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THE ILLUSTRATED

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SUMMARY OF CONTENTS.

ENGRAVINGS.

VETERINARY DEPARTMENT.

Under the direction of D. McEachran, F. R. C. V. S., Principal of the Montreal Veterinary College, and Inspector of Stock for the Canadian Government.

MILK AS AN ARTICLE OF FOOD.

OTHER SOURCES OF IMPURITIES.

We have seen that milk naturally undergoes important changes, that the food and water supply materially affect its quality and flavour. We find however that many other causes operate in rendering this important article of food impure, and produce such changes in its composition as materially deteriorate its quality.

We have seen the readiness with which air contaminated by putrifactive exhalation affects milk. It is no less true that impure air, from whatever source the impurity arises, affects this fluid whether it is inhaled by the cow, or absorbed by the milk.

Hence it is of the utmost importance that the byres should be well ventilated, and kept clean. We consider that, next to the food the cow eats, the air she breathes affects the quality of the milk. The dairy in which it is kept should be free from all sources of contamination of the air; hence in selecting a site for a milk house it should be as far as possible from the manure heap, stable, or house drains. In private houses in the city it is no uncommon custom to keep the milk supply in refrigerators in close proximity to meat or fish, or perhaps decomposing vegetables, and find that the milk does not keep sweet, for which the milk vendor is blamed, as will be seen unjustly. Most of our city cellars are contaminated by sewer gas, and are not proper places for keeping milk.

Milk, bought from shops and groceries, which has been exposed to all kinds of impurities of the atmosphere will seldom keep well, even if not adulterated.

Want of cleanliness with the cans, pails, and strainers, often causes milk to spoil. Not only is it necessary to wash and scald the dishes, but they should be exposed to the air. wooden vesssels are not recommendable on account of the difficulty of thoroughly cleaning them.

The simple precautions of washing or brushing the cows' udder, and tying the tail before milking, will often prevent impurities from falling into the milk which the strainer will not remove, and which are not only disgusting, but lead to the spoiling of the milk.

Freshly drawn milk should never be shut up in close vessels. It must be both cooled and exposed to the air to secure good flavour, and good keeping qualities.

Where milk is set in shallow pans, as for raising cream, it cools tolerably in the air, but it will not keep as well as if it is exposed to cold water for this object as it is prepared or cured for market. I described this method here, as all who produce milk, or use it in any form, may learn something from the practice of those who send it to distant markets.

"As soon as a can is milked, usually holding 40 quarts, though some use coolers of the same height but holding but half the quantity, it is set in a vat, or spring, of cold water, where there is sufficient flow to carry off the heat.

If the supply of water is scanty, or the temperature but little below 60°, it would seem that the cooling should be hastened by stirring the milk, but when the flow of water is abundant, and the temperature is about 40° stirring appears to be unnecessary. In either case the lids must not be put on the can till the milk is cold.

It is well not to fill the cans quite full till they are taken from the spring for market, as thus a larger surface is exposed to the air, and you can best secure that when the water is higher on the outside than the milk is on the inside. When the milk is highest that above the water will not cool readily, and is very apt to injure the whole. Cold and warm milk must not be mixed. After it is cool, the milk of the night and morning may be safely mixed. The milk remains in the spring till the time arives to send it to market, keeping it cool in summer and from freezing in winter.

For the supply of New York, the milk of the previous morning and evening are sent in the afternoon, arriving there soon after midnight ready for the morning distribution.

Thus prepared the cream separates but partially from the milk, so that by agitation it readily mixes with it again; the strong grassy or animal odour is removed, and it will preserves its sweet condition for a considerable time longer than would new milk without cooling, even in the warmest weather.

For eating and drinking purposes in the family, and

especially for the use of young children, milk should always be prepared in this way, if we desire to have it of the very best. The real *luxury* of a glass of milk, both palatable and healthy can only be enjoyed when it has been thus treated. (1) "

It might be well worth while for our dairymen to follow the practice of this experienced dairyman, and adopt a system of cooling the milk under proper conditions.

(1) Paper by T. S. Gold, Transactions of Vermont Dairymen's Association.

MILK WHICH COAGULATES TOO QUICKLY.

In consequence of chronic inflammation of the udder, it may be in one or more quarters, the milk, coagulates sometimes even in the udder or teat, and lumpy clots are forced out of the duct in milking. It not unfrequently follows the cruel practice of hefting, that the dealer in milch cows often leaves the cow unmilked for twenty-four hours, or more, to give her the appearance of being a good milker. In some cases the clotted milk is confined to one teat, while the milk from the others may be quite good.

No experienced milkman would for a moment allow milk from an inflamed udder to be mixed with his customers' milk, as he knows that a very small quantity of such milk colours and taints the whole, and the blood and curdled milk will form a sediment easily recognized.

VISCID OR STRINGY MILK.

This is sometimes seen in the milk of poorly fed cows, containing a large proportion of albumen. It may not be observed when freshly milked, but when cool, it is observed to be stringy.

It is sometimes seen in cows apparently healthy, and may be caused by atmospheric absorption from a badly ventilated, or improperly drained, milk-house. We have known it caused by indigestion.

BITTER TASTE IN MILK.

A bitter taste and disagreeable odour in milk when newly drawn, is usually due to improper food or water, especially when the water contains decomposing organic matter.

Certain medicines or medicinal plants, and disease of the liver will produce this condition of the fluid. We have known instances in which this change has taken place in a cow's milk on the same food and under the same sanitary circumstances in which they previously gave sweet milk; and found it difficult to discern the cause. Such milk from one cow in a herd may spoil the milk of a dairy if it is mixed with it. Such cows are best got rid of by feeding them for the butcher. As their milk is not good for any purpose, either as milk, butter, or cheese.

Importation of Clydesdale Stallions.

We congratulate the County of Beauharnois Agricultural Society on their recent importation of a very valuable Clydesdale Stallion, which arrived on the 21st ult, ex. S. S. Grecian.

Learning from past experience the value of the Clyde stallion in improving their horses, almost doubling their value and giving the county a reputation for good horses, which unfortunately it has not in any marked degree retained, owing to a departure from the crossing which proved so profitable, and returning to lighter breeds, which, as is well known, proved a complete failure.

It is now a well established fact that no horse crosses so well with our light boned, small-footed Canadian mares as the Clyde. He improves them immensely from the knee downward, giving more bone and larger feet.

Objections are made to the Clyde as being too heavy for our deep snow in winter, and deep mud in spring, being too heavy and slow for general purposes. True enough, the heavy, pure-bred Clyde is open to these objections, but we have repeatedly seen crosses with our light mares, not thorough bred, which had weight, activity, and spirit, which qualified them for any kind of work, qualities which our light native stock want very much. We don't hesitate to place the Clyde horse in the same rank as an improver of our horses, as the Shorthorn bull is to our cattle: he improves everything he is crossed with. But, like all other practices in breeding, what may be called *violent* crosses, such as the thoroughbred and the Clyde, are not advisable, as you produce the qualities of neither, and you may have the large head and heavy body of the one, on the small feet and light legs of the other.

We think our readers will find that, on our light draught or general purpose mares, such horses as that just imported for Beauharnois will produce horses sound, serviceable, and saleable at remunerative prices.

This horse was imported by J. M. Browning Esq., for the Society. He was bought from Mr. David Riddell, Black Hall Farm, Paisley, Scotland, and was selected and recommended by Professor McCull, of Glasgow. Connoisseurs pronounce him one of the best importations which has been made for many years: for style, action, and pedigree, he will be hard to beat.

By the same steamer Mr. McEachran imported a Clydesdale Stallion "Handsome Jack" which is to remain for service for the season at Mr. Henderson's, Petite Côte. This horse is an almost perfect model of his breed, and his pedigree cannot be surpassed. His Sire, "Prince Victor," was selected and exported to Melbourne, Australia; hisgrand Sire, "Prince of Wales," was sold for $7500, and is the best horse of his breed in Scotland; "Handsome Jack" is allowed by all who have seen him to be exactly the horse, in size, form colour, and action, wanted for this district. It is to be remarked that such a horse was very much needed, and our readers who have good mares will do well to avail themselves of this rare opportunity to improve their stock.

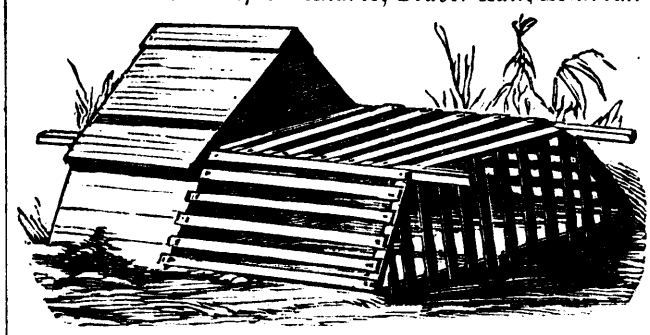
RING-BONE.

In answer to our correspondent we would refer him to an article on this subject in one of our earliest numbers. Ring-bone is hereditary, mares suffering from it should not be bred from. It is incurable, and produces lameness untill the joint is completely anchylosed.

Level the foot, and have it fired, and blistered; keep the animal idle, and on soft food for three months.

POULTRY DEPARTMENT.

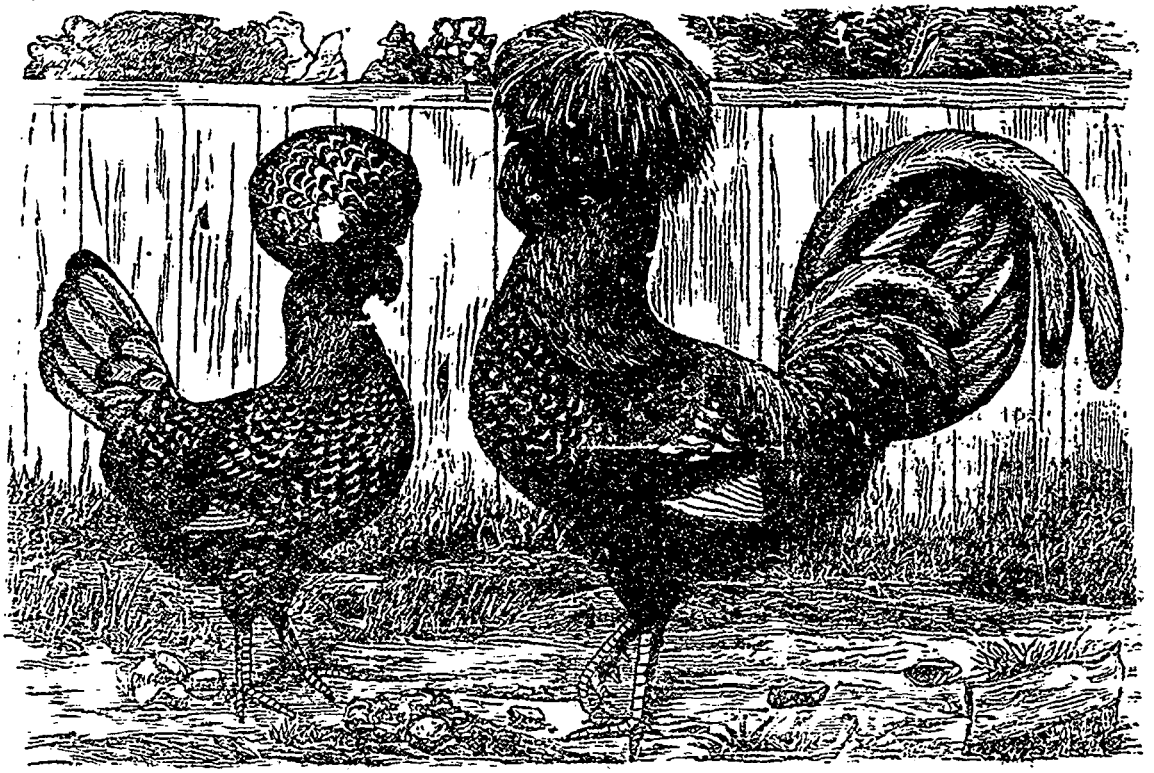
Under the direction of Dr. Andres, Beaver Hall, Montreal.



Movable Coop with Run.

There is no way of securing perfect cleanliness so effectually as by moving the enclosures to a fresh spot of ground. The illustration, on this page, of a moveable coop, designed to be carried by two persons, is, we think, worthy of attention.

This coop may be used for a variety of purposes, such as for a hen with chickens, or for sitters who are to be "broken up," or for a hen engaged in incubation, where she may be kept apart from others who lay. If a hen with brood is to occupy it, the door connecting the inside with the outside section should extend to the ground, as, in jumping out, the mother might kill the chicks. When sitters are to be broken up, perches should be put across the inner apartment, and a cock added to the company, who will prevent the hens from sitting on the bare boards in a corner, and hatching nothing from nothing, as Brahmas and Cochins will sometimes do. The inside part, if floored, should have a large door at the rear, for convenience in cleaning, but it will be better to have no flooring but the ground.—P. WORLD.



Bearded Silver-Spangled Polish.

Bearded Silver-Spangled Polish.

The term Silver-spangled Polish is a misnomer; the birds, as now bred, being *laced*, not *spangled*. In the early days of the cultivation of this variety, however, their plumage was really spangled—that is, the large black spots were confined to the tips of the feathers, instead of extending towards the quill ends in the form of a border, on both edges, as in the modern representatives of the breed. And many breeders in this country still cling to the old-fashioned spangles, though in England they are obsolete, with the exception of the sickle-feathers of the cock, which still retain them. In England the Bearded S S. Polish have supplanted the non-bearded strains, from whence importations have been made that, within a couple of years, have been very popular in this country. The best bearded strains have neither comb nor wattles, though our *Standard* allows these appendages, saying, however, "The smaller, the better."—P. WORLD.

POULTRY CHOLERA.

General appearance.—The fowl droops and mopes, the feathers "stare"—that is, they present a rough, unplumed appearance; the parts of the head not covered by feathers turn dark or pale, mostly dark; the fowl is weak and much prostrated.

Digestion is arrested; food is refused, the crop is filled with sour or fermenting ingesta; so are the other organs above the liver. Diarrhea of a mild character is seen at first, which gradually increases in severity to the end. The droppings are of a yellowish-green color, assuming a more decidedly green and frothy character, and continue so as the long fowl lives.

The circulation is much disturbed; the pulse is rapid and feeble; high fever exists, attended by great thirst.

The disease is generally developed abruptly in the flock.

In flocks where the disease is about to make its appearance, very careful and close observation will discover that the development of the malady is first denoted by listlessness, some derangement of the plumage, yawning or gaping, an indifference to food, and thirst.

These symptoms soon become more pronounced, and in a short time the characteristic intestinal evacuations appear, succeeded by the discoloration of the comb. The blood circulates with difficulty, and the changes in this fluid incident to respiration take place imperfectly: hence the feebleness, the congestion, diminished temperature, thirst apathy, vital prostration, and death.

In cases where the disease is so rapidly fatal as to destroy fowls on their perches which appeared to be in perfect health on going to roost, the symptoms cannot be described, but can be done with very little difficulty, as there is pretty sure to be others in the same yard showing these symptoms just mentioned.

Dr. Dickie in his work on cholera claims that the disease is produced by a cause existing without the fowl, and is miasmatic in character, and is absorbed into the blood of the fowl by breathing; that there is a special cause for this disease, as there is for all other well-defined epidemic diseases, and claims that it is a special miasma, which, when introduced into the blood, produces the special poisoning. Malarial or

miasmatic poisons do not usually produce their effect upon the system at once, but require some time, longer or shorter as the case may be, to develop disease.

There may be cases where the poison of the miasma is so malignant as to produce almost instantaneous disease upon exposure; but this is not the rule as regards the action of miasmas in temperate climates. They require some time, their characteristic effects and a period varying from a few days to several weeks, or even months, may elapse between the time of exposure and the appearance of disease.

On the other hand, a miasmatic poison (or virus) may accumulate in the system without producing any perceptible effect, and then suddenly manifest itself as if by an explosion, and life may be destroyed before reaction can take place.

Dr. Dickie sums it up thus in brief:

I. Epidemic diseases are produced from causes having their sources in *extrinsic* morbific substances.

II. These morbific substances are of the nature of viruses or miasmas (1).

III. Viruses consist of appreciable substances, and are propagated by contagion; while miasmatic poisons are impalpable, or inappreciable, and do not give rise to communicable diseases.

IV. Miasmatic poisons find their way into the system through the lungs, by means of the respiratory act; and being introduced into the blood, they produce morbid changes in that fluid, and thus cause disease.

V. Every distinct epidemic disease depends upon some special miasmatic poison as its cause.

VI. These miasmas do not always produce their characteristic effects immediately; they may (and do) act with cumulative force, and destroy life as if by a shock.

Let us apply these points to the present subject.

I. Poultry cholera is obviously an epidemic disease.

II. The special character of the disease is well established: it therefore depends upon a specific cause.

III. The disease is not communicable from one fowl to another, hence it is of *miasmatic* origin.

IV. The primary effect of the poison is to produce morbid changes in the blood—*zymotic* effects—and secondarily to affect local organs. The disease is essentially a constitutional, and not a local one.

V. The poison may accumulate in the blood for a considerable period without producing any appreciable effect, and, after a time, suddenly manifests itself by the death of large numbers in rapid succession.

VI. While the miasm that affects poultry cannot be defined or described we believe it to be generated or formed on premises where the disease prevails: it is of *local origin*.

VII. The cause of Poultry Cholera is therefore first a *miasm*, and secondly, a *special miasm*. The disease is produced by, or is the result of, blood-poisoning, by the process of zymosis, or fermentation.

The subject is one that is not thoroughly understood by poultry breeders, and we recommend them to study up the matter for themselves. The more they look into the subject, the better prepared they will be to fight it.

Pedigree Breeding.

On the last occasion of our referring to this subject, having shown the necessity, or at least great importance, of two or more pens or yards at commencing a new strain of poultry, or other race of animals in which *fancy* points are the chief object sought, we proposed to treat of the practical details of founding a new strain of Dark Brahmas, taking them simply as an example we felt *safe* in dealing with, whereas with others, while the same principles would hold good, we might not be so correct in the details. We would provide, then, for breeding pullets, at least two yards, stocking them with hens perfectly pencilled up to the throat. If we could only afford a couple of such birds, we would rather have them than a dozen even only a little worse in this quality, since every shade *now* saves much trouble afterwards; and we would prefer to make two pens with even *one* such good hen in each, to using more, if not really good *also in the same* point. Unless such was the case, we would make up the pen to a judicious number with some other breed whose eggs could be readily distinguished by the colour, and *not* by other inferior hens of the same breed. We wish especially to show the folly of this far too common plan, which stands in the way of success with scores of amateurs. Supposing the cock to be a well-bred bird, it is very likely he may "throw" (a word that just expresses such "happy go-lucky" results) some well-marked pullets from these poor birds; and many people think this is a gain. To a certain extent, and in a certain sense, it is; but, from a breeder's point of view, it is a serious *loss* of time and ground gained, and "puts back" the strain; since if these birds in turn are bred, they "throw" *back to the poor parent*. Far better it is to have, say Dorking hens, which lay white eggs, and thus to ensure not an egg being set except from the one or more well-pencilled hens. One exception may be made, when an amateur has such leisure, or such a treasure of a "man," that he can certainly tell the parentage of every chick. In that case he may add to his hens some inferior ones for the chance of good progeny; but however good this progeny may be, it should only be sold or exhibited, not bred from if it can be avoided.

Of course the two or more cocks will also be selected with all practicable care, and especially in relation to the points necessary for breeding pullets (supposed here to be chiefly desired) which we need not here refer to. If they have besides these the main points of an exhibition *cock*, all the better; but this is greatly a question of cost. And from such pens, breeding *only* from well-pencilled hens, there will be the very first season some equally well-pencilled pullets. How many it is impossible to tell. If the hens used were bred from poor parentage, they will not be many, as just explained; if they were carefully and well bred, it may be a good many; but we never knew a hen good in this point which did not breed some birds as well marked as herself, unless wretchedly mated. If the proportion is good, it shows that the cock too is of good breeding quality, and has "hit" well with the strain of the hens, in which case he should be kept, unless too old. And so the first season's breeding comes to an end.

From the produce, in due time, a few birds should be selected, still choosing the best-pencilled, and in case of doubt or difficulty, choosing of two birds the best marked on the breast. Next to this, choose for combs, and so far as can be done, also form, size, and leg-feather, but discarding leg-feather without scruple unless combined with the marking required. If the eggs have been set as advised, it will not be needful to choose *very* bad birds even in these points; but if even one or two birds appear perfectly marked, and good in other points also, let them be treasured, and not parted with it at any price. At this stage the owner can not *afford* to sell such. Having selected the pullets, there are various ways of mating them. They may be put with—(1) Their own father, and if he has proved of sterling quality, and suits them fairly in other respects, this can be done. (2) The cock from the other pen, and if he has bred really well, this is a very good plan: or (3) a cockerel from the other pen, or one of them. If there are enough, *all* these plans should be adopted, and thus four pens mated up for next year, which

(1) *Real* plural, *miasmata*. A. R. J. F.

will suply crosses enough to go on for a long while without injury.

Next year's breeding will show a *marked advance*, the proportion of pullets well marked up to the throat being very good; so good, that out of them, if ordinary judgment has been employed, we can now have little difficulty in finding the few we want to breed which are also good in combs, size, leg-feather, and other matters. And here will be seen the advantage of the plan we have insisted on, of fixing upon the one *most* important point, whatever that may be, and *never* dropping it. If this plan has been followed, it will be found that we have now—imperfectly it is true, but still to a very great extent—made it *certain* already in our new "strain," and can, to a moderate degree, without dropping it, already begin to select our birds for other points as well. The next season the proportion of finely-marked pullets will be very large indeed (we still suppose *only* the perfectly-marked to be bred from), and there will probably be no difficulty whatever in selecting those which show also the other points required; but we hardly need pursue this part of the matter further, for what we mean will be readily seen.

"So much—" to borrow again words written a year ago for the American *Poultry Bulletin*—"So much for Dark Brahmas; but the same principles will apply to other breeds. Every variety has *some* point or points which demand long breeding and patience to acquire, and on these should attention *first* be fixed, and kept there, gradually giving attention to others, *not by turns*, but just as fast, and no faster, as the increased number of birds good in the first point, and therefore admissible to breed from, enables selection for the second and subsequent points to be made. In this way every year will show a sure and steady improvement in the proportion of birds fit for exhibition; and after the first two seasons that improvement will be so rapid as to be almost beyond belief. One thing, however, is obvious. The best birds *from the breeding point of view* must never be sold, but kept for the breeding-yard; for a man cannot reasonably expect to make any marked progress who is constantly selling what represents nearly all the ground he has gained. And on the average this will not be found to sacrifice anything even in the shape of sales, since it will frequently happen that the birds nearest to a show standard, and therefore the most saleable and valuable merely for show or sale, are *not* those to be kept for breeding during the early stages. For instance, going again to our Brahmas, we have seen that the birds to be kept are the best pencilled, even if at first these birds want feather and some other points. But the best birds for show, at this stage, will probably be those which are rather worse in colour, but better in the general average of points. Later on, when a higher degree of perfection is secured, the best for breeding will also be best to show; but by this time the amateur will have plenty both to breed from and to sell also."

A few more remarks on this subject, chiefly relating to the different points required for breeding the different sexes, we must defer to next week, when we hope to conclude what we have to say upon Pedigree Breeding *Fanciers' Gazette.*

Farms and Farming.

LOGAN'S FARM.

There is a very worn out Latin quotation, which, had I not the fear of Lord Beaconsfield's censure as expressed in *Tancred* before my eyes, I might possibly be tempted to cite as a heading to this article. But the late Premier forbid all such trite sayings, including *Oases*, *Phœnixes*, and such like.

His injunctions, however, shall not hinder me from expressing my opinion that the Tenant of *Logan's Farm* must, or, at least, ought to be, in such a season as this, a very happy man. A very courteous man Mr. Irving certainly is, for he gave up his time in a very obliging manner to show me over his land, and I did not leave him without learning something: the way to destroy thistles, for example.

With two adjuncts, the farm consists of about 300 acres. The soil is light, on the south and north sides, but heavier in the middle. When I arrived, the men and teams were busy spreading manure, and splitting drills for turnips. Mr. Irving tells me he has never found any difficulty in securing a plant; upon which I observed, that I presumed he sowed plenty of seed: his reply was. "Yes, 4 lbs an acre"! As this is about three times the amount generally sown, there is little to wonder at if the gormandizing *hultica* can't get it all; but it should teach a lesson to those who, as is usually the case, grudge even 2 lbs. Of course, as I have said before, a great deal depends upon the state of the land; but as a general rule there is little danger of giving too much seed to any of the root crops, the thicker they are sown, too, the sooner they are fit to hoe, as they nurse one another up. (1)

A fine piece of young seeds (Red Clover, Trefoil, and Timothy,) which had been begun for *green meat* some days, attracted my attention on account of the number of *ox-eyed daisies* in it. As the land was evidently in first rate heart I could not account for their presence, this plant being an almost unerring sign of poverty. Mr. Irving informed me that the foulness of the seed was the cause, adding, "I am often obliged to cut my first year's grass before it is fit, to prevent the weeds which I buy with the seed from ripening; however, there is no great loss," he added, to my great delight, "as clover can't well be mowed for hay too young." This agrees exactly with what I mentioned of our English practice, in the Journal for June (in my article on hay) and I was glad to have my opinion confirmed by a man so thoroughly up to his work as my companion.

I need hardly say that, drawing as he does enormous quantities of stable-dung from Montreal, the use of artificial manure on Mr. Irving's farm is very trifling. But there is one thing I should like to call my reader's attention to. The horse and hand-hoeing are both thoroughly attended to, and, in spite of it all, the root crops are not clean—they will be clean a fortnight hence, but they will cost twice what they ought to cost to make them what they should be. Why? The reason is simple enough. The Montreal manure is as full of the seeds of all kinds of rubbish as ever it can stick! Other people *don't* cut their hay green, but let it and the weeds ripen before mowing; the stable-keepers buy the hay, the horses, &c., reject the weeds, and in consequence the dung-heap is full of trash. A sad drawback, but it must be endured until a better and a brighter light be diffused over the country. It is very sad to see though, and many non-practical passers by would doubtless be inclined to attribute it to slovenly farming, but a glance at the early potatoes and the beans (the latter are just going to flower) would correct the error, they, as well as the corn crops, are *perfectly clean*.

I don't wonder Mr. Irving feels sore on the subject; but that is a trifle, there is a compensation in the increased yield of the crops; worse remains behind: the sheep on this farm have to be shut up every night on account of the dogs which regularly marand round the country, killing everything that comes in their way, even heifers. I cannot conceive it possible that, in a long settled district like the Island of Montreal, it will be necessary to expatiate on this aggravating injury. In the Western wilds, where no authority prevails, I can fancy some difficulty might attend the suppression of such a

(1) Always within bounds. If the nursing produces *rickelty* children with *twisted* limbs, the seed has been too good, or to liberally sown. A. R, J. F.

nuisance; but here, thickly supplied as we are with Magistrates, Counsellors, and Constables, it is a shame and disgrace to us, if this be allowed to continue. Are laws indeed of no avail? Is it weakness, laziness or cowardice, that hinders their being put into effect? There ought to be at least 20,000 sheep on the Island. I doubt if there are 4000! Every one knows that on every farm a score or so of sheep can pick up a living at a mere nominal expense, leaving behind them, exclusive of their manure, three to five dollars (lamb and wool), and all this has to be lost, because, forsooth, James Nokes, or William Stiles, likes to have a miserable half starved cur at his heels, which he is too stingy or too negligent to feed properly. Within twenty or thirty yards of my own door, there are four or five of these unhappy mongrels, not one of which, judging from the absence of the Corporation ticket, has ever paid a cent of tax; "they make night hideous with their howling," baying, "like Irish wolves, against the moon," and they have destroyed all the pet cats in the neighbourhood.

It is high time all this was put a stop to; it has, if I may be allowed to say so, arrived at such a pitch, that if nothing will induce the local authorities to interfere, the Government should step in, and put forth its strong right arm against the selfish owners of these destructive beasts.

The course of cropping on this farm is the old Scotch five-shift-viz., roots, grain (wheat, barley, oats) sown down with grass-seeds, to lie 3 years, mown two years and grazed one year, thus reversing the Scotch plan which is to mow one year and feed two—the clover and rye grass of the old country would give no hay crop the second year. The roots are mangolds, of which the orange globe is preferred, carrots, and Swedes, the first and second of which were being hoed, by horse and hand, and were well advanced, in fact the mangolds should have been singled a week or ten days ago.

I found a fine piece of Fall Wheat coming into ear. It looked at its worst, as wheat always does at that time, but it will bear a very different appearance a month hence.

The average of grain crops per acre seems to be, wheat 28 bushels; oats 50 bushels; barley 35 to 40 bushels.

The Cooley Creamer is used, and the effects must be good, as the milk and cream are sent to the Windsor Hotel, and there are no complaints. I wish to heavens I could get some of it for my breakfast-table; for the "animal odour" of the non-cooled *milk* I take in is disgusting, and the *cream* is three times as bad.

The few sheep Mr. Irving keeps, (as I said before, it is a sore subject with him) are Border Leicesters, but the cows are evidently his delight, and indeed I did not wonder at his evident pride in his herd, for a better bred lot of improved Ayrshires it would be hard to find. Here are cows that almost rival Shorthorns in levelness and squareness of shape in the hind-quarters, and still retain the deer-like head, the taper horn, the full udder, and the front configuration of the true milch-cow. It is curious indeed to see how the old faults of form, the drooping quarters, the prominent elbow, the gap behind the shoulder, have been got rid of, and the sedate walk and general queenly carriage substituted for the slouching gait and shambling movements of the Ayrshires I remember in Dumbartonshire, alas! 40 years ago. I cannot enumerate from memory, the prizes this celebrated herd has won, but Mr. Irving's drawing-room, is full of pictures of his pets, with their triumphant epigraphs attached.

The horses are too well known to need description, but a finer lot of Clydesdales of the true stamp is rarely seen.

June 15th 1880. ARTHUR R. JENNER FUST.

How to kill Thistles.

If you cut down a thistle in its infancy the wretch sprouts again, and the wound, hardening into a callosity, presents an inexpugnable barrier to the entrance of the rain. Let it grow till nearly arrived at maturity, and then mow it; the pipy, hollow stem will retain the moisture, and inevitable rottenness of the whole plant below the cut will be the result: this is the experience, at least, of Mr. Irving, of Logan's Farm. A. R. J. F.

MR. JAS. DRUMMOND'S FARM, PETITE COTE.

Upon visiting Mr. James Drummond's farm, at Petite Côte, on the 16th of June, I cannot say I was surprised, but I was delighted to find that rumour had not exaggerated the beauty of its situation, or the excellence of its management.

When I arrived the owner was absent, but Mrs. Drummond and one of the young ladies were kind enough to act as my guides, and to show me that part of the external economy of the homestead devoted to the accomodation of the "milky mothers of the herd," and their progeny.

I learned from Mrs. Drummond that the milk is disposed of to a retail dealer of Montreal, at the low price of 10 cts. a gallon. She informed me that it did not pay, and I can well believe it; but, at the same time, as it is dealt out to us unfortunate consumers at 6 cts. a quart, there can be no difficulty in seeing that, eventually, there is a profit, and this profit, as usual, goes into the pocket of the middle-man. That the intermediary should be well paid for his work, and his, doubtless, numerous bad debts, I should be the last to deny; but we all know that nine-tenths of the milk sold at our doors is more or less diluted, and, even if it were distributed pure, 150 per cent is rather more than a reasonable increase on an article of such enormous daily consumption.

I was surprised to find that no provision was made for cooling the milk before canning it. Mrs. Drummond frankly admitted that the "animal odour" was very perceptible, whereas, that retained for domestic purposes, and reduced in temperature by exposure to the air in very shallow vessels placed in a delightfully cool dairy, was perfectly free from all taint. I cannot sufficiently impress on the minds of all who have any thing to do with the dairy the absolute necessity of using some means of refrigerating their milk. Ice and ice-houses form such a trifling proportion of the expenditure of a large farm, and coolers are so cheaply and easily made, that I hope to see the time when every farmer throughout the country shall be fully supplied with the necessary means to perfect that production, which nature has done her parts towards endowing us with in such abundance.

Upon my enquiring whether then was any truth as to the report that the Ayrshires were falling off in their reputation as butter-cows, Mrs. Drummond told me that, according to her experience, there was none; her cows gave, many of them, from 18 to 22 quarts of milk a day, and, as I saw, the cream in the pans was rich and thick, one of the herd (20 in number) giving, in good pasture, as much as 17 lbs of butter a week!

In the cow-stable there were four heifer calves, two of which are most promising animals, and have a thrifty appearance showing that all the new milk does not go to Montreal. All the messes in the world, linseed meal, oatmeal porridge, with skim milk, will never take the place of the founts of nature's supplying. You can have good calves and little butter, or poor calves and lots of butter, which you please—but, you cannot have both; for, as soon as you begin to feed copiously on skim-milk, the superabundant supply of phosphates produces its invariable effect, and the youngling becomes large at the joints, and thick in the bone, to the utter destruction of that symmetry which is as necessary to the perfection of a profitable animal, as it is pleasing to the artistic eye of taste.

A very intelligent lad, a son of the proprietor, showed me over the Western part of the farm, most of which is, this year, devoted to the root-crop. When I say that the plant of Mangolds, Carrots, and Turnips was, as far as I could see absolutely faultless, I am not exaggerating in the least. The Mangolds, dibbled, were in my opinion to thick—a defect on the right side I admit, but when a showery time comes, as is not seldom the case, pushing their growth, the hoeing and singling is necessarily delayed, the young plants nurse one another up into a spindly condition, they become twisted together, and the task of separating them at last is made unnecessarily difficult. If the seed is good, three in a hole are plenty, as each capsule very often produces as many as three plants. All seed should be tested in flower pots &c, before being used; if this were done regularly, we should hear fewer complaints of failure in our root-crops.

The drilling up of the land on this farm is as near perfection as the steadiness of man's eye and horse's action can make it. The horsehoe is kept at work: in fact it is evident from the state of the land, that the moment the slightest appearance of the rows of mangolds &c gives it a chance of working to advantage, the implement is started, and kept going until the leaves forbid its further progress.

The potatoes were looking superbly, except one very late sown piece which was just coming up. This had been well scuffled with the chain-harrows, (that invaluable implement if used in the proper manner) which had left the land in most beautiful tilth, or, as we say in my part of the world, "with a fine skin upon it." I doubt late sown potatoes. They are very dependent on the weather, and if the disease is more rife than usual they catch it awfully. But I dare say Mr. Drummond, who joined us here, has his own reason for planting them. Very likely they are intended more as a cleaning crop than any thing else.

There have been plenty of Colorado Beetles at work, but a steady persistence in the use of the "Paris Green and Plaster" preparation has sent them to their righteous doom. I wonder, by the bye, what my Joliette friends, who were so angry with me, in 1868, for killing the cabbage-caterpillar, have said to the use of poison for the wholesale destruction of this pest. Do they still think it "fighting against the decrees of the Creator?" I trow not.

In spite of the large quantity of Montreal dung brought on to the land it is not allowed to befoul the crops with its weeds; and this is provided against by a liberal allowance of man and horse labour, five pairs of horses being kept regularly at work until the season is closed.

The course of cropping seems to be: Roots, Barley or Oats, with grass seeds (Timothy, Red, Alsike, and White Clovers) for five years. The seeds last year all failed: a great loss and annoyance in many ways—it put the whole farm out of trim; but, as far as I can judge, they have taken well this spring, and the defect will be made up by retaining the old grass one year longer than usual—still it is a bore.

I need hardly say that the cows are splendid—fine large roomy animals, that must be a delight to the master's eye, and endowed with full, squarely formed udders, that must be equally gratifying to the dairy's mistress. Where the size comes from it was not difficult to divine, when one saw them lazily lapping their tongues round the tops of the rich, lush grass—it (the size) had gone in at the mouth during their youth, and their after provision had not been denied them. One young thing, a heifer calf of last January, was a prodigy of growth—quite as large and as well furnished as the general run of yearlings in the St. Hyacinthe country. I don't think these cows when, after their work of replenishing the pails is over, they are slaughtered fat, would weigh less than 80 stone—London weight—i. e. 720 lbs.

Again was I comforted by Mr. Drummond's adhesion to my views on the Clover question: "I would cut Clover even before the whole of the heads were in bloom, rather than be late with it—last year I did so, and my horses and other cattle preferred it to the best Timothy hay, and did better upon it."

I think the opinion of two such thoroughly practical men as Mr. Drummond and Mr. Irving may well convince the most sturdy infidels, that when we give an extra pound a ton for clover hay in England we are not such fools as they are pleased to think us.

If I drew as much dung from Montreal as the farmers of the neighbourhood seem to do, *I think*, wood being not very expensive here, I should build a rough shed to protect it from the weather, I should pile it in a regular form, trodden and pressed by the horses and carts; but *I am sure* I should not throw it into a hole four feet deep, half full of water. *Verbum Sapienti.*

Not a sheep on the farm—reason? dogs. Quousque tandem? All the grain is sown with the Drill—delivery, the old Suffolk principle of cups on the periphery of a disc. Why? the sower can see that each tube functions properly. I may as well say that I consider this estate to be farmed as well as any I ever saw. I am, I fear, only too willing to find fault if I see a chance, but here, barring the treatment of the dung, which is not quite such a *corpus vile* as it looks, I see nothing that does not reclaim praise instead of censure. A few farms like this sown broadcast about the country must, in time, work an enormous change—and a change is wanted terribly. There is Barley here that must, barring accidents, yield 6 quarters (8 bush.) per imperial acre. How many thousand acres are there that will not yield two quarters?

ARTHUR R. JENNER FUST.

Colonisation Railroads.

Last month we described, in an illustrated article, a new style of colonisation railroad. The length of the article prevented us from giving our entire thoughts on the subject. Every year, the local Government, the owner of our forests, expends on surveys and roads at least twice as much as the Province receives from its lands; that is, the colonist is given the land and its timber for nothing, together with half the cost of the roads and surveys; and, in spite of all this, the unhappy settler finds himself, after a long and arduous struggle, incapable of paying his debts, and unable to keep possession of the land which has cost him nothing! There is a fact which admits of no contradiction, and the attention of the legislature should be most seriously devoted to it.

Our system of colonisation is wrong from the very foundation. Both money and lands are wasted; the settler, having in many cases thrown away his time and strength, finds himself, at the end of several years, with no hope of redeeming himself, and takes refuge in emigration.

If a railroad is about to be constructed across any part of the public property, what happens? Greedy speculators buy up every acre they can lay their hands upon in its neighbourhood—some in their own name, some in the name of their friends and relations, and when the actual settler wants to buy, he has to pay from $5 to $10 for land the Government has sold for 60 cts.

The time has arrived, in our opinion, to put a stop to all this extravagance and waste. Let us colonise, by all means, but let it be done so that the colonist may be able to live by his land, and enrich the public territory, instead of ruining it.

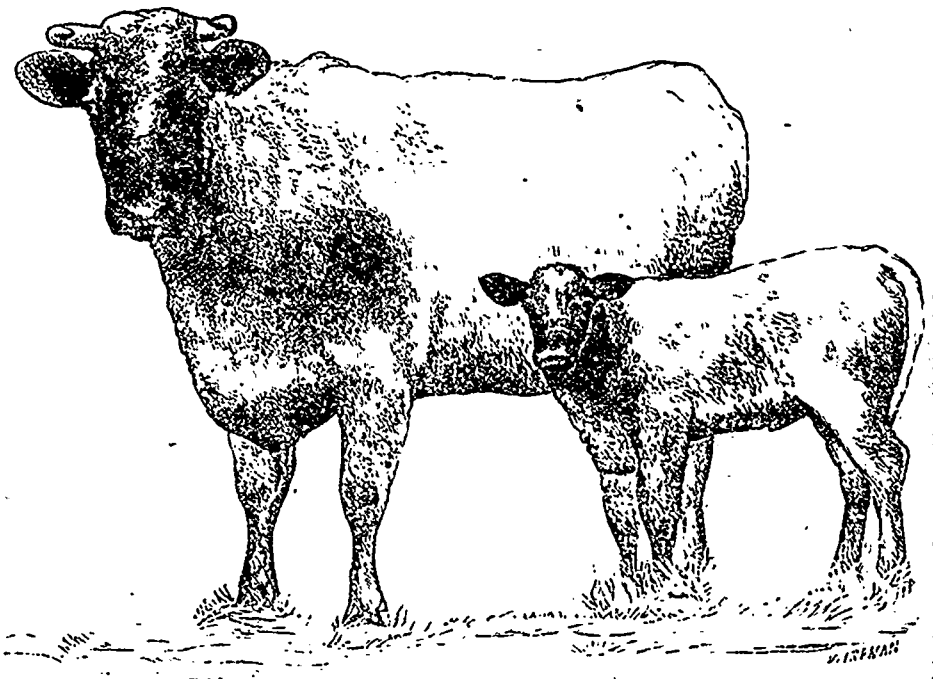
That a considerable revenue might be drawn from our public lands instead of their being dealt in to a dead loss, is our firm belief. They may be made a source of wealth to

the industrious settler, and to the Province as well, instead of being, as they have been, a continual drain on our resources; but on this condition, that means of ingress and egress for their imports and exports shall be economically and prudently provided, and a salutary watch shall be kept over the settler, to insure a careful attention on his part to the wise cultivation of the soil, instead of his being left at liberty to ruin both himself and the public land, as he has done, and, unfortunately, is still doing.

A wise and active direction must be given to our colonisation. It will need, in the present state of our finances, a special loan, on the guarantee of the public domain, to enable us to place the settler in a position to repay any advances made to assist him in clearing his farm, and to pay for his land at the rate of from $4 to $10 an acre, which, in our opinion, is the value of all land in the Province which is worth the pains of bringing into cultivation.

Our point is, that it is possible, and by no means difficult, to draw a return of from $4 to $10 an acre from all the public domain sold, instead of giving it away, and paying, in addition, half the amount of the surveys and road-making. If the Americans in the Western States can, by their railroads, improve the value of their lands, situated as they are thousands of miles from the more thickly populated places, to such an extent as we have seen, cannot we, with our marvellously wealthy forests, situated close to the ports of shipment, hope to equal, if not to excel them, in their patriotic labours.

We shall be prepared to prove our statements when the time comes.



Shorthorn Cow and Calt.

but in extracting from the soil all that is required for the support of a numerous population."

The question of agricultural improvement is the question most frequently touched upon in this Province. It is seldom, or never, searched to the bottom.

The papers point out from time to time, some of its faults. They never plunge the knif boldly into the quick flesh.

Heaps of documents rela g to the subject are laid every year before the Committee of the House—a report is made—the report ends the matter; for the improvement we are still to seek. At last, in 1878, Mr. Barnard and the Abbé Provancher, in answer to the question proposed by the "Institut Canadien" of Quebec. "What is the art of Agriculture in Canada, and how should it be improved?" laid their hands boldly on the wound; they probed it, and pointed out the proper remedies. The essays were published (Côté & Co.) but, in spite of their practical good sense (particularly I would here draw attention to Mr Barnard's brochure) the papers hardly mentioned them, the legislators were too busy with politics to notice them, and Agriculture lies still at the bottom of its burrow, abandoned to its own resources.

It is supposed that, next session, our Agricultural laws will be re-modelled.

Now then is the time to recall the opinions of thoughtful men on the subject, and to call attention to the proper means of improving the rules and orders which guide our rural population.

No one can deny that, in spite of a little progress here and there, the state of our farming is deplorable.

Why is it in such a condition? Has the *habitant* no intelligence, no skill, no strength, no courage? It is not these that fail him—he has them all in abundance—but he has also, unfortunately, become accustomed to see, from childhood, the very worst specimens of farming the world can show, and his mind has become imbued with the idea that these wretched examples are to be followed in his practice.

The reformation of a whole people's agriculture cannot be made in an instant. For many a long year attempts at it have been made by schools, societies of agriculture, county and provincial exhibitions, &c., &c. These and other like things have produced but little fruit in proportion to the sums lavished on them ($2,000,000). What can be the reason of their failure?

The first reason is the defects of our agricultural organisation.

1. The chief of this branch of the public service is the Commissioner of Agriculture and Public Works. He it is who has to put it in motion the whole machine of the administration. to examine the resolutions of the Council of Agri-

Mr. Tasse on the Agricultural Question.

We have received the following deeply meditated communication from Mr. Tassé, President of the committee appointed by the Council of Agriculture to consider the alterations desirable in our agricultural laws.

The writer has been engaged in agriculture, and has found it a profitable occupation, for 35 years. He has read before the Council of Agriculture several papers which have been highly appreciated, and, as President of the Agricultural Society of the county of Two-Mountains, he has given general satisfaction.

The Agricultural Question.

"The strength and prosperity," says Fénelon, "of a country consists, not in an abundance of badly tilled provinces,

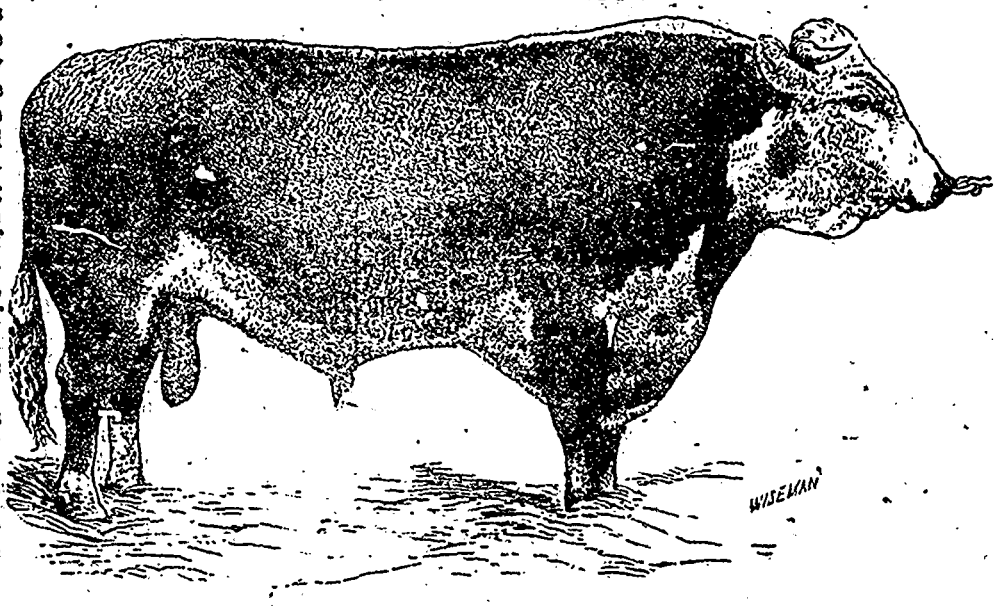
culture, to superintend the agricultural societies, &c. How often must it happen that this minister's studies and tastes have led him to trace other paths than the happy, though lowly paths of a country life. He has, indeed, plenty of advisers in the Council of Agriculture—is he ever present at their meetings? He is necessarily sufficiently occupied with his political duties, commonly so called, and often he has to resign his post before he has had time to inform himself on the subject of Agriculture, whence one of his titles is derived. Wished he it never so much, time would fail him to do his duty, so he is compelled to delegate the inspection of the agricultural societies to the Council of Agriculture.

2. The Council of Agriculture consists of 23 unpaid, irresponsible members. From ten to fifteen of them attend the meetings (three a year); an extraordinary meeting is sometimes called, but nothing comes of them, there is no unanimity of design, and the work planned is never carried out. How should it be otherwise? The Council is only a body of counsellors, and their chief is never present at his post.

3. There are 75 to 80 Societies of Agriculture. A subscription of $200 entitles each to a Government grant of $666. They are self-governing; no one looks after them; they are of little use to any one, except perhaps to a few speculators. (Terribly true. A. R. J. F.)

4. There are 3 schools of Agriculture in the Province, which draw $7,800 from the public purse. Here, as in the States, few pupils attend these schools, from a mistaken notion that farming requires no educational preparation. The oldest of these colleges—St. Anne—has had, from 1873 to 1879, 44 pupils; 33 of whom have settled down to farming Just 4⅝ pupils a year!

Lansing, Michigan, does better. There are plenty of students. And no wonder! They are paid 10 cts. an hour for their work, and the professors travel about from place to place, giving lectures, and thus make their school popular. Other Agricultural Colleges in the States, like our own, are empty.



Hereford Bull.

MEANS OF IMPROVEMENT.

1 *The Superintendent of Agriculture* at the head of the organisation should be a man of special attainments, well known as a practical farmer, entirely devoted to the service of Agriculture, and utterly beyond the demands and change of the world of politics.

He would be to Agriculture, what the Superintendent is to education. Either President of the Council of Agriculture, or Secretary with a voice in its decisions (with at least two assistant secretaries) it would be his duty to submit questions of importance to the Council for discussion, and to put their resolutions into operation.

An attempt was made, some time ago, to replace the Superintendent of education by a minister with a portfolio. They were glad to get the former back again! This is no new idea, the appointment of a director. The Legislative Assembly recommended it, in 1850, in a document signed by J. C. Taché, President: Major Campbell, Mr. Barnard, the Abbé Provancher, both adhere to the same idea.

The progress of farming is too important not to require the whole time and energy of a man specially devoted to the subject.

It is no reproach to our present system of education for it to be told that agricultural education is of the highest importance. Our generation reads, it is true, but it is hardly an improvement on its predecessor which could not read. If it does farm better, that is not due to its having been to school. If it had really learned farming, like the Belgians and the Scotch, more hands would be employed on the land, and three times (Major Campbell used to say four times) the amount of produce would be extracted from the land, and three times the present population could be supported.

Does not such a hope as this merit consideration? Let us begin first by the appointment of a Superintendent.

2. Let us gather together, on a more sensible plan, an improved Council.

3. Reorganise the County-societies. It is from competitions that their almost sole usefulness is derived, and the trouble in these competitions has always been that too few real farmers exhibit; and that prizes have not, in general, been offered for the encouragement of those improvements which would ameliorate our farming practices.

To alter these objections, the law ought to enjoin the holding of Township meetings, as well as county meetings. The successful exhibitors in each Township would encourage their brother-farmers.

There are four principal faults in our system. The drainage is bad; the land is not sufficiently worked, cleaned, or manured. Every meeting should hold the cure of those vital defects closely in view.

Whether it be proposed to rear stock, to produce butter, grain, hay, or meat, these farm-lessons must take precedence of every thing. They are the indispensable commencement of all agricultural improvements. To neglect one, would be the ruin of all hope for the future.

Now, the chief fault of all backward cultivation is the omission of one or the other. To attack the omission with all their force, then, should be the main object of all the societies. No one forbids, in countries where agriculture is in an advanced condition, the encouragement of perfection of products: with us, to offer prizes for the best samples of farming matters,

whether of butter, of animals, or of grain, is to put the cart before the horse, the effect before the cause.

Let us, therefore, place first the competition for the best cultivated farms. Unfortunately, the greater part of the societies have missed this point. Several of them have begged to be allowed, instead, to devote the Government grant to the purchase of breeding stock, &c.

Before improved breeds of animals can be reared, the land must be placed in a condition to support their produce—otherwise they will surely degenerate.

Let, then the law compel the institution of ploughing matches, and competitions for the best farmed occupations, and let it be one of the duties of the Superintendent to see that the law is strictly carried out.

Moreover, let him appoint the judges. Those who are generally appointed have seldom the requisite qualities. How much good would be done by really good judges giving to the directors of the societies, to the members in general, to all the neighbouring farmers, short addresses on agricultural subjects, I leave to your imagination, you who have seen the good done by one inspector of schools. No one need trouble himself about whence the funds are to come, or where judges are to be found: I will explain all that farther on.

The well-qualified judge would make a visit to the farms in summer, to examine the form and arrangement of the ridges, the furrows, the banks and ditches; he would inspect the quality of the crops, the system of rotation, as regards the working and manuring of the soil; he would see if all were in a fit state of cultivation and cleanness; he would examine the preparation and employment of the dung, the formation of composts, the number, quality, condition of the stock, the richness and divisions of the pastures, and the quantity of *green meat* prepared for the cows. The states of the fences, implements, and buildings, together with the yards and garden, would come under his eye.

During the previous winter, the same judge (only one will be required at any time) will have visited the farm to see for himself the treatment pursued, as regards cattle, their food and lodging, the preservation af manures, &c.

The system of *marks* will enable him to reduce to writing the results of his observations at each visit, and to found his decision on just grounds.

What quantities of information a judge well up in his subject could give to the farmers at these visits!

If any competitor should find himself aggrieved by the judge's decision, an appeal would lie to the Superintendent.

4. *Model Farms.*—No more excellent means of improving agricultural practice exists than the model farm; the enquiring farmer would be welcome there, would find an answer to any questions he might put as to its conduct, its expenses, its improved stock, &c. Its lessons would prove all the more instructive and encouraging if its owner could prove that its net returns were larger than those of his neighbours.

An annual grant of $400 should be offered for the first model farm of 60 acres or upwards, established in each county—a really model-farm, be it understood, with cattle, implements, &c., that should serve as a true model to the neighbourhood. The Superintendent would visit and inspect it, and, according to its deserts, would give or withold the grant. Every proprietor of such a farm would be obliged to allow people to look over it, and to reply freely to questions on its cultivation and general management. Pupils in Agriculture might be received there. (Bravo! M. Tassé; that is the most practical idea I have yet seen. A. R. J. F.)

5. A course of theoretical agriculture in our classical colleges. I believe that Government, by paying the salary of the professor, would have no difficulty of arranging with the "heads of houses" as to this subject.

By this instruction, those who are destined to lead society, would soon find themselves in a position to contribute largely to the progress of agriculture. It would be the crowning of the whole edifice.

6. *Elementary treatise on Agriculture.*—This is taught in all the schools and academies under the control of the Superintendent of education—good, in its way, but Dr. Larue's abridgement is too meagre. There is a better one, but it ought to be illustrated.

We make our compliments to Mr Ouimet on his introduction into our houses of education of "The Kitchen-Garden," "The Flower-Garden," "The Orchard"; works written, or compiled by Mr l'Abbé Provancher; as well as "The Prize Treatise on Agriculture," by Mr C. Landry, A. B. Another step in advance demands our attention. Why, to the contracts now asked for plans of school-houses, &c., should there not be added a garden; and, even, a small farm—an acre, or an acre and a half, for model-schools and academies. This, divided into rotations, and conducted by a capable master, would be of great service to the pupils. Every convent in the country districts ought to teach horticulture, dairy-work, the care of poultry, every thing, in fact, which is necessary to the well conducting of a country house. (Why not cookery too? How badly our *habitants* eat is known, alas! too well, to all unhappy travellers in their districts. A. R. J. F.)

7. And last. The publication, and perusal with attention, of "The Journal of Agriculture."

Have we sufficient means in the annual grant to carry out our above mentioned suggestions? I think so—the present office of the Council of Agriculture will prove sufficient for its present occupants and the Superintendent. He will replace the present Director without additional pay. The present Secretary has $1600 a year. This will suffice for the two assistants of the Superintendent. The judges, then as now, will be paid by the Societies. Years will elapse before the model-farms are in operation. As they will, when started, only receive the grant for four years, according to our plan, their number will never be very alarming, and, by degrees, as a larger grant in aid may be justified by success, a model-farm may be established in almost every village.

Doing away with the Agricultural Colleges, useless from the paucity of pupils, will release $7800 at once to be otherwise, and more profitably, expended. This would fully pay the model-farm grant, and there is no reason why the farms of these colleges should not be the first of the models. Their professors of agriculture, too, might, by lectures delivered at meetings, and by acting as judges, be of a great use to the country; and the more so, as the number of their audience would be much larger than heretofore.

The Council of Agriculture should be filled up with the best of the judges.

I blame nobody—I blame the system.

Two deplorable facts I must point out before I close. The first, whether the fault of our style of education, or the result of prejudice, uncorrected by education, is undeniably true: Agriculture, as a means of gaining a living is despised by both the educated, and by the half-educated.

The second is that children, when they leave school, read and write no more. They forget, with such admirable rapidity too, that some soon become unable to sign their own names!

If an elementary education were more practical, or more national; if the children in the school learned not only by heart, but with the head, their grammar of agriculture; were shown how to apply its teaching to a garden, to a small farm; if not commercial arithmetic only, but agricultural arithmetic, and accounts were taught; if farming were more studied than history and geography; would they not have a greater taste for agriculture? Would they not be more likely to follow up

their work after leaving school? Would they not be more likely to read the Journal and other agricultural treatises?

Great liberality has been shown to education; $320,000 have been devoted to its service. But if the greater part of our educated youth has not risen, by its means, to a higher position than the uneducated, it seems to me that its aim has only partially been attained.

The soil of our arable lands is a capital, so to speak, originally large; it has been drawn upon too hardly, and is exhausted. Can it not be restored to its pristine condition? Is not that the mark at which a wise administration would aim, and does not a sensible education offer the only means of arriving at it?

The agricultural question is thus inseparably linked with the question of education. I cannot help sharing in the regrets expressed by Mr Barnard, towards the end of his essay, that the wise counsels given by Mr Taché and others have not been followed out. I agree with his wish, that more men of education would enrol themselves as farmers, and that some day a great statesman might arise from their ranks.

The better the organisation, the greater will be the progress of agriculture. Let us hope that the day is not distant that will see some one patriotic enough to unitiate in Parliament a movement towards this end—he will, indeed, richly deserve the thanks and gratitude of his countrymen.

S. TASSÉ, Ptre.

Selection of the Stallion.

We will presume that the breeder has definitely decided in his own mind what breed, or strain, or family he proposes to select from. He ought then to try to find a horse that has the longest possible ancestral line uniformly distinguished for the quality upon which he bases his selection, and then he should look carefully to see that no constitutional infirmities have been inherited. If there is blindness—not the result of accidental injury—in the near ancestry, although the horse himself may be apparently free from any defect in his organs of vision, it is a point against him. And so of any other constitutional defect, weakness, or infirmity, whether of form, structure, or disposition. Infirmities of temper are especially liable to be transmitted. It is very desirable that the breeder should know, to the minutest detail, the character of the ancestry on both the paternal and maternal sides; and the farther back they can be shown to be free from constitutional defects of any kind, the better. The horse may himself be free from any serious defects; but if they are known to have existed in his near ancestry, there is always more or less danger that he will transmit them to his progeny. Every observant horseman of experience can call to mind numerous instances confirming the truth of this position. The writer once owned a gray stallion, that was got by a gray stallion, out of a gray mare. When placed in the breeding stud, it was found that he quite often got dun colts, even out of gray mares. Investigation into the ancestry of this horse developed the fact that his second dam was a dun mare. Here we had the inherited quality of color lying dormant through two generations, and re appearing under the most unexpected circumstances in the third.—*Nat. Live-Stock Journal.*

Use of whey in feeding pigs.

"A Constant Reader" wishes to know what is the best use to make of whey in the dairy.

This is an important question in many localities, where cheese is the principal product of the dairy It is unfortunate that the dairyman is obliged to sell the most important element in the milk—cheese. This contains nearly all the nitrogen and phosphate of lime in milk. The whey is the least valuable part as a fertilizer, being composed almost wholly of milk sugar. The milk sugar may, however, be made of considerable value for feeding if it is not allowed to become too sour. There is also a little casein and albumen left in it, (about 9-10 of one per cent.) Now, it is for the interest of the dairyman to make the best return he can for the fertilizing matter which he sells in the cheese. Whey is a partial food and requires some more nitrogenous food fed with it to make up its deficiencies. If, then, you feed linseed-meal, wheat middlings, or oatmeal, with the whey, you may cheaply make up for the loss of the casein in the cheese. Whey, fed with one-fourth of a pound each of linseed-meal and middlings to the gallon, will be found excellent to grow pigs or calves; and this extra feed will pay in growth all it costs, besides enriching the manure. As a general rule, whey will pay more when fed in this way to pigs, and especially to one-hundred pound shotes, than to any other stock. The sugar of the whey is expended in respiration and in laying on fat, while the linseed-meal and middlings furnish all the albuminoid matter required for building up the muscles, and replacing the waste of the tissues. The pig will grow rapidly and fatten well upon this food. If the whey is all fed in this way the loss of plant-food by the export of cheese will be cheaply restored

Now, if the farmer has 60 lb. to 100 lb. pigs, and will feed them the whey with the additional food mentioned, keeping a strict account of the linseed-meal and middlings, and also of the gain in weight of the pigs, we think he will find the extra food paid for, with a sufficient balance to compensate well for the whey; and the manure will be very valuable.

The great difficulty has been in the habit of the dairyman feeding whey alone, as if it were a perfect food in itself. Small pigs are likely even to die when fed on whey alone, as it does not contain sufficient muscle-forming and bone-building matter to maintain a healthy growth. When pigs are running on a good clover pasture, they may be fed whey, as the clover grass contains albuminoid matter to sustain the muscular system. We have found whey to pay one and a half cents per gallon when fed as first described, besides paying the cost of the extra food; and the manure has been excellent. We have raised fine calves, also, upon this food with good hay, but the pigs generally pay best.—*Nat. Live-Stock Journal.*

CHICAGO FAT STOCK SHOW.

Something About the Third Annual Exhibition.—The Premium List, and the Rules Governing Entries and Competition.

The Third Annual Fat Stock Show will be held at the Exposition Building Chicago, November 15—20, 1880. The Illinois State Board of Agriculture, under whose auspices the shows have been held, are completing arrangements for the coming show, which promises to be a great improvement over previous exhibitions, both as to number and quality of the animals competing.

The Board has very wisely determined to exclude from competition aged animals that have passed their prime for the greatest profit to the feeder, or for furnishing the consumer the most desirable quality of roasts or steaks.

The exclusion from future shows of animals four years old or over, will give much needed room for younger animals, and will be a very suggestive intimation to feeders that the day for steers over three-year-old is past, and that he who would successfully compete with the progressive breeder and feeder, must give his attention to early maturity and the best quality of meat.

The average weights of the rings of cattle exhibited at the last two Fat Stock Shows are as follows, and while the averages are creditable, they will doubtless be increased from year

to year, until a three-year-old steer weighing 2,000 pounds will be so common as to excite no special admiration:

BREEDS.	Steers 3 year-old and under 4 years.	Steers 2-year-old and under 3 years.	Steers 1-year-old and under 2 years.
Shorthorn	2,063	1,622	1,326
Hereford	1.354	1,472	1,230
Devon	1,537	.....	844
Grades and Crosses	1,989	1,680	1,388

The Board has provided separate rings for the three ages for dressed bullocks, as well as a new lot for the encouragement of breeders who are giving special attention to the early maturity of young steers.

Secretary Fisher has just received the approved classification of premiums for the Cattle Department, which is given below with the rules.

The new rule in regard to the premium for dressed bullocks is in keeping with the progressive spirit of the age, and provides for the ultimate test in such matter—the market value of the carcass.

This rule embraces substantially the same requirement of last season in reference to the largest proportion of dressed meat to gross weight, and goes one step farther in requiring experts to decide as to the quality, as tested by the market value of the carcass—the rule reads as follows:

"The premium in each ring will be awarded to that bullock whose dressed carcass is of the highest market value in proportion to live weight."

CLASS A—CATTLE.

SAMUEL DYSART, SUPERINTENDENT.

1. The Exposition building will be open for the reception of stock, on Wednesday, the 10th day of November, 1880.

ENTRIES.

1. Must be made on or before November 1st, by application to the Secretary, at Springfield, who will furnish blank applications on which to specify exhibitor's name and address, with age and description of the animal offered.

2. In all thorough bred classes, recorded pedigrees, or such as are eligible to record, must be furnished at time of entry. Statements showing the proportion of improved blood in each animal exhibited in lots for grades or crosses, must be furnished at time of entry.

3. The following fees will be charged, and must accompany applications for entries: For each horse stall, $5.00; for each cattle stall, $2.00; for each hog or sheep, $1.00; for each coop, 50 cents; and for each pen for car-lots of hogs and sheep, $5.00.

4. Cattle must be in their stalls in the Exposition building, Chicago, not later than Thursday, November 11, 1880, in order that they may be weighed, numbered and catalogued previous to the opening of the Show.

5. Cattle must be well halter-broken, and vicious animals will not be admitted to the building.

6. The animals to be slaughtered wil be placed in charge of the Superintendent of the department in which they are entered Monday morning of the show, in order that they may receive the same feed and care until the day of slaughter.

7. The bullocks for slaughter will be killed, dressed, and weighed, under direction of the awarding Committee. The premium in each ring will be awarded to that bullock whose dressed carcass is of the highest market value in proportion to live weight. The dressed carcass to remain the property of the exhibitor.

8. Animals competing for premiums in Lot 10—Heaviest Fat Steer—will be kept off of feed and water twelve hours before making the award by the Superintendent of the department.

9. Butchers' stock only will be eligible to compete for premiums, and animals that are to be use hereafter for breeding purposes will be excluded from competition.

10. Cattle shown in Lot 8—car Loads—to weigh at the Exposition building as follows: Steers 3 and under 4 years not less than 1,700 pounds each; steers 2 and under 3 years not less than 1,500 pounds each; steers 1 and under 2 years not less than 1,300 pounds each.

LOT 1—SHORTHORNS—THOROUGHBREDS.

Best steer 3 and under 4 years	$25 00
Second best	15 00
Best steer 2 and under 3 years	25 00
Second best	15 00
Best steer 1 and under 2 years	25 00
Second best	15 00
Best cow 3 years old or over	25 00
Second best	15 00

LOT 2—HEREFORDS—THOROUGHBREDS.

Best steer 3 and under 4 years	$25 00
Second best	15 00
Best steer 2 and under 3 years	25 00
Second best	15 00
Best steer 1 and under 2 years	25 00
Second best	15 00
Best cow 3 years old or over	25 00
Second best	15 00

LOT 3—DEVONS—THOROUGHBREDS.

Best steer 3 and under 4 years	$25 00
Second best	15 00
Best steer 2 and under 3 years	25 00
Second best	15 00
Best steer 1 and under 2 years	25 00
Second best	15 00
Best cow 3 years old or over	25 00
Second best	15 00

LOT 4—OTHER PURE BEEF BREEDS (NOT NAMED.)

Best steer 3 and under 4 years	$25 00
Second best	15 00
Best steer 2 and under 3 years	25 00
Second best	15 00
Best steer 1 and under 2 years	25 00
Second best	15 00
Best cow 3 years old or over	25 00
Second best	15 00

LOT 5—GRADES OR CROSSES.

Best steer 3 and under 4 years	$25 00
Second best	15 00
Best steer 2 and under 3 years	25 00
Second best	15 00
Best steer 1 and under 2 years	25 00
Second best	15 00
Best cow 3 years old or over	25 00
Second best	15 00

LOT 6—SWEEPSTAKES RINGS.

Open to all.

Best steer 3 and under 4 years	$50 00
Best steer 2 and under 3 years	50 00
Best steer 1 and under 2 years	50 00
Best cow 3 years old or over	50 00

LOT 7—GRAND SWEEPSTAKES.

Open to all.

Best steer or cow in the show	$100 00

LOT 8—CAR LOADS.

Best lot of 8 cattle 3 and under 4 years old	$150 00
Second best	75 00
Best lot of 10 cattle 2 and under 3 years old	150 00
Second best	75 00
Best lot of 12 cattle 1 and under 2 years old	150 00
Second best	75 00

LOT 9—DRESSED BULLOCKS.

Not less than two entries in each ring will be considered. Only one entry for each premium can be made by each exhibiter.

Steer 3 and under 4 years	$50 00
Steer 2 and under 3 years	50 00
Steer 1 and under 2 years	50 00

LOT 10—HEAVY FAT STEER.

Open to all ages.

First premium	$75 00
Second premium	50 00

LOT 11—EARLY MATURITY.

Steer showing greatest average gain per day since birth.

Steer 3 and under 4 years—Silver cup—value	$25 00
Steer 2 and under 3 years—Silver cup—value	25 00
Steer 1 and under 2 years—Silver cup—value	25 00

The Hardy Catalpa.

This tree has of late aroused a great interest in the West. Its power to resist decay together with its rapid growth and ease of culture have caused it to be planted very largely.

It was just beginning to be planted in quantity, when a winter of unusual severity brought to light the fact, that there were two American Species. These differ but little in appearance, though somewhat in time of blossoming; but while one had been badly winter-killed, the other had stood the test, at least as far North as Northern Iowa. Hence the popularity and the name of this *Hardy* Catalpa.

The tree is said to be easily grown from seed. The reports of many who have thus grown it show this. It is also said to take readily from cuttings. It transplants very readily. That I know after planting out 120 of them. It seems, too, adapted to a large variety of soil, as reports from moist bottom and dry upland, sand and clay, all testify.

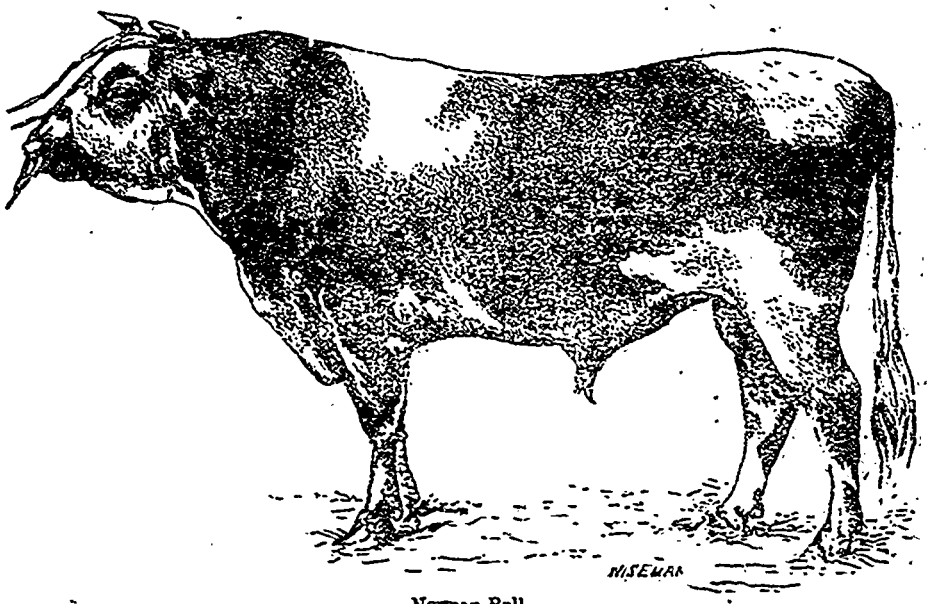
The wood is said to be even more durable than the Yellow Locust, and on this point the pamphlet by E. E. Barney, Dayton, Ohio (price 6c.) is most interesting. He gives well attested instances, where gate posts were sound when taken up after 75, 80, and, in one instance, 90 years. Trees killed by ice in the flood of 1828 were sound 50 years after. It is said that Catalpa has no sap wood, hence small posts or even stakes do not rot, and hence its great value to us as a fencepost tree in those parts of the province where Cedar is becoming scarce. Mr. Barney is not more enthusiastic in this matter than his facts seem to warrant, no more so than Dr. Warder, Pres. of Am. Forestry Assoc. or Chs. S. Sargent the Director of the Arboretum of Harvard University.

The specific gravity of the wood is .462; less than White Oak, Hickory, Elm, and rather greater than Cherry. It has answered as a railroad tie; not only durable, but said to hold its spikes well, and to show no sign of smashing, though slightly more compressible than White Pine or Norway Spruce. As a wood that seasons quickly, and keeps its place, and as an ornamental wood for inside finish, it is highly valued. Mr. Barney, who is a Railroad man, says that if he were compelled to use but one kind of wood for the entire construction of a 1st class passenger car, he would choose Catalpa.

The tree, too, is very ornamental. It has large heart-shaped leaves. It flowers in June, and later bears quantities of long narrow green pods, which are at once curious and attractive. It seems to have no insect pests.

This tree bore the winter at Abbottsford beond our most sanguine expectations. It stood fully exposed to our bleakest winds, and in places where its roots were but seldom covered with snow. It may be said that last winter was milder than our average. In one sense that is true, we had no prolonged cold, only sudden snaps of cold after unusual mildness. The Catalpa buds out late in spring and the warm weather of February which opened the buds of our European and Sycomore Maples and killed them, did no injury to it. In the same way even a Japanese Jingko stood unhurt.

The warm weather of last October caused late immature growth, and imperfect terminal buds. Pears are pushing their terminal buds, but with more hesitancy than for the 5 past years. The ash-leaved maple, though indigenous at Red River, killed back badly from this cause. It killed back even into the two and three year old wood in a few instances. Here and there, may be found an appletree dead to the roots from this cause. The Catalpa in the same way grew late, and did not mature a single terminal bud, yet it killed back but 2 in., or 4 in., or at the most 6 in., and that in very few cases, and is now growing finely.



Norman Bull.

The great value of this tree should cause it to be thoroughly tested here 1 oz of seed, containing 1000 to 1200 seeds can be had (of Mr. Barney) for 25c., and 100 trees, postage paid, (of R. Douglas & Son, Waukegan, Ills.) for $1.00.

I therefore commend it to experimentalists.

Abbottsford. C. G.

Land Buying and Farming in South-Western Minnesota.

[Mr. Keir, the writer of the subjoined letter, left Bideford, North Devon, in March, has bought 160 acres, and sends Mr. Finlay Dunn, Portland Place, London, the following account of his purchase, his entry on farming, and the way in which his capital is invested].

After a pleasant voyage, I reached New-York, made a run to Niagara, saw Chicago and Milwaukee, and made tracks for St. Paul, the capital of Minnesota, where my introductions secured me a kind and hearty reception. Thence I came down 160 miles to the convenient new hotel at Heronlake Junction, nicely fitted up, the accommodation and cooking good, and the charges for board by the month only one dollar per day. It is a capital centre for sport. Before I began work in earnest I had several days' excellent duck shooting. In selecting my quarter-section of 160 acres and making my start I have been greatly assisted by Mr. Jas. N. Drake, of the St. Paul and Sioux City Railway, of whom I bought the land, and by Mr. Kendall, who farms extensively here.

My farm is in Springfield township, Cottonwood county, 4 miles from Heron Lake, 11 miles from Windom, another railway station on the St. Paul line, and 10 miles from Airlie, a town on the Southern Minnesota railroad. The land is undulating, a deep alluvium, sloping down to the Des Moines river, by the side of which I have 40 acres of grass. My location is well adapted either for grain or stock raising. It has cost me 20*s.* an acre. I only wish I had the means to buy a full section of 640 acres. Land is fast rising in value here. The taxes are 2 per cent. on the assessment, which throughout this district is about one-third of the value. I am advised to postpone building my house until next spring, but through the summer shall get stones out of the Des Moines river for the foundations and cellar, and have the timber hauled ready to make a start twelve months hence. Meanwhile, I shall live in the hotel at Heronlake, or board with neighbouring farmers.

I have purchased three useful horses and a Cassidy's plough, and am now at work breaking up the prairie sod, with a furrow 12 inches wide and about 4 inches deep. I ride, of course, comfortably on my implement, and having got into the way of it, turn over 2 acres a day. I hope within the next six weeks to break up 50 acres for flax and 25 for Indian corn. Obliging neighbours will lend me seeding and other machinery, for which I shall make them return by giving an equivalent in work with myself and team. Labourers here receive 4*s.* a day. With a favourable season, the flax should produce 8 bush. an acre, at $1 per bush. I am counting on 15 bush. of maize at 1*s.* per bush.

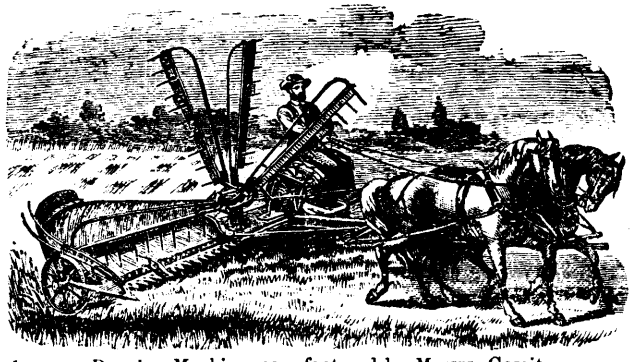
These returns, although not great, will pay expenses of breaking up; and besides, the land thus treated is in a much more favourable condition for growing wheat twelve months hence than if it were merely turned up and allowed to lie idle. In the fall, I am advised to buy about fifty ewes, which will probably cost 3 dollars to 4 dollars per head, and a Cotswold ram, perhaps, at 20 dollars. Wool being high, worth 50 cts. per lb., sheep are dear for this country. The average clip appears to be about 3 lb. to 4 lb. During the summer I shall be able to board myself and my three horses on the farm adjoining my own, at a cost of 10*s.* to 12*s.* a week. Food both for man and beast is cheap here, and when not busy on my own land I can get plenty of ploughing and other work, which will not only pay for the hire of such implements and help which I want, but besides bring me in some ready mony.

Subjoining is an estimate of expenditure necessary to bring 160 acres of prairie land into cultivation. The estimate, I may say, has been revised by Mr. Kendall and others who have more experience than myself. So as to be more readily understood, I have converted the American into English money:—

Payments already made:—	£	*s.*	*d.*
160 acres of land at 5 dollars cash	160	0	0
Three horses at £20	60	0	0
One colt	25	0	0
Set of double harness	5	12	0
Set of single harness	2	16	0
Sulky plough	12	0	0
	£265	8	0
Payments to be made within the next twelve months:			
House, two stories, 20 feet by 24 feet, with cellar and five rooms	120	0	0
Furniture	30	0	0
Two cows	10	0	0
Fifty head of sheep at 4 dollars	40	0	0
Shed for sheep through winter	15	0	0
Stables for horses and shed for implements.	25	0	0
Three breeding hogs	2	0	0
Breaking 75 acres at 2½ dollars	37	9	0
Waggon	13	0	0
Cultivation expenses on 50 acres flax at $5.44 per acre	54	8	0
Cultivation expenses on 25 acres maize at $2.50 per acre	12	9	0
Three months' board and lodging	16	16	0
Contingencies	30	0	0
Total expenses in buying and farming 160 acres of prairie land	£668	10	0

In little more than six month after my leaving Devonshire I shal have something coming in to meet expenses. From my 50 acres of flax I should in August have 400 bush. of linseed to dispose of at 1*s.* per bush., netting £80; and six weeks later my 25 acres of Indian corn will produce at a moderate estimate for such a crop 375 bush., which, at 1*s.* per bush., will be worth £18 15*s.* During the summer I expect by working with my horses for my neighbours to earn from £20 to £25, which will go far towards covering the actual expenses incurred for my own and their living (1).

A. B. KEIR.

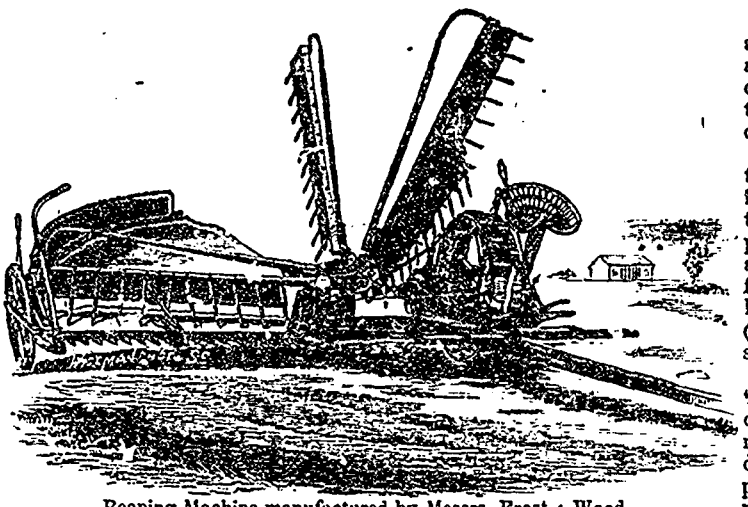


Reaping Machine manufactured by Messrs. Cossit.

We give this month two engravings of Reaping machine. One, manufactured by Messrs. Cossit, whose agent is Mr. Latimer, 81, McGill Street, Montreal, will recommend itself by its lightness, and general simplicity of construction.

The other, from the establishment of Messrs Larmouth & Son, 33, College Street, Montreal, comes from the workshop of Messrs Frost & Wood, Smith's Falls, Ontario, and is noticeable for many slight but by no means unimportant improvements, as well as for the moderate price at which it is sold.

(1) The same process and expenditure on our prairie land would end in the same result. A. R. J. F.



Reaping Machine manufactured by Messrs. Frost & Wood

CORRESPONDENCE.

Dear Sir,

Volumes have been written of the best methods of improving the soil; and the ways and means of improving our meadows, and increasing our yield of cereals, have been discussed through our Agricultural Journals; but our pastures have been almost wholly neglected; and, so far as neglect is concerned, we may apply the complaint literally to both theory and practice. Who will deny, that our old pastures have deteriorated twenty-five per cent in the past twenty years? By some it may be considered a bold assertion, but I shall make no assertion that I cannot prove, at least to my own satisfaction. Let me define my position, so that I may run no risk of being misunderstood; when I say our old pastures have deteriorated, I do not mean to say they have grown poorer in the elements of plant food, (for they are certainly far richer in that respect); but in their capability of furnishing nutritious food for our dairy and beef herds is where the deterioration comes in.

In cases of sickness we summon the physician, and, before writing his prescription, he makes his diagnosis, and seeks for the cause, before he can successfully combat the disease. We must do the same; we must seek for the cause of this deterioration, and then we shall be in a position to apply the remedy. Bad diseases require desperate remedies, and some of my brother farmers may think it beyond their skill, and I am ready to admit that the case looks serious, but "nil desperandum" is my motto. We must do something, and the quicker we set about it the better, for it is not a matter that will right itself: on the contrary, it will grow worse.

The first cause of this running down of our pastures is the too common practice of allowing our herds to range over them in the early spring, while the ground is still soft; they not only poach the surface badly, but they bite c[illegible], and, worse than that, pick for the best as they naturally will, and *pull it up by the roots*. Who has not noticed this, in crossing pasture lan[illegible] or even riding past a pasture, in the spring. Perhaps we had better go on the principle, of applying the remedy, as fast as we can find out what is really the matter, and not wait for any complication of diseases. The remedy for this is certainly simple: we must keep the cattle off our pastures until the ground is dry and firm. We had much better go over it with a team and a sharp harrow, and re-seed, than allow our stock to poach it, and then let it dry down in hummocks while the re-seeding is done by the volunteer process, and weeds are sure to be to the fore. There is a continual warfare between the different species of plants for the mastery, and, though this struggle is not apparent to the sense of sight, the result is glaringly so in our old pastures, and we have unthinkingly aided the stronger in the contest.

I have characterized our treatment of pastures, as neglectful: I will go still farther, and say it is positively abusive. We have been, and are still going on the principle that anything is good enough for pasture; some of us even going so far as to plow up a piece of old pasture, crop it as long as it will bear anything, and then turn it out to pasture to recuperate.

We may invest in Jersey, Ayrshire, Durham, or any other choice breed of stock, and with our pastures as they now are and still growing worse, in a decade our stock will have deteriorated into scrubs. It is feed that makes fat, juicy beef, and also our butter and cheese. Blood may tell, but *feed* will tell more.

Another phase of this disease we are attempting to treat is too much dairying. In my article on "mixed farming," in your May issue, I made the statement that a herd of milch cows drew more largely on the phosphates in the soil, than a herd of young stock, and I repeat it. The cow instinctively chooses such food as will soonest build up the bone formation of her progeny, and we dairymen sell this element (Phosphate) in our butter and cheese, when the young stock would return it to our pastures.

There is any amount of old pasture in my vicinity that has lain in pasture from 40 to 60 years, and no doubt it contains all the elements of plant food: I will not say, no doubt it does, but rather say, I know it does, from actual test; but at the same time, in its present bound out state it is worthless; there is plenty of it, that, though as rich as a manure heap, yet it will not keep a sheep to the acre. What can we do in the matter? If we look at it all at once, we are apt to be discouraged because it is a hard job, and do nothing. If we turn over but one acre each year, summer fallow, and re-seed, we shall soon find we are accomplishing something. If he who causes two blades of grass to grow where but one grew before is a public benefactor, what shall we call ourselves if we cause a hundred blades to grow where none grew before.

We may write line upon line, and precept upon precept, but it is deeds and not words, or practice rather than preaching, that counts most. To prove to you that I do (sometimes) practice what I preach, I will say, that for three days past I have followed the plow after a strong team of three horses abreast, on a piece of old pasture that was completely bound out with brakes and bull rushes, and, thank kind Providence, and our own good selves, it it is bottom side up. I am ready to admit, that it requires nerve to take hold of such a job, and I might as well say, too, that it takes back-bone to carry it out. Yours truly

Frelighsburg, June 5th 1880. C. A. DEMING.

My dear Sir,

You will have observed in the public press of late that an event of some importance to stock breeders is to take place in August next, — the dispersion of the famous herd of Angus or Aberdeen polled cattle, the property of the late Wm. McCombie, of Tillyfour, Aberdeen, Scotland. There never has been, nor can there be, for many years, such another sale, in numbers and merit of cattle that have done so much in the past history of improvements. Next to the Shorthorns, these Polls have filled the world's pages during the last quarter of a century, and having myself been *born among them*, educated to them, and knowing this herd well personally, I feel justified in calling your attention to their sale. Many on this continent are more convinced of the decided value of this breed both for early maturing, *hardiness* particularly, superior graziers, and with the power to improve others for beefing purposes. They are remarkably docile, and are looked upon as possessing a big advantage for shippers in the fact of having no horns. Altogether then, and building upon our own five years experience with a small herd of them here, there is no doubt about the propriety of a new country taking advantage of such an unusual sale.

It has been suggested to me by several of our people that a number of these cattle should be bought for Canada for the following purposes:

1st. The Dominion Government, 1 bull and 3 cows for Manitoba.

2nd The Ontario Government, 1 bull and 3 cows, as an addition to their present herd, or for public sale.

3rd The Quebec Government, 1 bull and 3 cows, for public sale.

I think these could be delivered at Quebec as follows:

9 Cows	$3,800
3 Bulls	1,500
Expenses of purchase, &c.	450
	$5,750

Thus requiring a subscription of (say $2,000), only, on the part of each province.

The sale being in August, the animals could be brought over in time for exhibition at the leading shows, in the event of entire freedom from disease, of course, and certainly in good time for Christmas exhibitions, in any case.

As a large part of the success of any such importation lies in the choice of individual animals, and the care of them on board ship by one deeply interested in their future, I have no objection to undertake the commission without any profit, if so honored.

British experience gives the following results in the stall feeding of their four principal beef breeds of cattle : age three years.

	Weight.	Daily increase.
Shorthorn	2,056	1.74
Hereford.....	2,027	1.69
Aberdeen poll.....	2,012	1.66
Devon.....	1,514	1.28
Mean..	1,902	1.59

The Aberdeen poll is hardier, more prolific and has better marbled flesh, than any of the others, but is somewhat slower in maturing than the Shorthorn. The heaviest beef in the world is from a Shorthorn bull and poll cow, as well as from a poll bull and grade cow.

Yours faithfully, W. BROWN.

Ontario Agricultural College, Guelph.

We certainly hope that such a valuable importation may be made into Canada. If it cannot be arranged that the matter be taken up by the governments mentioned, it is very desirable that agricultural societies, or private breeders, make the necessary arrangements to secure this prime stock.

Bee-Hives.—In your June number of last year you have some diagrams of bee-hives, but though lettered, there were no references giving explanations of the drawings or sizes, which was a disappointment, as I am just beginning bee keeping, and take great interest in every item that can enlighten me on the subject.

H. B. HAVELOCK.

Answer.—Size of Langstroth Hive: $14\frac{1}{8}$ x $18\frac{3}{8}$ inches *inside*. Langstroth frame : $9\frac{1}{8}$ x $17\frac{5}{8}$ inches, *outside*.

Transfer of Pedigree Ayrshires.

from J. L. Gibb's stock, Compton, during the spring of 1880.

Cows.

Medoras' Beauty, sold to Eugène Casgrain, L'Islet. Lady Rossie, sold to Eugène Casgrain, l'Islet. Rossie's Iron Duke, sold to Ed. Barnard, Varennes. Clarinda 4th, sold to Revd. Foster, Coaticook. Medora 4th, sold to St. Anne's Agricultural College. Clarinda 2nd, sold to St. Anne's Agricultural College. May Morn 2nd, sold to A. Casgrain, Rivière Ouelle. Annie 4th. sold to A. Casgrain, Rivière Ouelle.

BULLS.

Robin, sold to Eugène Casgrain, l'Islet. Donald, sold to Eugène Casgrain, l'Islet. General Grant, sold to A. Mousseau, Berthier. Jock, sold to A. Mousseau, Berthier. Gibb's Duke of Compton, sold to S. M. Wells, Connecticut. Lucifer, sold to A. Mousseau, Berthier. Challenge, sold to Ed. Caron, M. P. P., Louisville. Baron, sold to R. Nicholson, Montreal. Hotspur, sold to Edmond Caron, M.P.P., Louisville. Monarch, sold to Col. Forsyth, Quebec. Colonel Compton, sold to E. D. Pearce, Providence, R. I. The Pretender, sold to T. S. Cooper, Coopersbury, Penn.