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THE
CANADIAN AGRICULTURAL JOURNAL.

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No. 11.

In our last we stated our conviction of the necessity that existed, that the cost of freight from Quebec to England should be greatly reduced, or that we should give up altogether the idea of raising produce here for exportation. We should also enquire whether the freights upon our own Canadian water communications are moderate as they should be. If the charges upon our own waters are unreasonably high, they will be as injurious to the farmer, diminishing the value of his produce nearly as much as high freight from Quebec would do. We cannot certainly complain much of high freights from Quebec, if the freights upon our own waters are immoderately high. It may be replied that these waters are free to competition, but however this may be, there are means in the power of merchants and forwarders, by which freights are kept up at a high rate upon the Canadian waters. Every man who wishes that we should retain the carrying trade, should be anxious that we should be able to offer the inducement of cheapness of freight, which alone can secure it. It is not very reasonable of us Canadians to leave all the obligations of cheap freight upon the English shipowner. It is our duty that we make no over charges on the transit of foreign or Canadian produce to the shipping ports. Private any individual interest must give way, if desirable that the public and general interests of this province and of the Empire should be promoted. If the carrying trade will be lost to Canada, it will be altogether the fault of those who are the carriers both on the Canadian waters, and on the Atlantic by their desire of exorbitant and unreasonable gain.

We cannot understand why an individual in this Province would advocate a free admission of foreign productions into this country for exportation, and at the same time desire to maintain the English Navigation Laws in full force. There is an inconsistency in such conduct that is unaccountable to us, and a manifest injustice to the Canadian producer for exportation, to allow foreign productions of all descriptions to crowd in upon them and give them only limited means of exporting either their own or this foreign productions. We never would be the advocate of the

swEEPING changes that have been lately introduced, but now that they are to be fixed upon us, we cannot shut our eyes upon the necessity that exists for a full and perfect free trade as well in all products, and merchandize to be carried, as in the ships, that are to carry them. Forwarders and ship owners may be very much opposed to the Canadian Agricultural Protection Bill, because it may have the effect of diminishing the quantity of freight, and the amount of their large profits. They must be resolved not to see, who cannot perceive the tendency of the laws that would admit the free and unlimited importation of foreign productions the same exactly as those raised in Canada for exportation, and allow only a protected shipping to carry these productions. There cannot be a doubt that such a state of the law would seriously diminish the value of the Canadian farmer's product—and we have sufficient confidence in the justice of the Imperial Government to believe that our circumstances shall obtain full consideration, and our interests receive all reasonable protection, or at least, that we shall not be subjected to the effects of free trade on one side, and a strictly protected monopoly on the other. We have now water communication far from the sea near one thousand miles into the country, on the grandest scale of any fresh water communication on earth, and if we desire that they should be fully employed, we can only make them so, by cheapness, safety, and expedition. Every means should be promptly adopted to give as much security as possible in the passage of ships, &c. to the open sea, to give us even a chance of the carrying trade. According to our own humble views, Canada can only prosper under the encouragement of protection, or with a full, free, and unrestricted trade. All the political economists and free traders that ever existed cannot point out any other means to give a fair chance of prosperity. No half measures will answer. Let us have either the one or the other entire and perfect.

—————

Mr. Thomas Mantoh, Superintendent on the Stockton and Darlington sowed in his garden a single potato, in a handful of Guano, and it has produced sixty two good and sound potatoes.

AN AGRICULTURAL EXCURSION TO THE FARMS OF MR. DAVIS AND MR. MECHE.

REPORT OF THE FARM OF MR. DAVIS.

The deputation joined Mr. Davis in Spring Park Farm, on the morning of the 17th July, who evinced the most courteous attention—inviting and answering every inquiry.

For the use of those members who may not recollect the particulars of Mr. Davis's rotation and general system, it is here repeated from the report of the deputation who visited his farms last year:—

- 1st year...Rye and tares, for green meat and feeding off with sheep, in April, May, June, and July; and followed by
 - " Mangel-wurzel.....
 - " Swedes.....
 - " Cabbages.....
 - " Turnips.....
 } With a liberal dressing of farm-yard dung.
- 2nd year...Oats or barley, sown with clover.
- 3rd year...Clover twice mown for hay.
- 4th year...Beans or peas...
 - { The beans have turnips drilled between the rows, and which came into feed in September and October.
- 5th year. .Wheat.

The quantities and periods at which he sows, are the following:—

- Rye1½ bushels ...In August and September.
- Tares1¼ " { In three sowings, in August, September, and October,
- Mangel-wurzel 6lb.....In April.
- Swedes.....1 quartIn May,
- Turnips1 "In July,
- Cabbages.....1 every 3 feet In June.
- Oats.....7 pecks..... { In January, February, and March.
- Barley.....6 " { In January, February, March and April.
- Wheat3 "In September, and October.
- Peas.....8 " { In December, January, and February.
- Beans8 "In September and October.

Mr. Davis's rye and tares for green-feeding are sown in rows at nine inches apart, all his white crops at twelve inches, his pulse at twenty-seven inches, as are also his root-crops and cabbages on the ridge.

The principles on which Mr. Davis professes to farm, are the following:—

1. Never to be contented until all your land has been well trenched and turned over by the plough a foot in depth, nor until,
 1. The wet land be made dry by deep draining; and consider no land effectually drained unless the drains be four feet in depth; that is to say unless the water level be so far below the surface that corn shall have at least a foot of dry earth to root in, unaffected by capillary attraction of moisture from below, and the chill that water nearer to the surface causes; this can be done only by having the drains four feet from the surface, and within forty feet of each other.
 2. For sowing of spring corn consider the season commences with the new year, and having no other fear than that of being too late. When the ground is dry enough, and fine enough, the sooner it is in the better; it will yield more, and the liability to blight, or to be beaten down, will be less.
 3. In sowing drill or dibble all, and have the rows not higher than a foot between them; so as to admit of hoeing either by horse or hand, and handweeding at late periods.
 4. Hoe and weed well all corn; let not a weed in flower be seen amongst it; ever recollecting that weeds

occupy space, and consume nutriment, displacing corn and robbing the land.

6. Never sow two crops of one genus in succession; legumes or pulse may follow cereal grain, and cereal grain may follow legumes or pulse; but never cereal after cereal, nor pulse after pulse. Recollect rye-grass is a cereal plant, and unsuits the land for white straw corn.

7. In apportioning the amount of seed per acre, do not lose sight of the bad consequences that must ensue if too much be sown. Bear in mind, if so much be sown as to produce more plants at first than the space will afterwards allow to attain maturity, the latter growth of the whole will be impeded, and a diseased stage will commence as soon as the plants cover the ground, and remain till harvest.

8. Manure should be applied only to green or cattle-crops, and never to corn; by giving it to the former, the earth derives the advantage of the extra dressing that the extra growth returns; but when applied to corn, the earth is so much more exhausted by the extra growth of straw, and frequently, too, the grain is thereby positively injured by being beat down and blighted in the straw, that it always is made more hazardous by dressing.

9. Were farmers to buy all their manures, they would find that the cost of maintaining their land, in fair heart would be about £1 per acre, per annum. This quantity of dressing, every farm, in fair productive cultivation, would supply of itself, if a proper use and economy be made of its material to form manure, and a due care taken of it afterwards; but from misapplication and waste of the straw and from negligence in the preservation of the dung and urine, at least half is lost, and the arable land of England may thus be said to be prejudiced to at least 10s per acre.

10. Were no other injury done to the crops by trees and edges in small inclosures than that which arises from their mischievous shade and shelter, it would be equivalent to the ordinary rent of such fields; but the farmer sustains a further loss in the additional time occupied in its tillage by the more frequent stoppages and turns they cause, and by the encouragement to idleness in the men their cover affords. I believe arable fields with large hedges and hedgerow timber round them, whose dimensions are under eight acres, are seldom or ever worth a farmer's cultivations, and large districts of enclosed land of far better quality, ruinous to the occupiers; and I have not a doubt that to the difference in the size of the fields this may be principally, if not entirely traced.

The deputation visited every field on the farm, and give the following description of what they saw, in a different order from the course over which they passed, so that other persons visiting the farm may more easily find, and indemnify the respective field visited.

The following is the history of Spring Park, Farm as derived from Mr. Davis by the deputation;—

Spring Park Farm, when first tenanted by Mr. Davis, had been seven months out of cultivation, and from 1808 to 1833 had always been in the hands of wealthy overseers; the late Mr. John Smith was fond of telling that, when he bought Spring Park, then comprising about 600 acres, he found a tenant on it, whose rent was £66 per annum; that after two years the tenant failed and he lost his rent. From that time to 1833 it was never let. Since Mr. Davis has rented it, he has drained nearly the whole four feet deep; he has also trenched it fifteen inches deep, taking out many hundred loads of conglomerate gravel that were broken up by a plough made on purpose. The result of this is that he grows at least three times as

much produce as formerly, and keeps five times the quantity of stock; the seasons are far kinder, and the land admits of winter feeding with sheep and early sowing. The name of this farm was formerly "cold harbour." It was then reckoned the coldest spot upon the neighbourhood, and consisted principally of a wild heath, affording excellent snipe shooting in the winter; and, as a neighbour used humorously to describe it, finding keep in the summer, for a lark an acre. The late Mr. Maberly, when he bought it, not liking the name, re-christened it Spring Park, probably so designating it from the quantity of water springing up upon it; but deep draining and high cultivation have strangely changed it. The forward state of the crops show that it can no longer fairly be called "Cold Harbour," and latterly the springs have been diminishing, till at least half of them have stopped altogether and corn now waves where heath alone formerly grew. Still no farmer will envy Mr. Davis his possession of such a soil. Much has been done, probably all that art can do, to improve it, but man cannot change gravel or sand: by draining he may make it dry, and by trenching he may multiply the space for roots to range in, and derive nutriment from; but a gravel or a sand unlike clay, or chalk, or mould, admits of no further change, and to the last, must ever be a hungry, uncertain bed of corn; a fast consumer of nutriment, much dependant for seasons, and requiring summer rains, for maintaining continuously its vegetating powers in May and June.

On entering Spring Park Farm, the deputation first saw a rye gratten of about eighteen acres which appeared, from the stubble, to have grown a good crop, and which was now having manure ploughed in for turnips. The manure had been carted out between the shocks of rye. These had been carried on the previous day, and it was calculated that the turnip seed would again be in the land, about three weeks of beginning to cut the rye. The soil was an exceedingly poor, pebbly, beach gravel, and such as without subsoil ploughing, careful cultivation could never have been expected to grow either wheat or turnips. The whole of this piece of rye, according to Mr. Davis's system ought to have been fed off in the spring, and succeeded by mangel wurzel, and a part of it had been so treated. The green crops had grown so rapidly, however, through the mild winter, and the early spring and the demand for sheep had been so great, that Mr. Davis had allowed the rye to run to seed, giving the land an extra coat of manure to compensate for its different treatment from the other. The mangel-wurzel plant, where the rye had been fed (excepting in a small holler, which had formerly been an osier bed) was, considering the soil, exceedingly good.

A field of similarly gravelly soil, of about twenty acres, next presented itself; which had borne an excellent crop of peas. These had been carried, and was afterwards seen in good condition, in the stacks and barns at the homestead. These peas were so well podded as to have been considered a good crop on average land and in ordinary seasons; but in the present season, peas have failed universally, and the appearance of so fine a crop here excited much attention, Mr. Davis attributed his success principally to his having put in his seed before Christmas, and thus enabled the plants to get well into bloom before the drought came. Mr. Davis considers that early sowing is also a complete protection against the dolphin which he says never attacks his crops.

On the left of the carriage road was a field of twelve acres, now bearing a crop of buck wheat, which had been sown at the end of May, after cow-grass mown twice last year, and fed off last spring. This place

according to Mr. Davis's regular system, should have been put in with beans last September.

The adjoining field is a tenacious clay (but nothing like the weald of Kent clay in stiffness), in wheat, which, though it must have promised a much heavier crop previously to the storm which had beaten it down was still a good crop. The effect of draining was singularly perceptible. Mr. Davis had drained four feet deep, and at a considerable distance apart. That portion of the wheat over the drains, and for some distance on each side of the drains, was at least six inches higher than in the land midway, between the drains, and the ears were proportionably better. Mr. Davis had put the drains at so great a distance between by way of experiment, and now intends to put another drain between each of those already laid down.

The adjoining field bore a crop of beans, just cut, with young turnips between the rows. This crop of beans is almost a remarkable exception to the almost general failure of the crop the haulm being abundantly podded, and the crop a large one. The turnips there did not appear to have taken so well as in some other fields.

Adjoining to this a field of Clover, now luxuriant with a second growth, which looked remarkably well.

On the upper side of the road, is a field of about fourteen acres, of a rather tenacious clay, which had been in tares, the remaining portion of which was now being consumed. A part of this field had been sown with turnips on the ridge, which showed a promising plant. The remainder of the field, however, had broken up too dry to allow the rest of the turnips being sown, and was waiting for rain.

Next adjoining to this field were about fourteen acres of oats, which promised to be a very superior crop.

The next field comprising about 17 acres; was in white wheat, apparently the "Chidman white," which was estimated at a very high produce, and is of the finest quality, this piece was a very striking instance of the success of thin sowing.

Below this is a field of eight acres, bearing a very luxuriant crop of clover; and adjoining to this, about seven acres of beans, an excellent crop for the season; the turnips between which were a remarkably good plant.

Next to the beans is a gravelly field of very bad quality, consisting of about twelve acres in oats; and although the dry season had been very much against them, still the crop promised to yield a very fair average.

On the opposite side of the road, is another hungry gravelly field of twenty-four acres, which had borne a good crop of peas, and which were afterwards inspected in the stack-yard. The advantages of Mr. Davis's system of early and thin sowing and deep ploughing, was fully manifested in the yield, the peas being well podded.

Above this is a field of thirteen acres, of a second growth of red clover, on a hungry, sandy soil showing an excellent plant, which appears to be the case with all Mr. Davis's clover of the present year, probably in consequence of his deep culture.

Adjoining the clover is a field bounded by the wood of about fourteen acres of similar soil, in barley, which promises an average crop, although partially suffering from drought and from rabbits.

Adjoining to this are about fifteen acres of a soil almost wholly composed of white sand, and which probably never would have been sown with wheat at all by any body but Mr. Davis. A sand pit was opened a few yards from the wheat plants; which offered a good

opportunity of inspecting the soil, which consists of alternate layers of white and red sand, and gravel, to the bottom of the pit. So springy was the sand at about five feet from the surface, although near the top of the hill, that the sand-diggers had dug the sand in squares about four feet deeper, and had scarcely finished each square before the excavation had become spit deep in water. This 15 acre piece had been once ploughed after peas, and drilled with wheat a foot apart Mr. Davis had of course calculated on a small yield, but the crop was more than might have been expected on such a wretched soil.

A singular instance of the tendency of wheat to tiller out, till it has furnished as many ears as the soil can bear, was witnessed on walking through this poor piece of wheat into the adjoining field of wheat below where the soil became gradually better. Although both the straw and the ears were few and far between on the upper piece, on entering the lower piece, the roots had tillered out, and had become so studded with fine ears as to strike every person present. The getting of even a slight crop off such a piece of poor land, is evidently more difficult than getting double the quantity from ordinary land.

The stack-yard contained already two stacks of clover, three stacks of peas, a double bayed barn, and two bays of the other barns filled with peas, and the remainder holding the rye.

Mr. Davis used the Kentish plough, which he says is the best implement he ever used, for deep ploughing.

The deputation visited, and have now described, every field on the farm, in order that it might not be said that they had not seen the whole, and that their report was consequently inaccurate. They have also preferred making their most detailed report on the worst farm under Mr. Davis's system, as affording the severest test of its merits; and feel bound in fairness to bear testimony to that gentleman's great success in its application.

The most conspicuous points of success in Mr. Davis's system appear to be:—

1st. The raising of superior crops from inferior land. Indeed many of the deputation, who had not visited the farm before, were much surprised at the contrast between the land and the crops. The farm had evidently been intended, at some time or other, to be converted into ornamental property, clumps, and belts of trees having been planted in different places; but although some of the firs and other trees had probably been thirty years in the ground they were scarcely long enough for hop poles, having apparently been unable to pierce through the concrete mass of gravel and sand which forms the subsoil.

2nd. The absence of fallows; every field on the farm being covered with as good a crop as its soil seemed capable of bearing. Mr. Davis's rotation appears to be one that keeps the land in a constantly improving state. It will be seen that that gentleman obtains by it twelve corn crops within twenty years, whilst under the Norfolk system only ten corn crops are gained within the same period; the latter rotation also appearing, from its less-varied character, to be a more exhaustive one than Mr. Davis's.

3rd. The general cleanness of the land; which reflects much credit on Mr. Davis, as the soil is of a character generally much subject to weeds, if not well cultivated.

4th. The absence of a single failure; not a crop being below what the soil might have been considered capable of producing, and very many being above what anybody might have estimated as its

maximum power of fertility, particularly after so dry a summer.

5th. The general self-supporting character of Mr. Davis's system; it having been carried out by him before the introduction of the use of artificial manures, and being entirely independent of them; Mr. Davis's plan being to sell his hay, for which the position of his farm, enables him to procure the highest price and to lay out the money in oil cake for feeding off his green and root crops.

Mr. Davis only manures once in five years, and it was the opinion of some of the deputation that although Mr. Davis does generally get a good crop of swedes and other root crops, yet that these would be forwarded and benefited by a little guano.

The deputation was accompanied by Mr. Davis over Shirley Park Farm and Haling farm, which were under precisely similar management; the poor land producing better crops than could have been at all expected from it, and the better land, although none of it could be called rich, bearing crops which were admitted on all hands to be first-rate. Shirley Park is in Mr. Davis's own hands; of Haling Park he has the management.

Mr. Davis accepted the invitation of the deputation to dine with them at the Greyhound, Croydon, where the party were also joined by four gentlemen from Buckinghamshire. Mr. John Hague, of Cranbrooke, presided. Mr. Davis's health was drunk in the kindest spirit, and that gentleman favoured the company with a valuable exposition on this system of culture. An interesting discussion on agricultural improvement followed, in which Mr. Levy, one of the Buckinghamshire gentlemen, said that although he believed that off an average, every acre of his land was worth three acres of the land Mr. Davis farmed yet that their average crops were not better than those Mr. Davis had shown them, even if they were so good.

SCIENCE FOR THE FARMER.

ON THE FEEDING OF ANIMALS.

We intend in this paper, to speak a little more in detail about the treatment which the animal must undergo, when fed for different purposes. As the chief of these purposes, we will consider:—

1. The young or growing animal.
2. The milking animal.
3. The fattening animal.

1. *The young or growing animal.*—In considering this part of the subject, we have to start from the general principle, that the animal ought to receive more than it loses, because it must daily increase in the quantity of its muscles and bones, and this cannot take place, unless the food that is given it does not only make up for the daily waste, but also supplies from its excess the materials out of which muscles and bones have to be formed.

When very young, the animal receives its food from the mother, in a state of solution, which we call milk. The digestive organs of the mother have effected such a change in the food, which she has taken, that it only requires, as it were, to be carried where it is wanted, to be immediately assimilated. The stomach, &c. of the young animal has not yet reached that state of development and activity by which alone it can be enabled to bring its food into a state of solution—this being, as we above remarked, an essential condition for its assimilation in the body.

But as the milk is intended both to strengthen and to develop the organs of the young, these organs must gradually become accustomed to the kind of food

upon which they will have to exist in future—that is:—their strength must be increased by activity, and not by nourishment alone. This gradual transition requires also a *gradual* change in the kind of food. If this change were to take place suddenly—if, for instance a calf, after being weaned, were immediately put out to grass along with full grown cattle it would undoubtedly be very much injured by this practice. A gradual change of food is best effected, by mixing the warm skimmed milk with jelly from linseed, or pea-meal—the latter, not being boiled, but made into *brose* by stirring it with hot water, until quite fine. They may also have, successively, some slices of Swedish turnips and hay. Thus, from the full sweet milk, which they ought to get liberally, three times a-day, during the first month—the second and third month, may serve to prepare them for the grass.

But, before they are brought out into the field altogether they should be gradually accustomed to movement in the open air. As this period of their existence, on a well conducted farm, generally coincides with the commencement of mild weather, there is little difficulty in executing the most necessary auxiliary measure for their proper and healthy growth. This is done by putting them into the court during day time,—and, at night instead of bringing them back again into the cribs, they should be placed under the shed in the court. It is understood, that only mild and fine days should be selected for this purpose in the first instance.

When the young animal first commences to eat grass it should not be fed upon grass alone, but get, alternately, some hay and turnips again, which are supplied in the court. When at last, both the weather and the animal are in a favorable condition, the latter may be left out all night, and fed upon grass alone. It should, further, not be placed at once in the good pasture, with the other cattle, but in a field of less plentiful grass, that it may be in less danger of overloading its stomach, and thus becoming ill from indigestion. The transportation to better pasture, must be effected before the former has become entirely bare of which a falling off in condition would be the consequence, which in the present state of the animal would be difficult to improve again. It must be kept with equal solicitude, from over-feeding, as from want of nourishment—and the management ought to be so conducted, that when the young animal is duly prepared for a full bite in good pasture, its former pasture, has been cleared of the greater part of its grass.

All these precautions are necessary to effect a change of food, without danger to the young animal. The first three or four weeks of its existence it should have the full benefit of its mother's milk, either by sucking, or by feeding from the pail. Any deduction made from this, what may be considered the young animal's property, may be considered as injudicious—and, no feeding on buttermilk and gruel, can take the place of the sweet milk. After that, the allowance, and kind of milk is of less importance—and the preparation of natural food takes the first place in the consideration of the farmer. This period being duly gone through, the animal is safely left to its own way, and takes its place among the standing stock of the farm.

The other important matter is, to give the animal as much as it wants, both to restore the daily waste, and to increase its growth. But, this being a question of quantities, will be better understood, when we treat of the subject in a chemical point of view.

2. *The milking animal.*—In discussing what kind of food and manner of feeding is most fitted in this case we have to enquire into the state of the animal itself,

and the purpose for which it is kept; and from these *data* we will be able to judge what kind of food it ought to receive, and how it should be treated.

The milking animal is in a continual state of losing not only from the ordinary waste of the organs of its body by daily movements and exertions, but also from the production of something, which is fit and intended as food for others. The food which the animal gets is, therefore, partly converted into constituents of its own body, the useless part being excreted to serve as a manure; whilst another portion is merely changed by its digestive organs, and secreted in the form of milk. The nature of the latter indicates that the milking animal ought not only to receive more food than is necessary for the reproduction of its worn off organs, but also a great deal of fluid matter ought to be present in that food, to serve them as a natural solvent for the solid constituents of the milk.

As to the purpose for which the milking animal is kept, we must make a difference, not only between its milk being only used to feed its young, or kept for sale or other preparations, but also whether cheese or butter is to be prepared from it. When the animal only yields its milk to feed its young, there is nothing in the process departing from the general laws of nature. At the time that the young is to be fed, there is such a natural tendency in the organism of the healthy mother to produce milk, that the additional labour, which is in consequence of this imposed upon the digestive organs, does really act beneficially, and that without this labour being performed, the organs may be said either to have been powerless before, or to grow weaker afterwards.

But if the animal is to yield milk for sale, or to be manufactured into something else, the farmer wishes to draw upon its milk yielding organs as much as possible, and will therefore do what he can to help these organs in a state of production by feeding the animal liberally, but judiciously. In this case, however, something else must be borne in mind, viz. that by keeping a cow for instance in a continual milking condition the functions of its organs undergo a thorough modification, and what was intended by nature to be only a transient state, becomes an habitual one.

The product that is to be manufactured from the milk is also of importance in regulating the kind of food which the animal ought to take. We may remark here, as we have occasionally done before, that when food is taken, its competent parts remain, to a great extent, the same, and are only replaced and modified in the body. If, therefore the preparation of cheese is the object of the farmer, he ought to give his cows such a kind of food as is likely to contain much of that substance, from which, as it supposed, the cheese part of the milk is formed. If he wishes to employ the milk for making butter, the food ought to be rich in fatty substances, from which butter will, in all likelihood, be most easily produced. For the first case, turnips or mangel wurzel may be recommended as food; for the latter, an addition of oil-cake will prove advantageous.

In all these cases, however, and especially when the animal is to feed its young, care should be taken to supply it with sufficient food of a nourishing nature to keep it in the same condition, without however over feeding it. The irritation consequent upon too strong and abundant nourishment will invariably affect the regularity of the functions of its organs, and at the same time, very naturally produce a change in the products of these functions. There is no doubt that the different properties of milk, its greater or less tendency to sour, &c. depend in a great mea-

sure upon the manner in which the animal has been fed.

The treatment of the milking animal, with regard to food, is further subject to two considerations. First the season of the year ought to be taken into account. In winter, most of the cows, for instance, are either dry, or yield but little milk, and therefore require not to be so much treated as milking animals. The allowance of juicy food, such as turnips, especially on an empty stomach, should now be limited, and as judicious, we observe a little oat straw, or some such food ought first to be given. The second consideration, which, although applicable to everything done on a farm, is of the utmost importance here, that the food should be given in the most regular manner. In the field this is of course left to the animal itself, and it would appear that it is led by nature never to take more, nor oftener, than the regular digestion of this natural food requires; but at the byre, its food being always more or less artificial, should be given at proper and regular intervals. On a farm where stock of various kinds are kept, which all require a different way and kind of nourishment, this regularity is a matter of course; for the attendant commencing his work at a fixed hour in the morning, and having his work regularly divided, will come back to the same kind of animals at the same regular intervals, and thus the animals will have the same periods for taking their rest. The milking taking place with similar regularity there will be left time enough for the animal to digest the food and to secrete the milk; and on the latter being removed—which is an essential condition to keep the organs by which it is secreted in proper action—after the food has been all eaten up, the animal can lie down quietly to digest the food recently consumed. Another great advantage of this regularity is, that there will never be any uneasiness manifested by the cattle from hunger, of which the chief disadvantage is, not the losing in condition, but the irritation and discontent of the animal, by which they actually become less capable of thriving upon their food.

3. *The Fattening animal* is in a condition different from all the others, viz.—It is in a state of disease, for as such the irregular and abnormal development of its fat is to be considered. Nearly all the food which it takes, and the whole treatment which it undergoes, serves to make it lay on fat. An organ that is most in want of restoration, and is in return the most benefited and developed by the means employed for such restoration for it extracts from the food a larger share of nourishment than any other organ. Fat is not an organ, but a product of the functions of organs; it is not a product of action, but of inactivity. Whatever is true, therefore, of other irregular and one-sided development of parts in the animal body, is still more so of fat, for its production is accompanied by the inactivity of most of the other organs, even those of digestion gradually diminishing in activity.

Upon these principles the treatment of fattening animals must be plainly based:—The kind and quantity of food, the place where they are kept, the quantity of heat and light, the quietness of the place, the facility with which the animal can get its food, and several other points must here be duly attended to. Besides this, we must not lose sight of another point in which the fattening animal is again related to the two former, viz.—that it must get more than it loses from the daily waste, and this waste is in the present case rendered directly available to the farmer himself who gets it restored with profit in the shape of money from the butcher.

The kind of food which the fattening animal requires is, naturally, such as will be converted with least diffi-

culty into fat; for although it is true, that such an animal increases both in muscular flesh and in fat, and, therefore its food ought to contain also the materials from which muscle is made, yet this increase in flesh being limited by the frame of bones, only takes place to a certain extent, and after that is composed of fat only. Oil cake or linsseed oil, with chopped straw, and also draff from distilleries, are among the best food for this purpose; for although Indian corn, cracklings, and other substances, may also be used with advantage, yet these are more generally applied for fattening poultry.

From what has been explained before it will be understood that a warm, yet not unaired, place, with but little light, and not disturbed by noise, ought to be selected for the abode of fattening animals. If too warm, and especially entirely closed up, disease might ensue, to which the animal is in its present state very liable. Both light and noise distract and disturb the animal, and thus give occupation to its senses and nerves, by which the increase in fat is retarded. The same will be the case if the animal must use exertion to get its food. It must be made unnecessary that much labour is done by its muscles, for they then will have to be nourished again, and will thrive at the expense of the fat.

It will further be found by experience, that the animal increases in fat, it becomes less voracious, and more particular in the choice of its food. This is owing to the diminution in size which the organs of digestion undergo, in consequence of the large quantity which gradually fills up the internal cavity of its body, placing itself chiefly on its kidneys and ribs. Care should therefore be taken that in the course of fattening the quantity of food be sacrificed to its quality so as even to save the animal the trouble of selecting its food. More than one kind of food should then also be given at stated times, that the freshness of novelty may be kept up.

This may at present suffice; afterwards, when the composition of the food will be considered, more will be brought to view, to understand the principles of feeding animals.—*P. F. H. Fromberg, first Assistant in the Laboratory of the Agricultural Chemistry Association of Scotland, September 18, 1846.*

A MONSTER CABBAGE.—On Saturday last, Mr. William Threthewey, Hobb's Town, near St. Stevens Coombe, cut a Paignton cabbage which measured twenty feet in circumference, and weighed thirty pound and a half. It had ten branches, some of which formed cabbages of two pounds weight, which were given to his friends as a treat. They were ripe; and the cabbage grew in the open air, without any unusual care or pains being taken to force it.—*West Briton.*

AN EXTRAORDINARY FIELD OF OATS.—There is a small field of oats, about an acre in extent, on Shaw Heath, which is the finest we have seen in any of the agricultural districts. The history of the crop is remarkable. Last year the field was let by the Poor Law Guardians to Mr. Richard Barlow, who prepared it for oats, but allowed it to overgrow, and much of the grain was lost. The field was next taken by Mr. Worthington, who did not disturb the ground during the winter, neither has a harrow been applied to it: nevertheless, such was the mildness of the winter, that he has this year been unexpectedly favoured with a prolific crop of self-sown oats, full in the heads and strong in the straw. The oats average in height 5ft. 10in. and in some parts stand 6ft. 2in. high. The owner has been offered £20 for the crop, which he refuses to take.—*Chester Chronicle.*

MANURES AND THEIR PRICES IN LONDON,
OCT. 1, 1845.

The manures employed by the farmer, may be divided into three classes—1. The organic, which owe their chief value to the nitrogen, and other gaseous matters which they contain. 2. The saline, which comprehends several which enter to some extent into the composition of the solid portion of the farmer's crops, as well as other salts which exist in commonly cultivated plants in only very small proportions. 3. The earthy manures. The two first varieties however are those whose comparative value we have chiefly to examine in this price list. Now as Professor Johnston remarks (*Ag. Chem.*, p. 170), the amount of nitrogen present in each of the organic manures affords one of the readiest and most simple tests by which their relative agricultural values, compared with those of vegetable matters, and with each other, can be pretty nearly estimated. In reference to their relative quantities of nitrogen, therefore, they have been arranged in the following order, the number opposite to each representing the weight in pounds, which would produce the same sensible effect upon the soil as 100 lbs. of farm-yard manure:—

Farm-yard manure.....	100 lbs.
Flemish liquid manure.....	200 "
Solid excrement of the cow.....	125 "
horse.....	73 "
Liquid ditto of the cow.....	91 "
horse.....	16 "
Mixed ditto of the cow.....	98 "
horse.....	54 "
sheep.....	36 "
pig.....	64 "
Liquid blood.....	15 "
Dry blood.....	4 "
Dry flesh.....	3 "
Pigeon dung.....	5 "
Feathers.....	3 "
Cow hare.....	3 "
Bone shavings.....	3 "
Dry woollen rags.....	2½ "

The fertilizing properties, however, of these vary very considerably, according to their state of decomposition. This may be seen from the following important analyses, by Sprengel, of 100 parts of the urine of the cow in three different states (*Ag. Gaz.*, vol. 1., p. 342); the first specimen being in its fresh state, the second when putrefied by itself, the third putrefied with its own bulk of water:—

	Fresh.	Putrid.	Water'd.
Urea.....	4000	1000	600
Albumen.....	10
Mucus.....	190	40	30
Benzoic acid.....	90	250	120
Lactic acid.....	516	500	500
Carbonic acid.....	256	165	1533
Ammonia.....	105	487	1622
Potash.....	664	664	664
Soda.....	554	554	554
Silica.....	36	5	8
Alumina.....	3
Oxide of iron.....	4	1	..
Oxide of Manganese.....	1
Magnesia.....	36	22	30
Chlorine.....	272	272	272
Sulphuric acid.....	405	338	332
Phosphoric acid.....	70	26	45
Acetic acid.....	..	1	20.
Sulphurated hydrogen.....	..	1	30
Earthy phosphates and carbonates.....	..	180	150
Water.....	92624	95442	95481

The ashes left after the combustion of plants show pretty clearly the amount of the saline and earthy ingredients they contain, and of course the amount which they extract from the soil. Thus according to Professor Johnston (*Ag. Chem.*, p. 42), 1000lbs. of the following substan-

ces, in their ordinary state of dryness, leave of ash about—

Wheat.....	20 lbs.
Do. Straw.....	50 "
Barley.....	20 "
Do. Straw.....	50 "
Oats.....	35 "
Do. Straw.....	60 "
Rye.....	10 "
Do. Straw.....	30 "
Beans.....	30 "
Peas.....	28 "
Do. straw.....	50 "
Meadow hay.....	60 to 100 "
Clover hay.....	90 "
Rye grass hay.....	95 "
Potatoes.....	8 to 10 "
Turnips.....	8 to 10 "
Carrots.....	8 to 10 "

It is certain, however, that the proportion of the ashes contained in plants varies with the soil. 1000 lbs of the straw of the same variety of oat in 1841 grown up on—

Limestone left.....	102 lbs of ash
On Aberdeen granite.....	96 "
On light loamy soil.....	98 "
On green stone.....	79 "
On clay slate.....	78 "
On silicious sand.....	64 "
On gypsum.....	58 "

Of what these ashes consist, the farmer will see from the table of Sprengel, which we have given (*ante* p. 283) and let the cultivator remember that it is only by noting carefully the ingredients which enter into the composition on his crops, and of the soils which produce them, that any certain information as to the manure best adapted to a soil can be obtained.

As a guide to the farmer in determining the proportions of his soil. Mr. Gyde has given (*Farm. Mag.*, vol xxii., p. 414.) the chemical composition of 100 parts of three different soils—

	Fertile.		
	Without manure.	With manure.	Barren.
Organic matter.....	97	50	40
Silica.....	548	833	778
Alumina.....	57	51	91
Lime.....	59	18	4
Magnesia.....	8½	8	1
Oxide of iron.....	61	40	81
Oxide of manganese	1	3	0½
Potash and soda.....	6	trace	..
Chlorine.....	2
Sulphuric acid.....	2	0½	..
Phosphoric acid.....	4½	1½	..
Carbonic acid.....	40	4½	..
Loss.....	14	..	4½

The London Town dung.—That from the stables and cow-houses, is sold at 3 shillings per ton free on board; a barge carries from 50 to 100 tons. For a mixture of street sweepings and nightsoil, prepared by the London scavengers; they charge about 10s. per two horse cart load. The siftings of the London coal ashes, which are much employed in Buckinghamshire, are sold for about 6s. per chaldron of forty bushels. Nightsoil, which is not much used in its unmixed state, is procurable for about 2s. 6d. per two horse cart load.

Woollen Rags are worth from 4l to 4l 10s. per ton. These are cut by means of a chopper and block, into pieces about the size of a dollar, and then spread on arable lands, by hand out of a common seed basket. The good effects of these rags extend to the second year. On the chalk soils of the valley of the Kennett they apply about 12 cwt. per acre. On the hop-grounds much larger quantities. They are said by the farmers to "warm the land."

NETTLES A MANURE FOR POTATOES.—In the minutes of evidence taken before the Lord's committee on the poor laws some years ago, Mr. Estcourt, M. P., related the following curious anecdote to show the value of nettles as a manure for potatoes:—"With respect to the subject of manure," he says, "I observed last summer a result which was whimsical, and satisfactory to a certain degree. I went to a market gardener's garden in the neighbourhood of Devizes, and I was inquiring about the way in which he got manure; and he showed me some land that was cultivated with potatoes, which had a very abundant crop. He told me that he had manured it in the following way; that he had trenched the land in wide trenches; that before planting the potatoes he had got nettles from the neighbourhood, and had laid them a considerable thickness in the furrow; that then upon the nettles, he had planted his potatoes; that he had done so many years, and that invariably he had found that they had produced a much larger crop than any other sort of manure that he had made use of."

The Canadian Agricultural Journal.

MONTREAL, NOVEMBER 1, 1846.

About one-third of the revenue of England is paid upon wine, spirits, beer, malt, hops, cider, and licenses to make and sell those articles. Perhaps the Canadian revenue may be nearly made up in the same proportion. Does it ever occur to those who are such advocates for total abstinence from the use of all those articles, that they should pay their due proportion of the revenue in some other way, as they participate in all the advantages derived from the expenditure of the revenue equally with those who contribute one-third more towards the revenue than they do. Now we humbly conceive that as revenue is expended for the benefit of the whole community, it should be equally contributed by all, in proportion to their means of paying. We have the greatest objection to any partial or arbitrary laws that will admit of some persons escaping the payment of revenue, while others have to make it up, and more particularly as we have ever observed that those who would be disposed to pay the smallest possible amount of revenue themselves would be the most anxious to have revenue appropriated according to their wishes. We should suggest to all advocates for total abstinence from the use of wine, beer, and spirits, to come forward at once, and contribute that proportion of revenue which they would have to pay upon the moderate use of these articles, were they to make use of them in moderation as other men do. No individual in existence has a greater abhorrence of drunkenness,

and the intemperate use of wine, beer or spirits, than we have, but if any individual thinks it a conscientious duty to abstain from them altogether, this abstinence would not excuse him from the obligation of contributing his due proportion of the necessary revenue of the country as the other members of the same community. If the use of wine, spirits, beer, and cider, in moderation, is an evil, let them be prohibited by law but according to the true principles of free-trade (which we believe the advocates of total abstinence from the use of wine, spirits and beer, are generally in favour of) there should not be any more duty or restriction on the use of these articles of consumption, than on any other, whatever. We should not have introduced this subject but to show how unreasonable any partial measures of free-trade must be. Here we find supporters of free trade disposed to prohibit altogether, other members of the same community from the use of articles that have been freely made use of by the best and the wisest of men since the flood, or to subject these articles to the payment of at least one third of the whole revenue of the country; and this is the doctrine and the justice of pretended free-traders, or we perhaps should rather say, that the individuals who hold this sort of doctrine are almost to a man the pretended advocates of free trade. Thus it is that principles are advanced by men who have no idea of allowing their free and general application without fettering them with some arbitrary prohibitions of their own fancy, that are not consistent with the divine or human laws. We are advocates for free trade, in every thing that our bountiful and wise Creator has caused the earth to produce for our use, and that we should be freely allowed to make use of them in moderation, according to the laws of God and man. All countries require a revenue, and we humbly conceive that revenue should be raised off every article of consumption; or off none, but resort to some other mode of direct taxation, that would bear equally upon all in proportion to their means of paying. This is the only just principle of free-trade, and of raising revenue, and we defy all the free-traders, and political economists that ever existed, to show that any other would be just.

Some idea may be formed of the extent to which the free-trade principle has been introduced in the new English Custom House Law, when we state that the duties retained on goods,

imported to the British Isles are about 30 per cent, while the raw products of agriculture are to be nearly free. We cannot exactly estimate what may be the proportion between the taxed and untaxed necessities of life, but we should say that much more than half what a man consumes is taxed or protected after all that has been done to promote free trade. In Canada our protective laws are not yet done away, and when changes are introduced, we trust they will be just and equal towards all classes and interests, not giving any unfair advantage to one more than another. The Agricultural class will never desire more than to be allowed to buy and hire in a market that will be as perfectly free to competition as the one in which they will have to sell their products. This is what they consider would be a fair and equitable arrangement.

In our last number we attempted to estimate the comparative production of good land of equal quality employed in raising neat cattle or sheep, and in arable culture bearing crops. On reading the article after publication we fear that the quantity of land we estimated as necessary to raise an ox or cow to maturity, will not be considered sufficient for the purpose, unless upon very superior land, and in favourable seasons. We of course made our estimate for good land, but perhaps from the heat of the summers here, the pasture would fail in the month of August and September, and would on that account require a fresh supply. We have seen land that would be fully equal to our estimate, and we have it in our possession, but in general we believe more land would be required to raise an ox to maturity than we have estimated for it. One acre and a half more, to make it eight acres, might not be too much. This would give 100 lbs. of beef, hide, and tallow for each acre of land employed. We would also allow one acre more for the sheep we have estimated for, making it six acres instead of five or perhaps we might allow it to be the same as the land assigned to crops $6\frac{1}{2}$ acres. The profit of sheep would in a great measure depend upon their quality and the judicious care taken of them. This additional quantity of land would provide more amply for the stock in summer and winter, and we believe would be fully sufficient. The casualties to which stock are liable to we have not estimated for. Our object was to show the comparative produce of land under stock or in

tillage. No doubt that land in tillage will produce several times the quantity of food, that it would in pasture, but the latter mode of farming requires much less labour, and is not so subject to injury from adverse seasons, and other casualties. Both stock and tillage farming should however be carried on together in due proportion where the land is suitable for both. There may be some lands not very well adapted for keeping up a due proportion of stock and tillage, but the intelligent farmer will know how to manage his land to the best advantage. An ordinary farm that is duly improved, and properly drained, will generally admit of a due proportion of stock, and tillage, and there are very few farms that are not capable of being thus improved, if skill and capital are employed to effect it.

In the present number, we have copied from the Mark Lane Express two articles, one of Professor Johnston's Lectures, and a report of a visit to the farm of Mr. Davis, and a third on the feeding of animals, which we conceive to be worth more to any farmer than the subscription to this Journal for a year. We think it therefore ungenerous, if not very unreasonable, for any farmer to continue to take this Journal without paying for it. Every individual who takes it must know, that it is considerable expense to publish it, and not having advertisements we must depend altogether upon subscriptions for re-paying the expenses. With the exception of some Agricultural Societies in Western Canada who take a considerable number of copies, we have not received subscriptions from individuals for this year that would pay the expense of one monthly number. There is not one Agricultural Society in Eastern Canada, who take one copy though they receive annually several thousand pounds of the public money for the improvement of Agriculture. We appeal to those friends who do take this Journal, whether we endeavour honestly to promote the improvement as well as the interests of Canadian Agriculture, and have done so for many years, unpaid and unrewarded, and at a great sacrifice of our time and money. It may be replied to us that there was no obligation upon us to publish any thing we published, and that we can only blame ourselves for the loss we have sustained. This reply is certainly more true than generous, but we hope that a time will come, when high minded men will give a more favourable interpretation to the motives which prompted us. Men who can them-

selves be influenced by purely disinterested motives to advance the general good will be too honorable and generous not to admit that other men may also be actuated by similar motives. We shall abide our time, and do not give up the hope, that we may yet find that countenance and encouragement, which we have faithfully endeavoured to earn for near twenty years of our residence in Canada. It shall continue to be our object to submit for the consideration of our Government and Legislature, the means of improving our Agriculture, and the expediency of encouraging this improvement as much as possible, because it is upon the productions of our own country we can alone depend for the means of supplying all our wants, directly and indirectly—exchanging the surplus for what we may require of foreign productions, which our own country will not yield or supply so cheaply as we can obtain it elsewhere.

THE LATE CATTLE SHOW FOR THE COUNTY OF MONTREAL.

The show took place at the St. Lawrence Main Street, upon a piece of land adjoining the Market place, which was extremely well calculated for cattle and horses, being perfectly dry, and furnished with railings to secure the cattle, and keep them separated. The sheep and pigs were secured in pens and under cover. The market stalls were appropriated for the exhibition of butter, cheese, and domestic manufactures, but we regret to say, that the show of butter, cheese, and domestic manufactures, were very trifling indeed, there being scarcely one article of each for the premiums offered. The proprietor of the market, Jos. Pelton, Esqr., did everything necessary to make the place completely convenient for the shows, and we do not think there is any situation in or about the city so well calculated for an exhibition of cattle and agricultural produce. It would require a considerable expenditure to make the accommodations that were given gratuitously by Mr. Pelton, and all that was wanted was that the accommodation should have been made use of, which was not the case. The show of draft horses and brood-mares was passable, though it might have been better, considering the high character of Montreal for excellent horses. The show of neat cattle was good, but we believe that many of the stock exhibited have been at former District and County Shows, and received large premiums. This we disapprove of, and conceive

that when any animal once obtained a first prize, it should not again be entitled to any premium in money, unless a medal. We also disapprove of any individual receiving more than one premium for the same species of animals, and, this was once an established rule of the County of Montreal Agricultural Society—no individual could receive more than one premium on cattle, one on horses, one on sheep, one on swine, and one on crops. This rule encouraged greater competition and gave a wider circulation to premiums. It never can produce much encouragement to competition, to travel about throughout the country to County and District Cattle Shows with the same animals to covet all the premiums they can get. It would be very well for individuals who desire the improvement of agriculture if they have choice animals, that have obtained premiums once, to take them to distant Cattle Shows to let farmers see and admire these choice animals and get some of the breed. But if they are to be travelled about annually to the changeable District Cattle Shows to take the public money that may be offered at these shows, the great object of making the District Cattle Shows change from County to County annually, will be defeated, as the object was to offer encouragement from the public revenue in every section of the country for the improvement of agriculture. We should also imagine that cattle exceeding six years old should not have a premium. The sheep at the show were generally of excellent quality, and so were the pigs. The day was as favourable as could be desired.

By the last Mail we have advices that the disease in the potato crop appears to have been checked, we suppose by the fine dry weather, as in this country. The *Mark Lane Express* draws the following inferences from all the reports received of the crops generally up to the 28th September :

"1. That the potato disease is not so bad as public feeling and the public press have represented it; that it has been signally checked in its ravages, and has probably in great measures spent its force for this season; that the abundance of food for cattle will liberate an unusual proportion of a diminished annual supply of potatoes for human food; consequently that the store of potatoes may, with economy, in the use enforced by a higher price, be sufficient to serve the people for food in reduced rations for three-fourths of the time that potatoes annually serve for in ordinary times and seasons—the writer has this week seen and tasted good potatoes which were dug up in October 1845.

"2. That the wheat-crop of England approaches nearly to an average crop—being such as to prove more deficient in measurement than its ultimate results in the shape of flour and bread. That, although hot

parching weather had in some quarters rendered the grain small and flinty for the want of gradual ripening, especially in the northern countries, it is generally of excellent quality for manufacture through all processes and their products, by giving stronger flour and more bread; it has a smaller proportion of refuse than is usually found in average wheat-crops; the weight per bushel the weight of most good well-secured crops; and, therefore, it is not to be estimated by measurement alone, which this year is not quite so perfect a criterion as in most seasons."

We see also, that the Government contract for salted meat has been taken at high prices, viz., Pork at £7 13s. and Beef at £7 1s. per tierce. The first is 10s. and the last 20s. above the price of last year. The following observations from the City article, in the *Mark Lane Express*, on this subject, should have some interest for the Canadian farmer, and we have no doubt that we shall have it in our power to supply a part of these contracts at no distant period; therefore we should now prepare for it by having pastures and cattle suitable to make good beef. The prospect is encouraging:

"It is suggested in many quarters that the Government will be compelled, at no distant period, to select other sources from whence to obtain supplies. In a letter, containing many interesting facts upon the subject, to the authorities at the Victualling Department, Deptford, it is remarked, "That some alterations must soon occur with respect to the supply of salted provisions, we have not the least doubt; how this is to be accomplished, so as to render effectual to supply the necessary demand, will depend upon improvements which must emanate from practical persons. We have some time anticipated that the home demand in our country will absorb all the supply of fresh meat, come from whence it will, and eventually make us dependent upon foreign importations to supply the Government and shipping generally, and it behoves the farmer to prepare for the coming change by establishing depôts in Canada, Cape of Good Hope, &c., to supply the navy, which will not be obtained in this country unless at enormous rates."

AGRICULTURAL REPORT

FOR OCTOBER.

The month was favourable for ploughing, though perhaps some lands had got rather too much rain to admit of ploughing them in the best manner. On the evening of the 22d snow fell sufficient to cover the ground, and again on the night of the 23d, but nearly all disappeared on the 24th. During this interval, ploughing could not be executed, as the land must be very wet in many situations. On the 25th, the weather became fine, with frosty nights, but not so severe as to prevent ploughing. Farmers should see to their draining, and have their ploughed land well water-furrowed, so that no water can stop on the surface in the spring. Ploughed land that will

not drain in the spring until the sun and wind dry it up, will not be fit to produce a profitable crop until again ploughed. The crops of Canada are deficient from want of proper draining more than from any other cause. Manure is useless to undrained soils. As the whole of the crops, except potatoes, were secured before the commencement of October, we therefore need not refer to them further than to state, that we believe the yield in quantity will be much below what was expected. We perceive by the late mail, that the same complaint is made in England of the yield of wheat; and we beg to state the remarks of the *Mark Lane Express* on this subject, as they exactly agree with those of our last monthly report, in reference to our own crops—namely, that though the grain may not be so large, or measure so well for the farmer, in consequence of the dry warm weather when the wheat was ripening, yet that the wheat would produce a large return in proportion to bulk, in flour and bread, as it was dry, and not filled with moisture, as in other seasons. As to barley and oats, we have nothing to add to our last report of these crops. Indian corn should have produced a good crop in so favourable a season. Carrots might also have been good; and we understand that turnips are much better than we expected in consequence of the late rains. According to all reports from the District of Montreal, the disease in the potatoes appears to have been checked by the very dry and warm weather in August and September. We know that the disease commenced in the crop in the beginning of August, and it was feared that the whole crop would have been lost. One farmer told us that he had some early potatoes, which he commenced taking out for sale early in August, and found them exhibiting all the symptoms of disease, several very much affected, and most of them having black spots upon them—that he left digging them, and expected that they would be all rotten before the fall; but that upon examining them about the 1st of October he found them good—all the black spots had disappeared—and perfectly sound. The crop is certainly light, but we believe it is this circumstance that has saved them, and the very dry weather hardening them, and preventing a luxuriant growth of vine, and in many instances withering them altogether. There is another strange feature of the potato disease, that where it was least injurious last year, it has been most destructive this year. It

was the same with the wheat-fly: they appeared to travel from the east towards the west. In Western Canada the potato crop is said to be much injured by disease this year. There are reports that the potatoes in the neighbourhood of Quebec are rotting after being stored. Indeed it is impossible to conjecture how the crop may keep, after our experience of last year. We put up our potatoes last year, apparently perfectly sound, in the usual place for storing them, for seed. We opened them about the 1st of April, and found very few diseased; but in the course of two or three weeks they were nearly all rotten. Keeping them dry, in small quantities, and mixing charcoal with them, we believe to be the most certain means of preventing rot. There is still abundant feed for cattle in the fields, should the season continue any time open and fine. The markets have been abundantly supplied with butchers' meat and dairy produce, and the prices are not high, considering how very high the markets for these articles are in Europe, and particularly in the British Isles and in France. The prospect at this moment is encouraging to farmers to raise and fatten cattle and sheep. We believe that butchers' meat will not be very low in price this winter; and there is a probability that we may have an opportunity ere long of furnishing salted meat for the British Government contracts, and for ships employed in commerce. We should, at all events, strive to be prepared to take advantage of any favourable circumstances that may offer. We have the means in our power. Hay is cheap now, and it will be a loss to farmers that it should be so, if they could sell it better, by converting it into beef and dairy produce. There is nothing discouraging in farmers' prospects, provided any change that may be made in the laws shall be equitable, and give as much free-trade to one class and interest as to another. The farmers fear not equal competition; and they shall only desire as free a market to buy and hire in as they will have to sell in.

Côte St. Paul, Oct. 30, 1846.

DISEASED POTATOES.—At Byworth, near Petworth, two persons occupying portions of the same garden, planted potatoes of the same sample at the same time. They both dug up their crops last week, when one found his without one sound one, and the other without one decayed one. The only difference in the mode of planting was this—that the person with the sound crop placed a layer of sawdust in the drill before planting the sets.—*Brighton Gazette.*

We have again the pleasure to notice the conduct of that truly patriotic nobleman, the Earl of Gosford, who, in consequence of the failure in potatoes, has made an abatement to all his tenants holding under twenty acres of the whole of the rent of that part of their farms cultivated under potatoes for this year. Those farmers holding over that quantity of land it was considered would gain as much by the high price of grain and other products, as would more than compensate for the loss of potatoes. This was a reasonable principle to adopt, because the high price of grain was the consequence of the disease in potatoes. Lord Gosford is the first to show a good example to Irish landlords, and if all were to act like him, Ireland would soon be a different country as regards her population.

We have received the October number of the *Irish Farmers' Journal*, for which we beg to return thanks. It contains several excellent articles on agricultural subjects. Indeed the whole contents are most interesting, and we shall be very much obliged to the proprietors to exchange with us. We do not pretend that we can afford them a Journal that will be a fair exchange, but as a branch of the same family, we hope they will assist us in our endeavours to advance the improvement of Agriculture in this distant Province of the British Empire, that has given a home to so many members of the great British family.

We copy the following from a Lecture delivered by Professor Johnston before the Highland and Agricultural Society of Scotland at the great meeting of that Society at Inverness in the beginning of September last. The subject is one of great interest to farmers, and we have no doubt that in Canada, stall fed cattle should always have their food prepared and given to them warm. We have experience of the advantage of this method, and it must be manifest that in our cold winters cooked food, and given in a warm state, must be better than given raw and cold. It requires a considerable portion of food, in winter to produce the proper degree of warmth in cattle, and certainly if the food is given cooked and warm it must produce this heat sooner than when given in a cold raw state, with the temperature below zero. A large proportion of food is wasted in Canada in consequence of stall fed cattle not being kept sufficiently warm. The plan of box

feeding is highly recommended. Each animal has a box for itself, and is not tied up, but is allowed to move about in its box at pleasure. They are kept well littered with straw and not cleaned out, until the dung is a considerable depth in the box. Animals kept in this way will be more healthy than when more confined to one position, because they will be at their ease, and can make themselves comfortable, by change of position.

In reference to the first question—the feeding of cattle—no district in the island was more interested than this. He would not tell them how much stock was shipped from Inverness last year; but he trusted Dr. Nicol, or some other gentleman, would be able to furnish them with information on the subject. He believed, however, it was to be a very large amount indeed; and he had no doubt but it was increased since by the great facilities of communication with the London and other markets. As a cattle-importing district, therefore, it must be of the very greatest importance, the extension of sound information in regard to the economical use of food; that is, in what they would grow the greatest amount of beef or mutton at the least possible expense. This, he was prepared to show, was to be effected by the use of certain mixed food, and prepared food. An individual going from one end of the country to another to observe the state of agriculture will look, not merely at the kind of stock, but he will more particularly observe the implements of husbandry in use throughout the various districts. In order, therefore, to form an estimate of the degree of attention paid to this matter of prepared food in England, on his visit to Newcastle, at the great cattle-show recently held there, he turned his attention particularly to the examination of the implements exhibited having a bearing upon this point. Amongst these he found chaff-cutters, a peculiar machine for crushing corn and other seeds, and other instruments; all showing how much regard was being paid to this subject by practical men. There was no doubt but that the subject of the quantity of food which cattle required to produce a certain weight of beef was beginning to attract general attention; and before he entered upon the few points which he meant to notice in connection with this question, perhaps it would be necessary to explain shortly the general composition of food. In all kinds of bread there are contained three different kinds of matter. First of all, there was a certain quantity of fat, which the butter they ate represented; secondly, there was a certain amount of sugar; and then there was, besides, the third constituent, which was represented by the white of an egg. Now, it was of the very greatest importance what description of food which was used, and what proportion it contained of those three kinds of matter, as bearing upon the purpose it was intended to serve. Cattle had in their bodies different forms of matter also, but particularly flesh and fat; and the farmer should be sufficiently acquainted with the nature of food, to be able to distinguish what he should use when he wished to produce fat, or when he wished to produce fat and lean both together; and the food which was given would effect the one or the other of those purposes according to its composition. The white of an egg, or albumen, would supply nothing, or nearly so, to the animal but muscle. Then, the fat went directly to form fat. The starch in food kept the body warm; and, when fat was wanted, served the purpose of mak-

ing the oily matter more readily become fat in the body of the animal. Now, in fattening cattle, as in everything else, using the proper means produced the proper effects; and after the explanation which he had given, they would see at once that a mixture of food was better than the use of one kind alone. If they wanted to lay on muscle, they would feed with food containing the largest amount of gluten; and if they wanted to lay on fat, they would give starch and oily substances and not only a small proportion of the other ingredient. Selecting food in any other way would not serve the purpose they had in view in the most economical way. He had a table representing the different proportions of fat in the food which they were in the habit of using; but he would illustrate what he had to say by a few simple illustrations. Wheat contained two per cent. of fat, and sometimes a little more; but oats contained sometimes from four to five per cent., or about double the amount which was to be found in wheat. Oats was next to Indian corn in this respect, the latter of which they were aware contained a large amount of fat. Gluten was the matter out of which the muscle was produced, and there was more of that substance in the bean and the pea than in the oat; but the oat was better than wheat. But there was another kind of food used for fattening cattle, namely, oilcake, which contained a greater amount of fat than the same weight of any other kind of grain. Linseed, from which oilcake was made, differed from other description of grain, in containing a greater amount of fat, and a larger amount of gluten likewise, with the exception of the bean. Now, practical men have derived great advantage from feeding their cattle on oil seeds; that food, from the peculiarity of its composition, laying on fat, and muscle at the same time. Oilcake, however, was the best food only when the greatest amount of fat was required; and, according to the purpose which they had in view, farmers would give to their cattle other descriptions of food. It was a remarkable circumstance, that the bean and pea contained very little fat, and as the wheels of the animal system required to be greased, these kinds of grain would not serve for that purpose, although they contained what made muscle. Although bean and pea were good food, therefore, they were not good as the sole food of animals. Besides, they would observe that, from their different constituents, plenty of oil seeds and plenty of beans and peas would be far more profitable than if they were to give either of them singly. That was the principle upon which the use of mixed food was to be founded—to give all the substances the animal required, and to give them at the cheapest rate; and the researches of the scientific man was directed to discovering the means by which these objects could be best accomplished. He had selected oil seeds, but he might have taken potatoes or turnips for his illustration. He had taken the oil seeds, however, because very great attention had been recently directed to the value of those seeds in the feeding of stock, and to the culture of flax, which they knew was advancing with great rapidity in the neighbouring country of Ireland, and which was even progressing in England at a great rate. He might mention a remarkable fact connected with the improvement of the flax cultivation in Ireland, that a society which was established for the encouragement of that cultivation, and which had its seat in Belfast, had an annual revenue of between £2,000 and £3,000; while the income of the Royal Agricultural Association of Ireland was less than one half of that sum. From the progress the cultivation of flax was making in Ireland, it was very deserving of attention by those who thought a change in the rotation of crops would

be useful in other parts of the country. The person who had most directed his attention, practically, to the effects of feeding stock with mixed food, and to feeding on linseed, was Mr. Frimlingham, Norfolk, and he (Professor J.) would point out the principles on which he proceeded; and they were sound scientific principles. He commenced by boiling the linseed in water until it formed a kind of jelly; then he stirred in a certain quantity of cut straw and chaff, and crushed corn. The mixture was then poured into moulds, and afterwards served to the cattle warm, which they liked remarkably well. With this food the cattle thrived, and acquired beef in an extraordinary manner. By this system of feeding Mr. Warnes said he could compete with any man, whether foreigner or not, as he could send cattle to Smithfield at 4½ per lb, and pay him ample return; and in illustration of this, he gives the results of two experiments, which he would read to the meeting, and which were as follows:—

“Since he followed out box feeding, he knew not a single instance where he had not realized £8 for every head of cattle he had kept for six months. At the farm where he now resided, he had reared for market the following cattle after only six months box feeding.

7 Durham steers cost 8l. 10s. sold for 19l.		
10s. each.....	£77	0 0
6 Scotch steers cost 10l. each, sold for 22l.		
10s. each.....	£75	0 0
1 Cow cost 5l. 5s. sold for 15l.	£	9 15 0
4 Scotch steers cost 10l. each, sold for 20l.		
each.....	40	0 0
	£201	15 0

“The above cattle were bought in and disposed of within six months. They consumed, with the following now in herd, nineteen acres of turnips, about fourteen quarters of linseed, and a few bushels of barley meal, with several acres of pea-straw.

3 Durham heifers, estimated value above the cost price.....	£22	10 0
2 Irish steers.....	13	0 0
5 Small steers and heifers.....	30	0 0
3 Calves, and butter from two cows.....	11	0 0
	£72	10 0

Deduct for 14 quarters of linseed, mostly grown upon the farm, 25l., also for barley 4l.....	39	0 0
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Profit.....£37 10 0

In reference to Mr. Warnes's experiments too, it was to be observed that the manure was very much increased in comparison with that derived from the ordinary method of feeding. But, besides this, there was another method of feeding of which he would speak from personal observation, and which he had witnessed in the neighbourhood of Northallerton. He went to that place because he had heard that Mr. Marshall was keeping double the amount of stock, with the same quantity of turnips which he had been in the habit of doing only two years ago; the other food used being ground oats, barley, rye, and old beans and chopped hay instead of straw at times; but the cattle did best with the straw. Hearing, as he had stated, that Mr. Marshall kept double the stock, upon the same amount of turnips, by his system of feeding, he (Professor Johnstott,) was very anxious to see the mode of carrying his system into operation, and went down to Yorkshire for that purpose. There he saw about 200 head of cattle feeding, a portion of which was sold off every week, and their places supplied by others. What struck him as very remarkable was the state of absolute rest in which he found the cattle. There was not a single beast upon his legs but motion was observed, which, they were aware was

a circumstance favorable for fattening. In connection with this subject he got the following information, and in order that they might fully understand it, he would present it in a tabular form. It was as follows:—

Linseed, 2lbs., boiled for 3 hours in four gallons water.

Cut straw 10lbs. } mixed with water.
Growing Corn, 4lbs. }

To be given in two messes, alternately, with two seeds of Swedos. Now the mode in which the linseed was boiled was of considerable consequence. In the first place it was boiled for three hours. The jelly was then poured upon crushed grain and cut straw, much in the same manner in which a man made mortar, being mixed together with a shovel, and allowed to stand for an hour. It was then stirred again, and after the lapse of two hours, it was given to the cattle in a hot state, and the result was, that if the animals are fed regularly on this kind of food, and turnips alternately they remain in a state of extraordinary quiet. They become exceedingly fond of it, and commenced belching whenever they hear their neighbours served in for themselves. The practice was to give them a meal of the linseed mixture at six in the morning, turnips at ten, another mess of the linseed in the afternoon, and turnips again in the evening. When he saw them first in the morning, it was after they had got their mess, and he was much astonished; on visiting them on a second occasion, when they were all on the *qui vive* for their meal. Two things were to be observed in regard to this system of feeding—first, that it consisted; in addition to turnips of a mixture of grain straw, and linseed, in certain quantities; that it was prepared in a particular way, and given hot; and that the result was double the amount of stock kept upon the same amount of land. The proportion of turnips which would be grown upon a farm, usually determined the quantity of stock a man might keep; and if, by an improvement in the system of feeding, the quantity of cattle could be doubled, by turning the money twice instead of once within a year. The farmer would obtain double the profit. But this was not the only advantage, he would double the manure which he made at the same time, which would contribute very much to the fertility of his land; he being enabled, by the use of this linseed to return more than he took out of it. The proportion of the food had other important consequences in regard to manuring the soil. The crushing of the grain, and seeds, by reducing them to the minutest particles, made the substances of which they were composed more easily assimilated as the food of plants, and made it better manure, because of the extreme division which it had undergone. Now, they would observe that, by having this large additional amount of manure, they would get larger crops, and introduce a system which would go on annually increasing the amount of their produce, and consequently the amount of their profits. This would enable them to farm higher, and, by farming high, they would keep that place, which, he was sure, they now occupied in the history of the world. He would likewise direct their attention to the use of linseed, and to the preparation of food, as being of great value in keeping working animals in good condition; but on this point he would not detain them by giving a special detail of facts, as the same general principles applied in the one case which applied in the other. As he had occupied the attention of the meeting at considerable length, he would conclude for the present, reserving any additional remark which he had to make, and the replies to any questions which the company might think he could usefully answer, until after the general discussion was ended.

Mr. Grey, of Dilston, said he was not very conversant with the feeding of stock, but he agreed very much with what was said by Professor Johnston, more particularly in reference to the great improvement in manure by the use of prepared food, he had seen instances where an acre of turnips was worth three acres differently manured. It was well known that in Surrey, farmers could be found who would give their fields to be consumed by sheep for nothing, if the parties became bound to supply them with a certain quantity of oil-cake and hay. He knew a place in Croydon himself, where on condition that a large quantity of that kind of food was given to the sheep, the turnips were allowed to be consumed in the field without charge. This showed the extraordinary effect which it was believed manure produced from that kind of food had in raising crops, more particularly as in the case to which he referred, on that description of land, which required to be trodden out to make it produce good crops. Although not now an occupier of land, he retained all the interest he ever had on the subject of agriculture.

THE TURNIP CROP

IS SAID TO BE SUFFERING FROM A DISEASE SIMILAR TO THAT WHICH IS DESTROYING THE POTATOES.

Mr. Morris who writes from Gasberton, near Spalding, says—"On Saturday week I was induced to go among the swedes, from what I observed in some white stone top turnips (about half an acre), which I had had drilled in the same piece, but which I now found to be all rotten, and emitting an effluvia of the most offensive kind. I thought as the white turnips had attained a very large size, they might have overgrown themselves and decayed prematurely; but upon examining the sound ones, I found them perfectly sound, not hollow. Now the swedes were certainly affected as above stated, but not so extensively as the white turnips. I found many putting on this appearance: the leaf a little mildewed; in the centre of the eye a dark appearance: in a word, in every respect like the diseased potato. On putting the end of my stick down the eye, I could force it into some of them a far as a couple of inches. The smell from them was most offensive; a kind of matter appearance the same as the potatoe had last winter. I visited the same field last Saturday, and am sorry to say, nearly the whole of the white turnips are affected, and the swedes to a much greater extent. Not feeling satisfied, I have visited several of my neighbours' crops, and can easily see the same disease amongst them, in the incipient state: being later in their growth, the disease has not yet developed itself so fully. One field I examined particularly, which had been transplanted in June, but they were affected. Not wishing to become an alarmist, I have merely wrote this in the spirit of enquiry. Having carefully perused the different agricultural reports from your numerous correspondents, I cannot see in them any allusion to the disease: all concur that since the late rains the turnips are looking much more promising. I wish when they write again, they would pay especial attention to the crops in their several localities, and report thereon; for if the disease should prove to be epidemic, the consequence to the grazier, the ensuing winter, will be very serious. Its being detected early in the season may be the means of enabling us to provide a substitute before winter sets in.

Muriate of ammonia applied with saliva to a corn that has been pared a little, will remove it entirely.

HYBRIDISED WHEAT.—We understand that Mr. Maund, who communicated to the council of the Royal Agricultural Society on the 8th instant, the specimens of hybridised wheat, has various other experiments in progress, he having been engaged in investigating this subject about three years, and is, we believe, the first botanist who has turned his attention to the improvements of wheat by hybridisation. It is at the present moment one of the most important subjects that can engage the attention of scientific men, and we hope that Mr. Maund, as the first to apply his favorite science so beneficially for the agriculturist, will be enabled to proceed and carry out what he seems so well to have begun. These experiments will be looked on with the more interest when it is recollected that for upwards of twenty years Mr. Maund has so ably conducted the "Botanic Garden and Fruitist," a work which has led the way and been chiefly instrumental in stimulating the public mind to its present zeal in the cultivation of fruits and flowers.

EFFECT OF SULPHATE OF IRON ON VEGETATION.—The *Journal d'Horticulture Pratique* asserts that a tree, of which the wood is tender, poor and sickly, to which a strong solution of sulphate of iron should be applied, revives and puts forth an extraordinary vegetation. This dissolution of sulphate, of which M. Paquet has made many successful applications this summer, should be given in and with the water, when the plants or trees are watered, so that the roots may more readily absorb the chemical agencies which reanimate the vital forces of the tree.

PIN MAKING.—A London paper says that a new machine for the making of pins, has just been completed. It is called the "Regius." Strings of wire go into it upon the one side, by thousands, and almost immediately appear at the other, as pins in the most perfect form, literally headed and pointed to a degree of perfection defying microscopic power to detect any flaw in their shape and finish.

HOPE.—You will scarcely find a man in all the ranges of our creation whose bosom bounds not at the mention of hope. What is hope but the solace and stay of those whom it most cheats and deludes—whisperings of health to the sick man, and of better days to the dejected—the fairy name of which young imaginations pour forth all the energy of their souls, and whose syllables float like aerial music into the ear of paralysed old age? In the long catalogue of human griefs, there is scarce one of so cutting a pressure that hope loses its elasticity, becoming unable to soar and bring down fresh and fair leaves from some far off domain, which self creates. Rev. H. Melville.

DESPAIR NOT.

There should be no despair for you,
While nightly stars are burning;
While evening pours its nightly dew,
And sunshine gilds the morning.
There should be no despair though tears
May flow down like a river,
Are not the best beloved of years
Around your hearts for ever?

They weep, you weep, it must be so;
Winds sigh, as we are sighing;
And winter sheds his grief in snow,
Where autumn leaves are lying:
Yet these revive, and from their fate
Your fate cannot be parted;
Then journey on, if not elate,
Still never broken hearted.

SUMMER'S FAREWELL.

BY ELIZA COOK.

What sound is that! 'Tis summer's farewell,
 In the breath of the night wind sighing.
 The chill breeze comes, like a sorrowful dirge.
 That wails o'er the dead and the dying.
 The sapless leaves are eddying round,
 On the path where they lately shaded;
 The oak of the forest is wearing a robe,
 The flowers are fallen and faded.
 All that I look on but saddens my heart,
 To think that the lovely so soon shall depart.

Yet why should I sigh? Other summers will come,
 Joys like the past one bringing;
 Again will the vine bear its blushing fruit.
 Again will the birds be singing.
 The forest will put forth its "honors," again.
 The rose be as sweet in its breathing,
 The woodbine will climb round the lattice pane
 As wild and as rich in its wreathing.
 The hives will have honey, the bees will hum.
 Other flowers will spring, other summers will come.

They will, they will; but ah! who can tell
 Whether I may live on earth till their coming!
 This spirit may sleep too soundly then,
 To wake with the warbling or humming.
 This cheek, now pale, may be paler far,
 When the summer sun next is glowing;
 The cherishing ray may gild with the light,
 The grass on my grave-turf growing;
 The earth may be glad, but the worms and gloom.
 May dwell with me in the silent tomb!

And few would weep in the beautiful world,
 For the fameless one that had left it,
 Few would remember the form cut off
 And mourn the stroke that cleft it.
 Many may keep my name on their lip,
 Pleased while that name degrading;
 My follies and sins alone would live,
 A theme for their cold upbraiding.
 Oh! what a change in my spirit's dream
 May there be ere the summer sun next shall beam.

GREAT SIZE AND LONGEVITY OF TREES.—We learn from a late number of the *North American Review*, that there are cypresses in Mexico, whose ages vary from 2,390 to 4,024 years, at the minimum estimate of scientific calculations; at the maximum, from 3,480 to 5,124 years, or almost coeval with the creation. These calculations are based upon inspection of the layers of the wood as compared with the known age and relative layers of smaller trees of the same species. The girth of the cypress of Montezuma is 45 feet. That of the giant cypress of Santa Maria del Thule, the Nestor of the race, is near the base 122 feet or 40 feet in diameter. Its height is not given; but the tree as yet bears no signs of decay.

M. Arago, the French astronomer, says it is impossible to foretell, with certainty, what the weather will be a year, a month or even a single day in advance; and repudiates the weather predictions periodically made in his name.

DEATH OF CHILDREN.—A writer in an English Magazine, speaking of the death of very young children, thus beautifully remarks: "The sinless soul of the cherub child, that dies on its mother's breast, wings its way to heaven, unconscious of the joys it might share here, as also of the many miseries of which it might be partaker. This can hardly be called death. It is but the calm, soft ebbing of the gentle tide of life, to flow no more in the troubled ocean of existence; it is but the removal of a fair creature, too pure for earthly stay," to make one of that bright band of cherubim which encompasses in glory and in joy, the throne of the living God."

But, glorious as may be the change to the little one, it is hard for the mother to part thus early with her fair haired innocent—to break off all the delightful ties of budding tenderness that had bound her, even in a few months, to that gentle form forever.

THE LONGEST BRIDGE IN THE WORLD.—The Boston Transcript says, the land of the Celestials boasts the largest bridge in the world, and this, according to travellers, is the bridge of Layang; over an arm of the sea in China. It is built in a similiar way as the bridge of Babylon, but entirely of stone. Its length is said to be 26,000 Paris feet, and comprises 3000 arches, or rather openings of pillars. These are not overspread by arches, but there are placed above them large slabs of stone which form the roadway, 70 feet broad. The distance of the pillars is nearly 74 high feet, the latter being 70 high, and 15 broad, and strengthened with stone facings of the form of triangular prisms, which extend over the whole height of the pillars, up to the transverse slabs. The latter of course more than 70 feet long) extend in breadth to 15 feet, and have 9 feet in thickness. The parapet is a balustrade, and every pillar supports a pedestal on which a lion, 21 feet long, and made of one block of marble, is placed.

CHARITY.—How noiselessly the snow comes down. You may see it but never hear it! Such is true charity.

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