worthy of recommendation, because although the ears were exceeding fine and the plant had tillered greatly, it would not be fit to cut till probably a fortnight later than the other.

A curious instance of the capability of a bushel of seed to tiller sufficiently to cover rich land, was observable in the piece of wheat on the drained bog, which, although it had been flagged three times to check its luxuriance, was yet partially laid. Another portion of the wheat on this bog had been drilled with *two* bushels of seed, but this portion was entirely laid, the quantity of seed being evidently too much. Mr. Mechi is of opinion that three pecks would have been amply sufficient for this bog, as many as seventy stems having been counted fom one dibble-hole. He had also rolled his piece of wheat three times in dry weather in the spring, with the clod-crusher, to consolidate the loose earth and destroy the wire-worm. Mr. Mechi believed that all the bogs of Ireland might be profitably rendered productive by the means he has taken to reclaim this.

Mr. Mechi attributes the luxuriance of his crops, after draining, and subsoil ploughing, to his economical management of manures, of the liquid portion of which he can scarcely be said to lose any from his farmstead. His litter, being cut into chaff, absorbs the urine. The manure can be conveniently applied to the land within three weeks of being put into the dung-pit. He showed the deputation a field of wheat, which had borne wheat last year, but which had been well supplied with liquid manure in the spring. The yield promised at least an average crop, but the deputation are of opinion that this course cannot be successfully followed.

Mr. Mechi attributes the very superior cleanliness of his land to his subsoil ploughing, which, he says, eradicates many deep-rooted weeds, which would, after shallow ploughing, throw up new shoots. All Mr. Mechi's wheat is bagged. His clover is drilled in after his wheat has been hoed.

His root crops and green crops looked exceedingly well, and promised heavy crops. These are all drawn and consumed in the yards, either cleaned with cut straw for pigs, the dung of which Mr. Mechi prizes very highly, or by sheep, with the oil-cake, which is brought with the produce of some of the beans.

In preparing for his root crop, Mr. Mechi ploughs nine inches deep with Bentall's or Ransome's iron plough. This is followed by Smith's subsoil plough, which goes fourteen inches deeper. Drag harrows, with sixteen inches tines, Crosskill's clod-crusher, and the scarifier, completely pulverise the soil, and move it to a great depth.

The deputation would venture to recommend to Mr. Mechi a light specimen of the much-abused Kentish plough, which would cover his manure for his turnips better than the plough which they saw in use.

Mr. Mechi is cautious never to work his land in wet weather.

Mr. Mechi always scarifies his stubbles; and his beans are generally sown with a mixture of one quart of mustard, and two quarts of rape per acre, harrowed in, to keep the land covered. This is ploughed in green, for wheat. Mr. Mechi manures for his turnips with sulphuric acid and bones. The subsoil plough is also run down between the rows of his mangold-wurzel.

The deputation attribute Mr. Mechi's luxuriant crops, on a poor soil, as the greater part of the farm undoubtedly is, to deep thorough draining, subsoiling, the peculiar richness of his manure, his frequent cultivation between the rows, and (as in the case of Mr. Davis) avoiding to put more seed into the ground than its productive power can bring to perfection; to the perfectly free circulation of the sun and air over his whole farm; and to the absence of all trees and hedge-rows, which too frequently, in other places, impoverish the soil, and collect the seeds of weeds, and, with thatched buildings, harbour sparrows and other destructive birds. By these means Mr. Mechi says he has doubled the produce of his farm.

It was the opinion of the deputation that a boarded barn would have been better than a bricked one, supposing a large barn to have been necessary, with so powerful a thrashing machine; indeed, many were of opinion that those buildings and implements might serve all purposes of a farm twice the size of Tiptree-hall farm.

From the Farmers' Gazette.

TO THE YOUNG FARMERS OF IRELAND.

LETTER III.

My Friends,—We now come to consider the principal ingredients of the soil.

Alumine is a simple substance, found in the strong argillaceous clay, and often confounded with argyl, which, in a certain condition, is the clay used in pottery works. The name alumine has been given from that of the salt, which that substance yields, in other words alum. Except by a chemical process, alumine is not obtained in a pure state, being generally combined with other earthy substances, and metallic oxydes; it is white, without smell (which argyl has, when moistened by the breath,) and tasteless, though it causes a certain sensation on the tongue, to which it will stick like paste, from its power of absorbing moisture; yet, though of a greasy nature, it is not easily wrought by the hand of the potter, as is argyl, when it naturally contains a due proportion of sand. The

tendency of alumine, or argillaceous soils, as they are more generally termed, (because argyl, which I shall soon particularize more fully, contains so much alumine) or clay soils, as they are commonly called, to imbibe and hold moisture, is well known to you.

Silex, in its pure state, is quartz or flint, but powdered, and combined as it is with the other ingredients of the soil, it is a sandy substance, and the soil of which it forms a part is more or less silicious according as it contains more or less of silex. It is found in larger quantities, and more generally in the soil, than the other elements, in which respects alumine ranks next to it.

By the bounty of Providence *Silex*, which is indispensable to the support of all the grain crops, and grasses, more particularly, is in some measure a portion of every soil; yet, neither this nor any of the earths is fertile of itself alone, it must be always combined with others in order to sustain vegetable life in a state of health.

Lime is a most important ingredient, and is also found in almost every soil; the most fertile are those which contain it abundantly; it enters into the constitution of plants and into the organization of all animals which have *skeletons*, of whose frameworks it constitutes the bulk, in the form of bone-earth, called phosphate of lime.*

In Ireland, lime abounds in the state of rock and gravel and also in that of marl, which is a combination of lime and argyl, more or less calcareous according as the lime or clay prevails in it.

In England, and in the northern counties of Ireland, lime is found in the form of gypsum (sulphate of lime),† and abundantly in many districts of Great Britain.

Some gypsum analysed in Germany, has been found to contain 33 parts in 100 of lime, the remaining parts being sulphuric acid and *water* of chrystalization, like chalk, it may be burnt as limestone is calcined, but as calcination has not been found to alter its nature as a manure, it is useless to incur the trouble and expense of the operation. Gypsum is beneficial to clover, sainfoin, lucerne, and all grasses. It was found in the ashes of clover and rye grass by Sir H. Davy, who therefore concluded that it is an element necessary to their organization; but this appears to me unproved, because a plant may casually take up with its food matter with which it could dispense altogether, or do much better without. If the clovers and rye-grasses of Ireland, generally, and of most parts of Great Britain, absolutely required gypsum for their organization, how could there be such fine crops of them as we constantly see in soils entirely destitute of it?

But the chalk soils of England, by their remarkable suitableness to lucerne and sainfoin, and other plants of the same nature, prove that lime, in some form, is one of the chief elements of their food.

But lime, whether burnt, and mixed with the soil in a caustic state, or cold after having lost its caustic powers, or in the natural carbonate and mild state of marl or chalk, &c., must be reduced to a state of solution in the soil before it can be taken up by any plants.*

Magnesia is less frequently met with than those other substances just noticed, and it is never found in its pure state, being always mixed with other earths, and combined with acids.

It is supposed by some writers to be prejudicial to vegetation, but this is very doubtful; as we find it blended with other substances by HIM who makes nothing in vain, we may be sure that it has its uses, though we may not have distinguished them.

Of the four first earths, silex and alumine are the most marked in their qualities, and the most important.

There are also several mineral substances found in the soil, of which iron is the chief. United with alumine and silex, it forms argyl, and is the substance which chiefly gives the shades of colour to the soil, according as it is in the form of black or red rust, that is, according as it is *oxydized* in a low or high degree.

In large proportions it is injurious, but beneficial in the small quantities in which it is usually found. In the *excess* and highly oxydized state in which it is so commonly mixed with argillaceous clay beneath peat soil, which it tends to harden, (because water does not dissolve it in such state,) it is so injurious to plants as to poison the roots of trees when they enter into the soil which so largely contains it.

Sulphur is another important mineral ingredient, which is found in the cabbage tribe of plants, and in those which are distinguished by the term cruciforous.†

The last substance to be noticed is humus, (commonly called vegetable mould,) which though not properly an original earth, constitutes the richness of a soil. It is the earthy-looking fixed product of decayed vegetable and animal matter, and is most rich when it is chiefly composed of the latter, from which it receives nitrogen, sulphur, and phosphorous; old burial-grounds are full of it. The mould of old gardens shows by the blackness of its colour that it contains much of it.—Peat is chiefly composed of the remains of vegetable substances, in different degrees of decay.

Clay soils, on an average, are composed of nearly equal parts of pure argyl (of which the component parts are alumine, silex, and iron,) and sand; and as the sand is increased or diminished, the clay is comparatively loose or adhesive. If the proportion of sand be less than 40 parts in 100, where the argyl is 60, the soil is called an argillaceous clay; and if the sand does not exceed 20 per cent., the clay is stiff, unmanageable, and unproductive.

Generally the quality of land diminishes as the quantity of sand increases above the measure contained in a good barley loam, unless there be much lime or a good deal of humus in it.

But you will inquire what is a loam? A loam has been defined by Professor Kirwan to be a soil moderately cohesive, less so than clay, and more so than sand. Manure and cultivation have given to many clays or very sandy soils the nature of loams, but no art, at least without too much labour and expense, can convert a naturally stiff, cold clay into a rich loam, with sand as fine as meal blended perfectly with the clay, nor render a very sandy soil a fertile loam of high quality, by combining argyl with it, because no repetitions of ploughing and harrowing can blend them together as the Creator intermingles them; yet the deficiencies of either may be much corrected by intermixture with other substances.

The soils which may be considered loamy, are, according to Sir John Sinclair's arrangement, six in number; 1st, sandy; 2nd, gravelley; 3rd, clayey; 4th, calcareous; 5th, peaty; and 6th, that mixture of soil called hazel loam.

A sandy soil differs from a sandy loam in being always in a crumbling state; "whereas a sandy loam, owing to the clay that is mixed with it, will not crumble down suddenly of itself after wetness or drought."*

A shallow soil, if it abound in humus, is for *immediate* productiveness more beneficial than a deep one with little of it. The depth of *vegetable mould* (that which contains much humus) is the chief consideration for any man looking to a present crop; but, for ultimate benefit, if he tills it and manures it properly, a deep soil though at first infertile from wanting the elements of vegetable food, being impenetrable to the influence of the sun and air, is decidedly more desirable than a shallow one, however good its actual condition.

A thin gravelly soil not calcareous, is certainly most discouraging to the holder of it. The roundness of the stones permits moisture to evaporate quickly, and the water that filters through them carries away with it nutritious matter; but, on the other hand, such soil has the advantage of more quickly absorbing heat than a closer texture, and is, therefore, productive of quicker growth. Light porous soils have also the advantage of requiring but little labour, while stiff ones demand much. Besides, light, dry, and hungry soils, if they contain a sufficiency

* Phosphate of lime is the union of phosphorus and oxygen forming phosphoric acid, with calcium and oxygen forming lime.

† Similar in its composition to the phosphate of lime, being a compound of sulphur and oxygen (forming sulphuric acid) with calcium and oxygen forming lime.

* The distinct properties of caustic and mild lime I shall notice when I come to treat of manures.

† From the cross-like form of their flower.

* Brown on rural affairs.

of humus, are generally fit for turnips—the culture of which is so scant in Ireland—which, by pressing their whole weight upon a large circumference of space, do not require the firm hold in the ground for its roots (which extend widely) that is necessary for a heavy stalk of corn, which strains the cordage of its roots at every breath of wind; and, therefore, demands more cohesive ground.

Clayey loams, of moderate cohesiveness, are the most valuable, for they do not too readily part with moisture, which is necessary to vegetation, nor retain it obstinately. Humus, when once introduced, remains longer in them, and heat is more moderately and uniformly imparted to such soils, than to those in which sand or gravel prevail to excess.

Two very eminent agriculturists* described the soil of Ireland many years ago thus:—Throughout Roscommon, some parts of Galway, Clare, and Meath in particular, is the richest loam ever turned up with a plough. In the counties of Limerick, Tipperary, and Longford, there is another kind of rich land, consisting of a dark, friable, dry, sandy loam, which, *if kept clean*, would produce corn for many years in succession. Parts of the county of Cork are uncommonly fertile (so also are some parts of the adjoining county of Waterford); "and, upon the whole, Ireland may be considered as affording land of excellent quality."

One of those accurate observers concluded his report in these words—"You must examine into the soil before you can believe that a country which has so beggarly an appearance can be so rich and fertile.

There are some soils so full of the elements of fertility, like that of the golden vale of Limerick, that manures are almost needless for them. The humus is so evenly diffused through a deep bed of soil that nothing more is required than to turn up fresh portions of it, sow grain, and leave the rest to the dews of heaven and the other influences of the atmosphere. But we must often be content with three inches of vegetable mould, and always thankful for six or seven inches of it.

No care can so alter the texture of a soil as to render it of the high quality first described, but it is always in the farmers' power to bring up the subsoil and mix it with the soil, if it requires it; and no farmer would be suspected by any one acquainted in any degree with the nature of land and crops, of leaving untouched an undersoil of *lime*, when his upper soil demands it; yet I have good authority for saying, that a man may be so lazy or stupid as to disregard this treasure under his very feet.

Professor Kane, describing the soil of the great central plain of Ireland, as a deposit upon limestone "formed by the decomposition of the mountainous country," mentions, that although that soil may be actually mixed with limestone gravel, it is left barren for want of lime.

Many soils may be greatly improved by the simple labour of blending the upper and lower soils together with the spade or plough. When a farmer understands the wants of his soil, and has the remedial means at hand, he deserves to be poor if he will not make use of them.

The depth of shallow soils can be increased by raising portions of the undersoil; and clay soils can be mellowed by intermixture with the subsoil if it be of an opposite quality, and above all, by *thorough draining*, which, besides the other obvious advantages it occasions, renders them warmer.

Wet soils are always cold, and therefore unfriendly to vegetation; they cannot be heated, as Professor Kane has shown, *because the warmth will be absorbed in producing evaporation of water from the surface*, "as one may verify by holding a wet hand in the air, even before the sun, an impression of greater cold will be produced." It is wasteful to apply manures to undrained wet land.

You may often see on clay soil, which does not permit the rain to filter through it, silicious or calcareous sands, "the spoils of the field," (as they have been truly termed,)* at the bottom of the main furrows, "yet it is but the message to the eye of the farmer to tell him *by what he can see*, how much has gone, whose loss he cannot see. Sand is visible, but ammonia† is invisible. It is but the body that remains when the spirit is departed."

Drain perseveringly, and then instead of those vile weeds whose nature requires a wet soil, and which will hold possession of it too, in spite of you, unless you *do* drain, and that properly, you will have crops of different kinds that will greatly over-pay your expenditure of labour or money. After complete draining, loosen the soil thoroughly, to admit the free circulation of air and heat, and facilitate the intermixture of manures with the particles of the soil.

Next week we shall touch on manures; till then believe me, my young friends, yours faithfully,

MARTIN DOYLE.

* The Rev. Arthur Young and Mr. Wakefield.

* See Agricultural Gazette, April 11, 1846.

† An important element of nourishment to plants, which will be noticed in its proper place.

ON THE CULTIVATION OF THE RED CLOVER, AND THE CAUSES OF ITS FAILURE.

By ROBERT M'TURK, Esq. *of Hastings Hall, Dumfries-shire.*

[Premium, Medium Gold Medal.]

It is a fact well authenticated in the practice of Agriculture, that when the same variety of crop has been cultivated on the same field for a number of years consecutively, or even at short intervals, the land ceases to yield the same weight as in the first years of cultivation; and it is upon a knowledge of this fact that a systematic alteration of crops is regarded as essential to every system of good Husbandry.

When this important principle is neglected, deterioration in the soil invariably ensues, and then its previous fertility can only be restored by a greater expenditure of manure, and a stricter adherence to a well-arranged rotation for the future.

With regard to the cause and nature of the deterioration, much difference of opinion has, and does, even at the present time prevail; and men of the highest scientific attainments, who have devoted a portion of their time to its consideration, are nearly equally divided in opinion. The purely practical man readily assents to the truth of deterioration, by adopting such a rotation of crops, and system of cultivation, as he judges most likely, not only to prevent further deterioration, but to maintain the soil of his farm in a state of progressive improvement. Still, he is at a loss to assign a reason, in every respect satisfactory even to himself, as to the necessity for any particular succession of crops.

The red clover may, with propriety, be selected as the crop in which this deterioration has, for many years back, been more apparent than in any other. The observation however, is not confined to this crop, but is applicable to every other in general cultivation.

The question, then, as to the inducing cause of the deterioration in the soil assumes an aspect of more general importance than the deficiency of the clover crop alone; and its discussion can scarcely fail to throw some light on a subject which seems to be involved in mystery, perhaps the more from the speculative views entertained on it by men whose opinions on other subjects are entitled to the utmost respect. Before proceeding to adduce the results of our own experience it may not be out of place to state here, shortly but generally, the theories which have been advanced by two parties, who both think they see, in the views they entertain, a satisfactory explanation of a difficulty so intimately connected with the fruitfulness of the soil.

First, then, one party maintains that the necessity for an alteration of crops is owing to a function exercised by plants, by means of which they excrete or discharge from their roots such substances as they do not require, or cannot assimilate, and that the substances so excreted, deteriorate or unfit the soil, for a time, for the healthy growth of plants of the same variety; but although unfitted for the growth of plants of the same variety, others of a different kind will in these excretions, find the means of nourishment; and when appropriated by them, the soil will again be restored to its original fertility. Hence, the evident necessity for a rotation of crops.

Another cause for the diminished fertility of the soil is assigned, and, we think, more justly, by the other party that after repeated cultivation of the same variety

of plants, the soil, to a certain extent, becomes exhausted of those substances upon which those kind of plants chiefly depend for nourishment, and which are essential to the full development of their parts. Both views have their advocates, and been ably supported.

The experiments of Becquerel and Matiucci, with regard to the appearance of acetic acid in the soil, after the growth of barley, where it did not previously exist, may be regarded as the groundwork of the theory of radical excretions. It was first broached by Bergmann, and afterwards warmly supported by Decandolle, as sufficiently accounting for the necessity of a systematic rotation of crops in the practice of Agriculture.

The experiments of Macaire Princep, and the subsequent observations of Neitner, seem to have led them to adopt the same views. Liebig sees in the theory of Decandolle, and in the experiments of Macaire, a satisfactory explanation of the advantage (in an Agricultural point of view) arising from a regular alternation of crops. 'Of all the views,' says Liebig, 'which have been adopted regarding the cause of the favourable effects of the alternation of crops, that purposed by M. Decandolle deserves to be mentioned, as resting upon a firm basis.' In illustration of the same doctrine, he also says, 'in some neighbourhoods clover will not thrive till the sixth year, in others, not till the twelfth—flax, in the second or third year.'

All this depends upon the chemical nature of the soil; for it has been found by experience, that in those districts where the intervals at which the same plants can be cultivated with advantage are very long, the time cannot be shortened even by the use of the most powerful manures. The destruction of the peculiar excrement of one crop must be effected before the production of a new crop. The same views are also entertained by Macaire, Neitner, and other physiologists of distinction. Braconnet, by a series of experiments similar to those of Macaire, has arrived at a very different conclusion, and has also endeavoured to point out the fallacy by which Macaire, in his experiments, was misled; and, indeed, furnishes us with such an explanation of the phenomena exhibited by these experiments, as would seem to shew, that the root does not possess the power of excreting matter, or at all events, in sufficient quantity to affect the growth of plants of the same variety. So late as 1842, Mr. Gyde, Painswick, Gloucestershire, received a premium from the Highland and Agricultural Society for a paper on this very subject.

Mr. Gyde's experiments seem to have been conducted with as much attention to accuracy, as any of those to which we have previously alluded; and if they are conclusive as to the fact, that plants do possess the power of excreting matter from their roots, they are equally so, as to the innocuous nature of these substances, under the particular circumstances in which they are produced.

The following are Mr. Gyde's conclusions:—

1st, That most plants impart to water certain soluble substances or excretions.

2nd, That this is identical with the sap of the plants.

3rd, That plants have no power of selection, but take into their texture any solution offered to their roots; and that they have little or no power of again excreting it.

4th, That plants watered with their own excretions receive no injury whatever.

With regard to the second of these, we did not find that the excretions were soluble in water. On the contrary, we found that the matter which we regarded as an excretion, was quite insoluble for a time after it was excreted in water at the ordinary temperature of the soil; that it was of greater specific gravity than the water; and that it adhered for some days to the part of the root from which it was excreted, till it accumulated in sufficient abundance for its own weight to carry it to the bottom of the vessel. We also found, that this matter was formed in greater quantity on the newest part of the root, the older having ceased to excrete, but still continuing to infuse as much of its substance into the water, so as to impart its peculiar smell and flavour. But this will also happen if any portion of the stem or leaf of a plant is immersed in water, even when the roots are in another vessel. We found that the matter thus communicated to the water possessed more of the characteristics of the true sap, than the flocculent and insoluble matter excreted from the roots.

(To be continued.)

From the Farmer's Journal.

ON THE PREPARATION OF SEED AND THE TIME AND MANNER OF SOWING WHEAT & OATS.

Sir—From the well-known prolific qualities of wheat and oats, it is evident that even the thinnest sowing does not return a stalk for every grain sown, much less does it return *ten* or *twenty* stalks, according to the rate of tillering so clearly defined by hundreds of experiments made on that subject. If, then, there be not a return of one stalk for every grain sown, it is evident that some cause exists why it does not produce one or more stalks.

In my letter of the 7th instant, I showed that if 11½ pints of wheat were sown, and each grain were to produce but ten stalks, the produce would be over 70 bushels per acre. But in all the experiments referred to in that letter, the highest produce was but 31 grains for one grain sown, or less than the average produce of one stalk for one grain.

The disparity between the seed sown, the well-known tillering of a grain, and the return crop, led me to the conclusion that the seed in its different stages of decomposition was devoured by field mice, wire worm, or birds, as at the usual time of sowing wheat it is the only fresh food for them to prey on.

To prevent such destruction as much as I could, and knowing that salt was the enemy of such destroyers. I prepared a solution of rock salt and nitre in which to steep the seed before sowing. The solution was made from half a bushel of rock salt, half a pound of nitre, and 70 gallons of water. It buoyed up an egg on the surface of the solution.

I immersed in this solution 1 bushel of wheat at a time, and had it stirred up and skimmed repeatedly for two hours, taking away all the light wheat which rose to the top. The tub which contained the solution and seed wheat was then discharged into a wire sieve, which passed the liquid into a tub beneath, and let the seed drain through the sieve for a quarter of an hour. The seed was then dried with slacked lime, and thus prepared for the morning's sowing. A boy or girl 12 years old would supply prepared seed for 4 ploughs in the broadcast sowing, or for 20 boys dibbling.

After sowing the seed broadcast, thus prepared, in ten days the shoots appeared and in eighteen days the surface of the land appeared quite green. The colour and luxuriance of the crop continued throughout the winter, and on the 5th of March I turned in sheep to graze it down, and in July, I had by far the best crop of wheat within several miles of me.—The straw laid a little, but from the strength and abundance of straw it never fell to the ground. In the three succeeding years I steeped the wheat seed for four hours, and added one pound of ammonia to every bushel of slacked lime for drying, and reduced the quantity of seed per acre from *three* to two *bushels* per acre broadcast.

With seed steeped four hours, as above, and dried with lime and ammonia, I substituted the drill, for broadcast; but my first drill plough was rather of a homely kind, and for which *I could not now* get a prize from any Agricultural Society. It was nothing more than *six hoes*, so attached to the axletree of a one-horse cart, that in passing over the prepared land they made six triangular grooves in the land, three inches deep and *nine inches* asunder. In those grooves the prepared seed was dropped by boys and girls at six inches apart—two grains every six inches. Men with rakes came after the droppers of seed, and covered the seed, always raking lengthways on the drills. The quantity of seed sown this way did not exceed three pecks. The produce of straw was much less than in broadcast, but the produce of grain was an average of 14 bushels per acre greater—never less than 38 bushels per acre—sometimes, according to the quality of the soil and season, 48 to 56 bushels per acre; but that large produce never occurred till after being watered in April, between the drills, with a solution of salt and nitre, not letting the solution touch the grass, but lod-

ging it in the centre, between the drills. Such a watering—now called liquid manure—kept the land mellow and free of cracks during the following summer. It might be considered expensive to manure in this way; but I found the crops to pay well for that trouble. I cultivated no more land than I could find means to manage well.

The consideration which led me to adopt the drills at nine inches apart was this—I observed a very strong wheat-stalk in the month of July, and in its neighbourhood several puny stalks with thin, short heads. With a wooden skewer I cleared away the soil from the roots of the large and two small stalks.

On taking them up I measured the tap roots and lateral feeders, and found they measured—the large stalk tap root 5¾ inches; the lateral feeders or side roots 3⅝ inches at each side of the tap root; the length of the side roots declining as they descended towards the point of the tap root.

The small stalk tap root measured but 3¼ inches, and the longest side root measured but 2⅝ inches from the tap root; the length declining downwards. The longest side roots, in both cases, were nearest the surface of the soil.

From the examination of those stalks and roots, I drew the inference, whether just or unjust, that the land was not capable of supplying so many roots with food, but could be made to do so by a supply of liquid manure occasionally applied. I also drew the inference, that, at least in width apart of drills, the distance should be double the length of the longest lateral roots, or 7¼ inches, to prevent their interference with each other's food; but I should prefer *nine inches* apart, or *more*, to prevent that interference. It appears to me as necessary, in the economy of growing corn, to keep the feeding plants in their own places, and to their own supply of food, as it is in the fatting of animals, to keep them and their food separate from each other; otherwise, as in the stalks before alluded to, the stronger will eat all, and the weaker plants and beasts must perish.

In the preparation of oat-seed, I followed the same plan as with wheat; but as the specific gravity of oats is less than wheat, I dissolved only one peck of salt and four ounces of salt-petre in seventy gallons of water, so that the good heavy grains might sink, and the light bad seed swim, to be skimmed off. The time of steep was four hours, as for wheat, and I used lime, without ammonia for drying. With your permission, I shall return to this subject on some future occasion.

I am, Sir,

PHILO GEORGIUS.

ON THE COMPOSITION AND USE OF ARTIFICIAL MANURES.

Professor Johnson, at a meeting of the Highland Agricultural Society at Inverness, proceeded to explain the nature of what were called artificial manures, and to recommend their use. In regard to the nature of these manures, he might state to them that they might be arranged into two different classes—such as consisted of mineral only, and those which were composed of organic matter. He believed most of them were aware, that the mineral matter contained in the soil and the mineral matter contained in plants was composed of the same substances. There were a considerable number of different things of a mineral nature which went to the composition of plants. Some of the manures applied to the land consisted wholly of mineral matter. Amongst these, gypsum was much used, which was entirely a mineral manure, sulphuric acid and lime, common sulphate of soda, and other substances.—But there were mixtures of these substances, and these mixtures were now used very extensively. They were made up containing all the different mineral ingredients to which he had referred; and they were mixed on certain principles which he would explain. There was also a class of artificial manures, which contained what he might call combustible or organic matter, which could be consumed or burned. The manure used in fertilising ground, very frequently contained a portion of this organic matter, which was of great value in the growth of plants, and which he would by and by explain. Amongst these manures, so extensively used of late, was ox bones, which were composed of the following substances:—

Cartilage - - - -	33.3
Phosphate of lime - - -	57.1
——Magnesia - - -	2.0
Carbonate of lime - - -	3.9
Soda, with a little common salt,	3.4
	100.0

Now, 33 per cent. of this matter burned, while the rest was not consumable. Rape-dust was extensively used as manure, and contained a large proportion of organic matter, for when it was burned it left a residuum of 8 or 10 per cent. of mineral matter. Another substance—guano—which was the droppings of birds, was very different, and, when burned, left a large proportion of mineral matter, and was a very useful manure, if applied in proper time, in proper quantities, and under right conditions. These substances were more or less natural manures; but now they had received, in consequence of the researches made into the composition of plants, and soils, and minerals, a knowledge of what a given soil required to grow a given crop. They were, therefore, enabled to make artificial mixtures of what the soil required to grow a given crop, and he considered this most important in the present transition state of their Agriculture. The principle was this: if they took a given plant of any sort and burned it, there remained behind a certain quantity of mineral matter—sometimes more and sometimes less, according to the nature of the plant.—Grain contained a certain quantity of mineral matter, and the straw a great deal more. Now in proportion to the different quantities of that matter carried off by the crop was the exhaustion of the soil. One plant contained more of one substance, and another of another. The principle upon which the manufacture of the substances to be added to the soil for the purpose of giving it fertility proceeded, was to compose such a mixture as would give back or add to the soil in sufficient quantity the constituents of the crop which it was intended to raise, and it depended on a knowledge of the number of those substances, and the proportion in which they existed in different plants, that this could be effected. So much in regard to the nature of artificial manures, and the principle upon which they were manufactured, and upon which their virtue depended. Now, the next point was the recommendation to use them. Many excellent old Farmers told them there was nothing like farm-yard dung, and many young Farmers, and those who had learned most, would say the same thing. Now, all present knew that if they had plenty of well-prepared farm-yard dung, not exhausted of the liquid, which, in too many cases was allowed to run to waste, they need not be afraid of growing excellent crops from that alone. But if they were to look to the best husbandry in the island, and to ask how it was that those men were most prosperous, every one acquainted with the matter would give them the same answer as he would give. These men farmed the highest and added the most manure to their land. They had not been satisfied with returning to their land what they took out of it, but they had uniformly got manures from a distance for the purpose of supplying that additional quantity above what they could produce themselves, for bringing their land into its highest state of activity. He laid it down as a general rule, that in order to have their land in the highest state of fertility, they must add to it more manure than they could make upon their farms. The Agriculture of Great Britain, although most advanced in the world, was nevertheless capable of being promoted to a degree which it was very difficult to form any conception of. This was to be effected after adopting thorough-draining, subsoil-ploughing, and other mechanical means, for improving the soil by more skilful manuring than had been hitherto practised, which was essential to good farming. He recommended this high mode of farming, not only because it would be beneficial to the country, but because it would also be productive of greater profit to themselves. After referring to the improvements which were going on in the northern part of the island, on several estates, and on lands which had never before been cultivated—in one instance, at an expense of £10 an acre—he said, although they were exhibiting extraordinary perseverance, industry, and skill, in improving the soil, it

was only by the use of those manures that they would be able to make it produce the largest crops at the least possible expense. After some observations as to the capabilities of every kind of land to produce, with proper management a profitable crop, and to the propriety of manure being applied only where it was wanted, he referred to an experiment made by the Rev. Mr. Huxtable of Dorsetshire, in raising a crop of turnips on a soil composed almost entirely of chalk. He made a mixture of the mineral substances, which went to the composition of turnips, but instead of sowing it broadcast, or placing it along the top of the whole drill, he got children to go along with bags of this substance, and to place a little of it at the distance of every twelve inches, on which three or four seeds were placed, and the result was, that he got a crop of twenty tons an acre of most magnificent turnips. In this experiment a curious circumstance was to be observed, namely, that wherever the seeds were put in where there was no manure put, the turnips got to the size of an egg, but no more. With such skilful treatment as this he believed their most barren soils might be made to pay all the expense of cultivation and leave a profit besides.

OBSERVATIONS ON THE USE AND BENEFITS OF STRAW AS FOOD FOR CATTLE.

When cattle are fed with straw it should not be given to them too long or entire, it being more agreeable, as well as more easily digested, when cut very short. In Spain, the horses which are fed upon straw bruised and cut very short, mixed with barley, would not keep in full vigour were it not much divided. It is also an excellent food when mixed with pounded seeds, meal or flour, roots, &c., such as boiled carrots, turnips, or potatoes, hashed oak-leaves, hay, or any other kind of fodder, especially in its natural state, when the season permits. Straw, in its natural condition, containing less nutritious matter than hay, it is necessary to make up its deficiency in this respect by artificial means, or by the addition of other substances containing an excess of nutrition. Experience apprises us that almost all other vegetable substances are capable of receiving modifications and combinations, creating or developing in them nutritious qualities which, without such preparations, exist only in a feeble degree. These substances are more or less developed, according to the degree of elaboration which they receive. It is for this purpose that nature has multiplied the stomachs in the herbiverous animals, that, by means of successive elaborations, the vegetables they eat, whether fresh or in the dry state, may, in being decomposed, undergo elementary combinations, fitting them for digestion and nutrition. In the usual order of the natural functions, the animal assimilates but a small part of the alimentary matters which really exist in the food which it takes. This fact is proved by the circumstance, that the excrements of animals using succulent food, or which are put to fatten, produce a more fertilising manure, on account of their containing a larger quantity of substantial parts. Bruised or pounded seeds are more nutritious than when left whole; bread more than flour; fermented legumes more than those unfermented; boiled roots, or rather substances, more than those which are raw; and if we push our trials further, we shall find that old linen, wood, or straw, when submitted to certain chemical preparations, are capable of producing sugar, or at least syrup, incomparably more nutritious than the matter of which it is formed. All the organic substances from the vegetable kingdom, however juiceless they may appear to us, are capable of being converted into food; and a day will no doubt arrive, when chemistry will solve this great problem. But in our present state of knowledge, what is the preparation that straw should be made to undergo, to render it more nutritious? It consists of softening and modifying its organisation, by subjecting it to boiling, and thus making it pass, as it were, the process of a first digestion. The operation is neither difficult nor expensive. All that is necessary, is to construct cisterns or reservoirs of mason work, lined with good cement. A trap-door is made in the upper part for introducing the chopped straw, and in the lower part another by which it may be withdrawn. A furnace, placed beside it is furnished with a kettle, which, by means of a tube, causes the steam to be conveyed into the reservoir. The straw, thus prepared, is distributed warm to the cattle, after being mixed with various other substances. Some of these may even be prepared with the straw. This apparatus will also serve for boiling potatoes, beet-root, &c., intended for the food of hogs and poultry. It may perhaps be asked, what are the kinds of straw that afford most nourishment to cattle? Oat straw appears to be the best of the cereal kinds; then that of barley, wheat, and rye; but pea straw, and that of the leguminous plants in general, is more substantial. It is also of importance to take into consideration the greatest relative produce of each kind of straw. The same piece of ground will yield about the following proportions:—Wheat straw, 16; pea straw, 13: oat straw and barley straw, 10. We have next to determine what are the other alimentary substances which ought to be mixed with straw, especially when it is to be given to working animals, or for the purpose of producing milk. One of the most nutritious preparations is the mixture of straw with cakes of oleaginous seeds reduced to powder. An American farmer obtained an excellent fattening substance for his oxen, by mixing a decoction of lint-flower, straw heated in boiling water, colza powder, and oatmeal, the whole seasoned with a little salt. In this country, a jelly used for the same purpose has been made of linseed boiled for two hours, after being left to macerate in water for four hours. It is mixed with straw or wheat chaff. Several experiments of this kind, repeated in America, have afforded successful results in the fattening of cattle. Linseed has been boiled in a quantity of water sufficient to form a jelly of moderate consistence: the boiling should be continued one hour and a half, and it is necessary to stir the mass frequently, that the seed be not burned. To two measures of linseed there are added three of bruised barley; and when the whole is well boiled, it is mixed with four measures of chopped straw, and given warm to the animals that are to be fattened. Should they refuse this food, from not being accustomed to it, they are readily habituated to it by mixing a little molasses with it, and giving them but a small quantity at first. Cattle may also be fattened by mixing straw, while still moist and warm, with meal or flour, such as barley, wheat, peas, oats, maize, &c., or with bruised seeds. It is proved that seed given entire produces the loss of one-tenth part in nutrition, for a tenth is voided by the animals without undergoing any change.

From the Scottish Farmer.

DISEASE OF THE POTATO.

Stradbally Hall, Sept. 1, 1840.

Sir,—The disease of the potato, so much to be regretted, is now too well known to admit of any hope of renovation by any of the former methods of cultivation; and if it be thought prudent ever to try them as a main crop again, I consider it behoves every man to exert his skill to try, by every means in his power, to preserve at least as much for seed as not to lose them altogether. I am therefore induced to submit the following plan, if you consider it worth a place in your truly-valuable paper:—

I have been a good many years acquainted with the greening or sun-burning of the potatoes that I intended for early seed; a practice which may infallibly be relied upon as a sure preventative against any failure in their vegetation, however immature when first exposed to the action of the weather. As far as I can see or learn this season, immaturity in the crop is every where to be met with, even in the earliest planted portions. From my long experience in the above for early planting, I am now induced to try it more extensively; and I am at present taking the mould away with turnip-hoes; of course there may be quicker methods by means of the plough. This plan I am adopting previous to exposing them altogether. I think they may be dug out early this month.

The practicability of this method may be questioned by many; however, as the malady is fast progressing, and public attention in a great measure turned from the hope of success in their future cultivation, it would be advisable for every man

who wishes to preserve seed for the ensuing year, to try a portion of his crop in the above way; the labour is not much, and the experiment would be worth a trial. I have often found in the greening of potatoes that a slight frost had no bad effect on them; however, care might be taken until they are partly greened.

Yours &c., EDWARD MOLLOY.

[We would be disposed, did time and space permit, to add at some length our own opinions to those so well expressed by our very intelligent correspondent, Mr. Molloy, whom we hope often to hear from.]

Newcastle Farmer.

COBOURG, DECEMBER 1, 1846

The season has now arrived when the Canadian Farmer has a comparative respite from labour, at least from such unceasing application as seed-time and harvest imperatively demand; his time of relaxation is also extended by the shortness of the days, and he has his lengthened evenings of leisure for improving his mind, collecting useful information, and maturing his plans for the arrangement and disposition of his crops for the ensuing season. We would call the attention of the Farmers to a consideration of the propriety of purchasing and applying some of the portable manures now in use, if only as experiment, and to make himself acquainted with their office and action, the quantity required, mode of application, and the proper time and season, together with the preparatory measures (if any) to be adopted; this information is at the present time easy of attainment from the various works on Agriculture now in circulation,—and moreover, reading is the cheapest and most pleasurable amusement to be found, and its effects the most permanent. The foremost among the manures referred to are bones, and guano in its various qualities and modifications, for doubtless a great proportion sold under that name is much adulterated, and some are merely chemical preparations, professing to contain all the really valuable matter to be found in the genuine article. Two seasons since we procured from Toronto a small portion of the Lobos guano, and applied it coarsely powdered and mixed with double its bulk of plaster, to a few rows of turnips in the midst of a patch, and the effect was most extraordinary, in six days those rows were full 3 inches higher than the remainder, at the same time, we procured in Cobourg an article sold as guano, *(totally unlike the other,)* and applied it to turnips, cabbage, and corn, without any visible effect on either. It will be necessary to consider all these preparations rather as stimulants than fertilisers, or at least as possessing more present stimulating, than permanently fertilising qualities, and as such, particularly adapted to such crops as require a rapid growth in their first stage, to place them beyond the reach of any evil to which they are constitutionally liable, or to save them from the attacks of any insect which usually makes its appearance at their earliest and most tender state. Guano and bones, while they rank among the most powerful stimulants and afford results the most satisfactory, need to be used with much caution, and where so used, seldom fail in producing a remunerating crop. Some crops of turnips have been nearly or entirely lost in using guano, by bringing it into immediate contact with the seed, and by applying it as a top dressing, when the ground and the atmosphere have been too dry to make it available, and bones, the most conveniently portable of all manures, have also failed, from not being reduced sufficiently small before being applied, and in consequence the stimulus has not come into action sufficiently early to carry the plant (the turnip) through its first stage into the rough leaf; in the one case the hot pungent effects of the one manure was prejudicial, and in the other it was inert and powerless at a time when (as a stimulant) it was most needed.

It will be observed that this description of manure are especially applicable to hoe crops, and particularly the turnip; and it will be for the Canadian farmer to consider how far they may be cultivated by him at a profit; the deficiency of income in consequence of the reduced price of wheat, which will eventually take place, must be made up from some other source, and although our market here for fat cattle is of a most discouraging character, still we believe it possible to raise and fat beef for the English market at a remunerating price, at the same time, the use of turnips will dispense with a corresponding quantity of hay and oats, which will be generally saleable in the towns and villages, the Stock, too, will be wintered in a far superior manner, less loss by deaths will occur, and no necessity exist (in consequence of empty barns) for turning out the cattle so early in the Spring, as to consume in April the food of June.

For the Newcastle Farmer.

Mr. Editor,—The subject of good farming has been ably brought before the public by a NORTHUMBERLAND FARMER; but he has left out one point of good husbandry, in not having given his brother farmers information as to where the best *implements* of farming could be had. It is an admitted fact, that without good implements we cannot expect good crops. In order, therefore, to procure good implements we must encourage good home mechanics by making use of their inventions and improvements, instead of running to the States for articles of an inferior description. At present this is so much the case that few of our mechanics will endeavour to secure success by the necessary application to ensure it.

The great improvements in Ploughs, Harrows, horse rakes, &c. which we have of late years witnessed, afford a guarantee for like success in other branches; I would also notice the improvement in Reaping machines, which cut so much faster than by hand, that I wonder they are not more generally used. But of all modern improvements, give me the Thrashing Machine; the kind I prefer is Pitt's. If any of my brother farmers are in want of one that will please them in every respect, they had better get one of them, to be procured at Mr. J. Helm's, Cobourg. I tried one of his make, and consider it equal to any that I ever saw. I would advise every one that wants one, to call and see him before they go elsewhere. I also thrashed for several of our neighbours, and they have allowed me to insert their names, as being quite satisfied with the work. Some of the names are as follows:

JOHN JOPLING,
JAMES JACKSON,
JOHN WEBSTER.

Your's very truly,
RALPH WADE.

Hamilton, Nov. 25, 1846.

EXPORTS OF CATTLE FROM HOLLAND.—Leeuwarden, Oct. 1.—As a proof how important the exportation of cattle to England from this province is, we can state the following particulars.—From the 1st of January to the 15th September, 1846, there were exported from Harlingen to London, 26 horses, 4,730 cows and oxen, 224 calves, 13,264 sheep and lambs, and 127 pigs.—*Farmers' Journal.*

TOWNSHIP CLUB MEETING.

The Township Club Meeting for December, will be held at the Town Hall, on Saturday next the 5th inst., at the usual hour.

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