

J. H. Grisdale 24 Feb 20, 1901  
Exp Farm, Ottawa

MANITOBA AND WESTERN EDITION

# THE FARMER'S ADVOCATE

AND HOME MAGAZINE

FOUNDED 1886

PERSEVERE AND SUCCEED

\* AGRICULTURE, STOCK, DAIRY, POULTRY, HORTICULTURE, VETERINARY, HOME CIRCLE. \*

VOL. XXXV. LONDON, ONTARIO. MARCH 5, 1900. WINNIPEG, MANITOBA. No. 497

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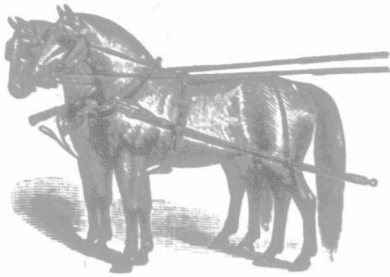
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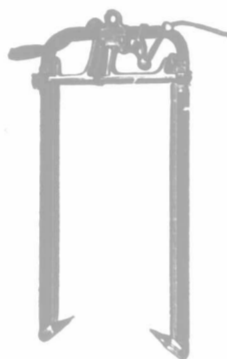
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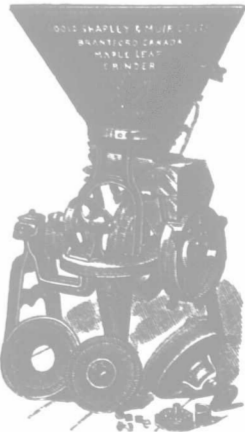
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AND HOME MAGAZINE

\* AGRICULTURE, STOCK, DAIRY, POULTRY, HORTICULTURE, VETERINARY, HOME CIRCLE.\*

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VOL. XXXV.

LONDON, ONT., AND WINNIPEG, MAN., MARCH 5, 1900.

No. 497

## "Canada's Ideal."

The great live-stock premium picture designated "Canada's Ideal," reproduced from photographs and specially prepared for the FARMER'S ADVOCATE, is now ready for distribution. It is a magnificent photogravure from "wash" drawings, finely engraved, representing a round dozen choice specimens of the highest type of Shorthorn cattle of the most approved modern stamp, including first-prize and championship winners at leading Provincial exhibitions, and other noteworthy individuals of the breed in prominent Canadian herds. The picture, measuring 25x36 inches, with proportionate margins, has been produced at very great expense. Its execution as a work of art in animal portraiture, it is safe to say, has never been equalled on this continent, and it will be found to be such as to commend itself to all good judges and all lovers of high-class stock into whose hands it may come. It is a companion picture to three others previously issued from this office representing other classes of stock, and is in line with the fixed policy of the FARMER'S ADVOCATE in keeping before its readers high ideals of farm animals with the hope that as object lessons they will have an educational value, particularly to young farmers and stockmen throughout the wide constituency of the paper, extending from the Atlantic to the Pacific Ocean. The closing year of the nineteenth century has been deemed an opportune time for the issue of a high-class pictorial representation of the favorite type of beef cattle of the day, which will be of permanent value in stimulating the production of a uniform standard of excellence in Canadian live-stock. The price of the picture has been fixed at one dollar, and to place it easily within the reach of our readers desirous of securing it, we propose to present a copy of it to every present subscriber who sends us the names of two new subscribers and two dollars. We have already booked a large number of orders from a wide field of territory, including every Province and most of the States, and we bespeak the active co-operation of our friends everywhere in giving it a mammoth circulation.

## Canadian Live Stock Associations --- Amalgamation of Stud Books --- Government Stock Sales.

The unusually large attendance at the annual meetings of the Stock Breeders' Associations in Toronto last month, the increasing number of registrations in the stud and herd books, and the improved financial statements of the various breed associations reported in our last issue, show a healthy state of business and an encouraging outlook for trade in these lines. It is gratifying to know that this applies not only to one or two branches of the live-stock business, but to many, if not to all. The horse trade has greatly improved as a result of the short supply of good ones and the active demand for the best in several classes. Fresh importations of breeding animals are being made and satisfactory sales of these effected, while good heavy draft stock, as well as saddle and harness horses, both in the home market and for the export trade, are eagerly sought for and command good prices. In both beef and dairy cattle, the demand, the prices and the prospects are very encouraging, while the improved tone of the wool market has given fresh stimulus to the sheep trade, and the prices for hogs have recently been steadily advancing.

Among the topics which came up for discussion at the Stock Breeders' meetings was the question of amalgamation of the Canadian and American Clydesdale stud books, which, it is claimed,

would facilitate trade with our neighbors across the line, since their customs regulations require the presentation of certificates of registry in the American book in order to admission free of duty. This is a question that will bear discussion, and the proposition is one that is not without some claims to favorable consideration, and finds support in the satisfactory and successful working of a number of pedigree records of cattle, sheep and swine which are kept in the United States, being the only public records of those breeds of stock in America. Canadians have been given representation on the directorate of these Associations, and in several cases have been elected to their highest offices. There may, however, be other phases of the question which, if brought before our people for consideration, may show that it is wise to hold what we have and maintain an independent registry. It may be well to reflect that the difficulty regarding the recognition of our registrations by the American customs applies to many other classes of stock besides Clydesdales, and the arguments in favor of surrender in one case apply equally to most of the other herd books we have, and the principle, if followed to its logical conclusion, would leave us without Canadian records. This may be all right in times of peace, but there is always the possible contingency of international difficulties to be considered, and it may be the part of wisdom to provide against such. The present is an opportune time for the discussion of the subject, as a committee has the matter under consideration and will probably report to the next meeting of the Association.

Another proposition that was brought before one or more of the Cattle Breeders' Associations was that of the establishment of combination auction sales of stock under Government supervision and the direction of the various Breeders' Associations. It was intimated that there was a possibility that Government grants would be given towards the expenses of holding these sales, and that they would be held in different sections of the Provinces. Whether this system of sales is likely to prove an advantage to breeders is a question for their own consideration, as they are the parties mainly interested. If we could see reasonable grounds to believe it is likely to be an improvement on present methods of doing business, we should gladly give it all the assistance in our power, but we confess it comes to us as a surprise that such methods should be deemed necessary to facilitate business at the present time, and from a pretty thorough acquaintance with breeders in this country, we are of the opinion that they had failed to realize their need of such a system of doing business. Our surprise is the greater that the Shorthorn Breeders' Association - the most prosperous of them all, having a cash balance on hand of over \$8,500, and a class of stock selling very readily at buoyant prices - should pass a resolution approving the scheme. The fact that sales of this character repeatedly tried in different sections of Canada have been short-lived, and, in almost every case, have ended in dismal failure, is not, we know, a conclusive argument that they cannot be made a success, but we confess that, from our experience and observation of past efforts in this line, we are far from being sanguine of the prospect. If the directors of the Breeders' Associations feel confident that they can induce breeders to put good stock into such sales, and if they feel sure they can frame and secure the observance of rules which will bind contributors to take the prices the public are willing to pay for the stock offered, they may feel justified in making another experiment in this line.

One of the difficulties in the past has been the tendency to make such sales the dumping-ground for inferior stock or animals that are doubtful breeders. The prices reported as made at such sales are liable to be regarded by the public as the market value of pure-bred stock, and if they are

low they reflect on values of stock in the hands of breeders. It is intimated that to meet this difficulty, inspectors will be appointed to examine the stock entered as to quality and health, and it is presumed that in a sale conducted under Government supervision the tuberculin test will be applied, as it is their policy to purchase no stock for the Experimental Farms except they are tested. It is expected that American buyers will be attracted to the sales, and as their purchases cannot pass the lines unless subjected to that test, it will be required either before or after the sale, and there may be difficulty in getting breeders to pay freight and other expenses of the sale, and to take chances of having animals left on their hands with the option of freighting them home again or disposing of them otherwise. These are details which may possibly be satisfactorily provided for. The principal question to be considered is the general effect which such sales, if adopted, may have upon business. Will buyers wait for and postpone their search for stock till the date of the sales? Will sellers enter and hold their best stock for the sales and be content to take what they will bring under the hammer, abiding loyally by the rules of the sale.

Our observation is that the upset price or the reserve bid is not popular in Canadian sales, and yet we can conceive of no other legitimate means of protecting valuable stock from slaughter prices in case of the absence of appreciative bidders, a contingency which from various causes is liable to occur. Our own opinion is that private sales are usually the most satisfactory to both buyer and seller, and that the fewer public sales there are, the better for both, though there are special circumstances in which the public sale is a convenient means of disposal and its adoption perfectly legitimate. The question is, will Government sales tend to unsettle and demoralize private business, or will they be helpful and healthful? Discussion is in order, and we invite breeders and others to give their opinions and judgment on the question through our columns.

In conclusion, we cannot but refer to the unprecedented position attained, both in numbers and quality, by the pure-bred herds of Great Britain, whose live stock still sets the standard for the world. The system of public sales being well suited to the conditions there, has long since naturally grown into great favor, though a vast amount of business is still transacted by private treaty. The point to be noted, however, is that the government of the day has never undertaken to promote the industry by taking hold of the disposal of stock, and its success without has certainly had no parallel elsewhere in the world as the result of the application of private enterprise and intelligence. While we are desirous to see the industry in Canada advanced in every rightful and permanent way, it is just a question if it would not be better to keep stock sales entirely clear of politics.

As a rule, the man who makes the most of his dairy cows is he who regards them as so many machines for the purpose of converting food into milk and butter, and who treats them as he would an engine out of which he expects to obtain the best mechanical results. In the absence of proper material wherewith to develop the necessary motive power, no machine, no matter how perfect, can be expected to produce satisfactory results; and so it is in the case of the cows. In order to get them to produce the best results, every care must be taken in order to ensure that they are properly fed and looked after, in order to maintain them at the highest possible rate of milk production. The engine, in order to do its work, must be regularly supplied with suitable fuel; dairy cows, in order to produce good results, must be liberally provided with suitable foods.

## THE FARMER'S ADVOCATE AND HOME MAGAZINE.

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Address—THE FARMER'S ADVOCATE, or  
THE WILLIAM WELD CO.,  
WINNIPEG, MANITOBA.

### Some of the Difficulties of Maintaining Soil Fertility on Large Wheat Farms.

To the Editor FARMER'S ADVOCATE:

In endeavoring to comply with your request for some opinions regarding the question of preservation of the soil, I fear that you are broaching a subject to which the writer and a large number of his fellow farmers in the West have given but little attention heretofore. I would, therefore like to warn your many readers in advance that, in attempting the laudable duty of giving them the benefit of what little I know about this subject, they need not be surprised if I disclose to them at the same time the vast amount I do not know about it. However, it is all the same price, and they are equally welcome to both.

When the great body of pioneer farmers arrived in this Province in the early '80s, they found a large portion of its land surface free from timber, scrub, rock or surface stone, covered with a deep, rich loam, promising the production, with a very small outlay of either capital or labor, of a great many abundant crops, without any perceptible loss in fertility to the soil. It is well that nature had provided these advantages, which acted to some extent as a counterbalance to the many commercial disadvantages with which the early settler had to contend in his efforts to make a home for himself in this new and untried country. Had it been otherwise—had the farmer been compelled to clear the land of stone or timber, or had it been necessary to re-fertilize the soil at the end of the second or third season in order to secure a reasonable crop, and had the then existing freight rates and exorbitant prices of goods which the farmers were forced to pay continued to the present time I doubt if there would be to-day a dozen settlers west of the Red River in Manitoba. But the apparent inexhaustible nature of our soil has wonderfully helped the pioneer "mossback" to stay with his job of securing for himself a home and a livelihood on the western prairie in spite of many hardships and exactions imposed upon him by his fellow man.

Now, however, it is beginning to be realized that, in some of the older districts at least, some provision will have to be made for sustaining the strength of the soil, or farmers will have to be content with a continual decrease in the average yield of their crops from year to year. It is also becoming

ing a debatable question whether, owing to increased yield arising therefrom, it would not be a profitable investment to provide some cheap system of fertilizing lands that are comparatively new and fairly rich. The business man (and farmers are simply men engaged in the business of farming) very naturally here inquires, "Will it pay?" Some years ago, when farmers were selling grain at cost or even less, they might have felt disposed to answer this question in the negative, but with wheat bringing about 60 cts. per bushel and other cereals in proportion, it is safe to conclude that, while it might not pay to import expensive fertilizers, it would certainly be profitable to use farm manure—the cheapest obtainable source of strength for the soil. When we add to this the fact that farm stock has also reached a value lately that renders it possible for the farmers to raise horses, cattle, sheep and pigs at a fair profit, surely no further inducement should be necessary to persuade the average farmer to adopt a system of farming whereby that portion of his crop which will make animal fodder should be largely returned to enrich the soil or retain its fertility.

Having decided upon the proper course to pursue, as a matter of theory, I would like to draw the attention of your readers to a few of the difficulties that have come to my notice in putting this theory into practice:

1. A want of capital to supply sufficient stock to consume all the food products of the average farm, and also to provide the necessary winter protection for such stock. I see no remedy by which this difficulty can be overcome immediately; but a close application of business principles, coupled with industry and economy, will soon place the farmer in a position to make a start in this direction, and it is astonishing how rapidly a few head will multiply into a flourishing herd of stock. I would not advise the beginner to invest very much in expensive buildings. Seeing that the farmer is generally better supplied with *physical* than *financial* ability, the building that might suit his purpose best would probably be the one requiring the more labor and less expensive material to erect.

2. The cost of hauling fodder to stables and manure to distant parts of the farm. The farmer on a quarter-section of land, with his buildings centrally located, may not have noticed the amount of time consumed in this work, but on larger farms one is not long in noting the small amount of manure that can be hauled a distance of perhaps a mile and a quarter or a mile and a half from his buildings in a day. From my own experience, I am led to believe that this can be largely overcome by the erection of a structure or framework of poles at several points on the farm, and covering the same with straw distributed from the carriers or blower of the separator while threshing. The building can be so constructed that a large space for feed, reaching down to the ground, will be left in the center, with a covered space for the stock surrounding it. A partition of boards or poles reaching to within three feet of the ground, separating the feed space from the stock, compels the latter to eat the feed from the bottom, so that little is wasted or destroyed. This arrangement, to a considerable extent, saves the hauling of fodder and very much lessens the distance of hauling the manure; in fact, by leaving the shed open all the time (except in stormy weather), no small portion is distributed by the stock themselves.

3. Applying manure to the land so as to retain moisture in the soil, instead of assisting in its evaporation. Few who have made any efforts to utilize this fertilizer have not early discovered the difficulty of properly covering the unrotted straw usually connected therewith, as well as the unsatisfactory results to the crop arising from evaporation, due to the presence of this straw, even where it has been fairly well covered. This can be avoided to a considerable extent by using only well-rotted manure. Of course, in our dry climate it often requires a long time to accomplish this, but it will decay in time, and when applied in this condition it will produce a much better crop, and more free from weeds, owing to seeds being destroyed through decomposition. Where it is necessary to apply green manure, I think it would be well to use Campbell's or some other suitable packer to fill up air spaces caused by undecayed straw, etc.

I would like to add, in conclusion, that I see more clearly every year the necessity of adopting some plan of renewing root fiber in our sandy loam soils. This, of course, will necessitate seeding down to grass of some kind for a term of years—taking off perhaps one or two crops of feed and pasturing for perhaps a couple of seasons. This latter involves the additional outlay for fencing, but perhaps a cheap portable fence may shortly be forthcoming which will render this plan more feasible. Two results might be expected from this course—prevention of shifting soil by high winds and increased fertility of the land so operated upon.

W. A. ROBINSON.

### A Credit to Canada.

The FARMER'S ADVOCATE, of London, is one of the best agricultural papers in existence, and is a credit to the country. Every issue is filled with valuable information, but the Christmas number was a specially interesting one, being much increased in size, and containing many fine illustrations. No farmer who desires to succeed should be without a paper like the ADVOCATE. *Canadian Epoch*, Feb.

### Can We Not Repay the Soil for What it Gives Us?

The beginning of a century, or even the end, is not a bad time to stop and consider our ways as agriculturists, or even as farmers, to see if we are fulfilling our task of making two blades to grow instead of one, and, at the same time, conserving the fertility of the soil. How best can this be done? This is a case, perhaps, where theory and practice may not fully agree. I am writing from a western farmer's standpoint. When we consider our immense fields we naturally shrink from the thought of manuring; although here let me ask: Are we not cultivating too much land in raising wheat, and is there not some way in which we can repay the soil for what it gives us? These two questions may be answered by: Yes. In the first place, would recommend cultivating less land and trying to manure a small quantity each year with well-rotted stable manure, which would be clear of noxious weed seeds. (This would seem more reasonable than setting fire to the manure pile.) It would, of course, take some years to get over the whole farm, but something would be accomplished that would be of lasting benefit. In the second place, would recommend the keeping of some stock, say cows, sheep, or pigs, according to the individual taste. The pigs to be fed on the skim milk, with chopped grain (frozen wheat, if you are unlucky enough to have any). Raise sufficient roots to winter the cows, with enough for the sheep at lambing time. This raising of roots would be a good way of preparing the land for wheat, while the manure made from the roots, if returned to the soil, would be very valuable. No doubt many will say, that won't pay. Have you tried it? Allow me here to say, *en passant*, re this mixed farming, that some who will read this article will not require any reminder of the narrow escape of 4th August last, when two degrees more frost would have paralyzed this section, so that even a few head of cattle, sheep or pigs would have been considered good stock. What are we living for? Is it only for the present, or are we ambitious to leave the world better than we found it? What has been the factor of success in this western country, after individual energy? Is it not the large yield of grain per acre? While all must admit that we cannot compete in the markets of the world with such countries as the Argentine, on account of their cheap labor, surely we can stay in the ring if we do our duty in husbanding the fertility of the soil, and endeavor to raise our yield instead of allowing it to decrease. Is this not the case in the country to the south of us, or even in our much-lauded, and deservedly so, Province of Manitoba? Does their average keep up to what it was? If not, there is something wrong. Prevention is certainly easier than cure. "Give the land a rest? And have it grow up to weeds?" Not so. As grazing land is becoming more scarce, would recommend seeding down a portion of cultivated land to Brome or other grass which would yield hay for two years, give good grazing in the fall and early spring, and the following year summer-fallow. The fibrous roots of this grass will help to prevent the soil drifting. Perhaps the most direct way of adding to and retaining the fertility of the soil would be by seeding down to clover. Of the practicability of this in the far West I have my doubts, on account of winter-killing. To undertake any system of seeding down to grass for hay or pasture for any length of time would necessitate fencing. This, at the present price of wire and posts, would prove expensive, yet in the end would no doubt prove a profitable investment.

Indian Head District. WM. DICKSON.

### Wants No Better Grass than Brome.

I have grown Brome grass for 5 years, and this year threshed thirty-five acres for seed, but only about ten acres was a good crop; the rest was a poor catch in '98, as I sowed with wheat. But last spring was so late that I had no time to plow it up; it was a good sample, but poor yield of seed from it. From my experience with Brome, it should not be sown with any other crop, but on fall plowing. My way of seeding now, and, I believe, also followed by Mr. Bedford and Mr. McKay, of the Experimental Farms, is immediately after seeding. The land intended for grass, if stubble, should be disk harrowed to start weeds, and in about ten days plow deep, then harrow at least twice, and then sow. Have a boy or man drive a three-section flat harrow ahead, and the sower follow close behind, sowing the width of the harrow, which is about 9 feet. I have tried this plan, and got an even catch; about 12 or 14 lbs. to the acre is enough. I cut most of it for seed, and feed the straw. I have never tried other grass, but want no better than Brome. I believe it is rather hard to kill out; have not tried it yet. I run a steam thresher and have no trouble to thresh it; shut off all wind and run without any teeth in concave. This does not cut up straw, and it can be threshed clean enough for market. Of course, some will blow out, if you want to make a good clean job. As for pasture, if any of my neighbors lose stock they are generally found on my Brome, as I am the only farmer here that grows much, as this is mostly a wheat-growing country. Two years ago I cut some for hay, and the first time I gave my horses a feed of it they cleaned up the hay and left their oats untouched. This may seem rather much for most men to believe, but it is a fact.

As to harvesting, it should be left till the seed is red or a dark brown. Regina District. H. ANTICKOP.

### The Question of the Day.

To the Editor FARMER'S ADVOCATE:

Grass-growing is indeed becoming the question of the day, as no one of experience can but perceive the importance of some change of cultivation to keep up the fertility of our soil. I have cropped some of my land since the spring of 1881, with the exception of fallowing after every third crop, or seeding down to timothy with the first crop of wheat. I have hitherto had fairly good catches, especially with my first experiences, but the past few seasons have been, to some extent, failures, owing principally to the lack of moisture, and, perhaps, in some measure to the fertility of the soil. However, I have generally taken off two crops of hay, from one to two loads per acre, and immediately after the hay is off, plowed shallow and rolled down, and as soon as the sod rotted, plowed deeper; just the same treatment with the natural prairie, except I have plowed the timothy stubble deeper; have not taken more than two crops of wheat, when we again summer-fallow. This treatment has been the means of supplying root fiber, and has prevented drifting to a great extent, but I do not think it has increased the fertility of the soil, as I have not grown any heavier growth of straw or extra yield per acre, but the quality of the grain has improved and the straw stands stiffer. It is evident we must adopt different methods. It appears we have not yet any leguminous plant, like the clover, vetches or peas, just suited to our conditions. The latter, possibly, we can produce, but from my experience not profitably. I do not care to grow peas, owing to the encouragement of growth of weeds, and another objection is the harvesting, as the winds blow the peas from one part of the farm to the other, like the tumble weed, distributing many weed seeds. I have experimented in a small way with Brome and native rye grass. I prefer the Brome, both for hay and pasture, the latter, especially, although I have seen one of my cows tethered in a good growth of it in the spring and she would not eat it, but when taken from the Brome and tied on the roadside, she would eat greedily. Mr. Bedford thinks it was owing to the Brome grass being too succulent. It makes fine hay, but needs cutting before the seed ripens, otherwise the seed scatters everywhere when touched. I have been afraid it may become too troublesome to destroy, as the roots run like the couch grass, only more aggressively, but from experience in a small way I think they are easily killed in our dry seasons by the same treatment as I have given my timothy. I cut with a binder for seed, and shock up like grain. The threshing has been a difficulty, as ordinary threshers do not understand it. The sheaf should be held in the separator head first, and withdrawn again and not allowed to go through. If properly done, it does not require much more cleaning, but I must confess I have not had it done with success. For hay, I cut with a mower. Owing to the strong growth of roots, I think it will prove more beneficial to the soil than either timothy or native rye. The latter is a great producer. Horses eat it with avidity and thrive well, but I think it will prove very exhausting to the soil and not so beneficial in root fiber. I have not had so much experience with it as Brome or timothy. I should have stated my mode of sowing Brome has been by hand; this is too tedious. I have seen a seeder at the Experimental Farm driven like a wheelbarrow. Mr. Bedford informs me it works well. I see them advertised. Some years back I tried Hungarian grass and millet. I grew good crops, but failed to save the seed, owing to the short season; the frost generally comes too early for it to ripen. I would warn all desirous of growing it to beware of the mustard which I always found in the seed; most of us, knowing what that is, are cautious of introducing it, and another objection I have is, it is too exhaustive on the soil.

Now, the crucial point is, what course are we to adopt to make our vast stretch of prairie land return to us the means of subsistence without impoverishing the soil, and not allowing it to become like so many of those exhausted States in the neighboring Republic? This must be the inevitable result, unless we adopt other methods. Although I have not adopted it myself, I will suggest what is to me, and I know to many others, a solution. Where we have grown 200 acres of wheat, we should grow only 100; where we have had three crops between summer-fallowing, we should have only two at the most; indeed, I have thought it would be a good plan to have only one crop, and so prepare all our land for cropping in the next spring. Of course, we should have more summer-fallowing, and too many of us now have more than we do properly. I would also recommend the growing of more roots. We can do this much easier than in Ontario, and more certain of a crop, but I am not prepared to state how they can be kept for winter use. This is an essential point, and another is to house the stock to feed them to, providing the cattle are raised or bought in to fatten. Barley and oats should be chopped and fed with cut straw to cattle, and none of it burned, except what may be wanted for fuel for the threshing.

I know, Mr. Editor, these practices cannot be carried out at once, but the principles enunciated can be copied to some extent by a great many. Our first question is a sufficient return to keep the sheriff away, so that a change cannot be made hastily, but let us keep in mind the necessity of

keeping up the fertility of our fields, and work gradually for that end.

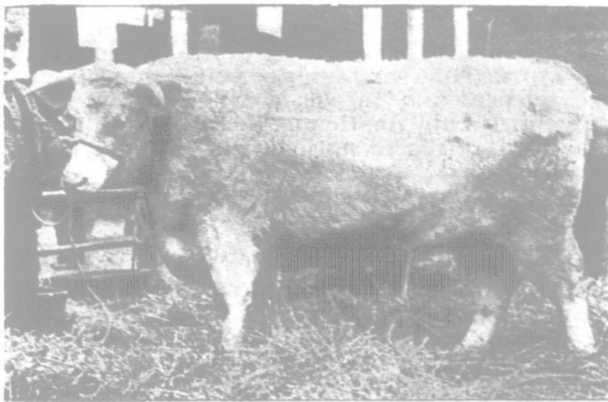
These few remarks, if worthy the space in your valuable paper, may possibly assist in your efforts to impress upon people the necessity of keeping up the fertility of our farms.

W. WENMAN.  
Glenwood Municipality.

### Must Grow Grass.

To the Editor FARMER'S ADVOCATE:

The questions you propound involve some problems which I, like a good many more, am still trying to solve, and which I by no means claim to be an authority on. I feel sure, however, that the successful farmer in the near future, in the older settlements, will be the one who to-day recognizes the changed conditions, and adapts his methods to meet the necessities of the case. I had an object lesson on the matter in question, which I wish could be brought home to every farmer in Manitoba. Two years ago I was plowing some stubble for oats, one end of which had been in cultivation for 17 years, the other had only borne one crop. The soil in both parts was as near alike as possible; the spring was a dry one ('98), and following two very dry seasons with us. The old land turned up in hard lumps, and no amount of harrowing seemed to make a good seed-bed; the new land, on the contrary, turned up mellow and moist, and a couple of strokes of the harrow made an excellent seed-bed. The lesson, I think, is obvious. I do not think that the unsatisfactory yields we are getting from old land result so much from the soil being depleted of plant food as from the mechanical condition it has got into from lack of humus, or, to put it plainly, the complete absence now of the original sod; it was this which gave the soil the power to absorb and retain moisture, and in this way to withstand drought. We never knew what drifting soil was till this sod was gone. The land is also washing badly now in heavy rains, for the same reason; in fact, on some of our lighter soils, where the land is rolling, the higher land has been almost completely stripped of the sur-



SHORTHORN STEER, KELEMANJARO.

Winner of first prize and breed cup at Smithfield, 1899.  
PROPERTY OF MR. JAS. BRUCE, INVERQUHOMERY,  
ABERDEENSHIRE.

face mold. Where land has got into this condition, the sooner a sod is got onto it again the better, by seeding down to Brome or some other grass. Another strong argument in favor of this, and which I am afraid is not sufficiently realized yet, is that we are threatened now with some of the grain insect pests of older lands. Last season the Hessian fly did considerable damage round here. Now, as insects like this feed entirely on the grain crops, it stands to reason that a break in the continuous wheat cropping is the most effective check we can give them. To get any revenue from land seeded down in this way involves the keeping of stock to utilize the product. I sometimes think that in urging the farmers in the Province to go more into stock, too much stress is laid on the manure point. Cattle well handled should show a profit apart from this, and the turning of unmarketable Brome grass into marketable beef or butter would be a more potent argument in favor of keeping stock than manure making. Just where manure should be applied is still with me an open question. Am inclined to take Prof. Robertson's view of the matter, that it should not be applied directly to grain crops; the resulting crop, as a rule, generally shows more of the increase in the straw than in the grain. A more serious objection still is that it often produces a rank growth of weeds. I have also tried hauling direct from the stables to the land intended for fallowing. My experience in this was also unfortunate. The season it was applied was a very dry one ('97), and although the fallow was well harrowed, the weeds failed to germinate, and came up in the crop the following year, nearly ruining it, although the rest of the field not manured was comparatively clean for the season, which was a record one for weeds ('98). Am inclined to think the best place to apply manure would be on the second year's grass, harrowing it well in the spring. This, of course, is only conjecture on my part. As to the class of stock to be kept, this would depend on how the farmer was situated; where he had to depend entirely on hired help beef cattle would probably be the most profitable, as they could be turned out in spring as soon as seeding started, and would not be much more trouble till after threshing. Where

there was a family able and willing to take hold of dairy stock a quicker and better return would probably be obtained.

As to fencing, have not given the matter much thought, but think every farm should be fenced around. Where this was done, and a permanent pasture sufficient to carry the stock till after threshing was available, nothing more would be needed, as the cattle would stick pretty close to the Brome sod till winter set in, and in the early spring before the native grasses came. Where Brome was intended to be used as pasture as well as hay, a permanent rotation would have to be adopted and the farm fenced accordingly, or a movable fence resorted to. Have not seen any portable fence yet which in my estimation can equal barbed wire, with light posts, for ease in moving.

JAMES FLEMING.  
Morton Municipality.

### Why So Little Cheese is Eaten in Canada.

There has been a great deal written lately on the above subject, trying to find a cause and a remedy for it. Some writers blame the cheesemaker; others the storekeeper; others say the people will have to be educated in a taste for cheese before there is much improvement. Each of these reasons have something to do with it, but the chief reason that there is not more cheese eaten is that cheese is too high in price in comparison with butter and meat—the two articles that largely take the place of it. Butter and meat are here only about half the price that they are in England; while cheese is higher here than it is there. Canadian cheese is retailed lower in England than it is in Manitoba. Now, it takes three times as much milk to make a pound of butter as it takes for a pound of cheese, yet cheese is often the highest per pound, and cheese at fifteen to twenty-five cents a pound is prohibitory to the average farmer or workman. There are thousands of Old Country people in Canada that do not need to be educated to eat cheese. They have been used to it, and would eat it yet if they could get it at a reasonable price. The storekeepers can do a great deal to help make cheese more popular; first, by having a little good cheese for their customers. A storekeeper usually only cuts one cheese at a time; it may be cured, or it may not, but it is that or nothing. And then in the matter of cutting cheese the storekeeper needs a little training. He generally cuts a piece off right from top to bottom, which is nearly all surface and is all dried up before it can be used. A good plan would be to have directions on each box, telling the best way to keep cheese and the way to cut it so as to have the least waste and have the cuts in the best shape for the consumers. If there was as much pains taken to put cheese on the home market as there is to put it on the Old Country market, and cut the profit of handling it a little finer, there would soon be a big difference in the amount of cheese eaten.

SIDNEY BROWN.  
Argyle Municipality, Man.

### The Importance of Breed Type.

BY G. W. CLEMONS.

In these days of official tests it seems to me very important that we should not lose sight of breed type. These tests are doing a great work and no one can successfully deny them, but there is a possibility that breeders in purchasing stock will look too much to the question of relationship to a high-record cow, and too little to individual merit and breed type. Suppose a bull traces a dozen times to Princess Royal 30th, or some other great cow, is it to the interest of the breed to put him at the head of a good herd in spite of the fact that he is a small, delicate creature, with minarets on his top line like a Jersey, or perhaps a big, coarse, rough brute with a skin like a board and hair like wire?

All the excellence of the breed is not confined to one or two families by any means. Dozens of good cows are coming to the front in every State and province, and surely we can find good typical bulls from some of these cows, so that we need not head our herds with culls simply on account of their fashionable pedigree. Our cows must be producers first of all, but if the breed is to be permanently popular, we must have a pride in the appearance of our animals as well. They must be of uniform type and handsome conformation. The elaborate comparison of Advanced Registry records made by Mr. G. W. Koor shows that the cows of the milk-and-beef form are superior to the cows of milk form both in production of butter and in percentage of butter-fat. It will, I think, be conceded that the majority of Holsteins are of the milk-and-beef form, and I submit that it is advisable to adhere to that form in preference to any other. The extreme milk form shows weakness of constitution which is fatal to long-continued heavy production. It takes a cow of sturdy stamp to stand heavy feeding and large production for the ten or twelve years of her milking life. Give us the good-sized, low-set, broad-chested, big-bellied cows, moderately fine at shoulder tops with no pinch behind them, level rumps, and big, square, level udders. The unsightly sloping rumps and unshapely udders demand attention. Let us take a lesson from the Ayrshire breeders on these points. And again, let us avoid the 900-pound cows. Leave the light-weight class to the Jerseys and the goats.—*Holstein-Friesian Register.*

### Agricultural Education.

An address delivered at the sixth annual convention of the Cattle Breeders' Association of Manitoba, Winnipeg, Man., February 21, 1900, by W. A. Henry, Dean College of Agriculture and Director Agricultural Experiment Station, University of Wisconsin.

It is sometimes well, in these matter-of-fact times, to go back to the foundation of things, in order to have a proper conception of the causes for what may now be taking place. It is eminently proper that American farmers should have a clear understanding of how our American agricultural colleges originated, who were their founders and what are their purposes.

A bill was introduced into our National Congress in 1858 by Representative Justin F. Morrill, of Vermont (afterwards Senator), providing for the establishment of an agricultural college in each State of the Union. Passing both bodies by a good majority, the bill was vetoed by James Buchanan. On April 30, 1858, Representative Morrill delivered an address before the House of Representatives, which is a classic of its kind, and which has been unequalled as a plea for the education of the children of the industrial class of our country, especially farmers' sons. In this address he points out how agriculture is the basis of national prosperity. He quotes Adam Smith as saying: "That which arises from the more solid importance of agriculture is much more durable and cannot be destroyed but by those more violent convulsions occasioned by the depredations of hostile and barbarous nations continued for a century or two together." He showed that "National wealth is greatly increased or diminished by the more or less skill, dexterity and judgment with which labor is generally applied." Congressman Morrill pointed out that European nations were already awakened to the importance of agricultural education, and were providing schools and experiment stations for the advancement of this great art. He showed that our system of farm practices was faulty and ultimately disastrous, because each year saw the fields poorer in fertility than before, the crops gradually diminished in quantity and quality. He showed that our farmers were not indifferent to these conditions, but were groping in the dark for help, while only meager or desultory assistance was rendered them. There was some help from agricultural papers and the annual fairs of the agricultural societies; but nowhere were there laboratories and schools for exact investigations and competent instruction.

Closing his plea, which was one of the most eloquent ever delivered in the halls of Congress, he said, "Pass this measure, and we shall have done:

"Something to enable the farmer to raise two blades of grass instead of one;

"Something for every owner of land;

"Something for all who desire to own land;

"Something for cheap scientific education;

"Something to induce the farmers' sons and daughters to settle and cluster around the old homestead;

"Something for peace, good order and the better support of Christian churches and common schools;

"Something to enable sterile railroads to pay dividends;

"Something to enable the people to bear the enormous expenditures of the national government;

"Something to prevent the dispersion of our population and to concentrate it around the best lands of our country—places hallowed by church spires and mellowed by all the influences of time—where the consumer will be placed at the door of the producer, and, thereby,

"Something to obtain higher prices for all sorts of agricultural products."

Washington must have had something akin to our agricultural colleges in mind when he wrote in his last message: "It will not be doubted that, with reference either to individual or national welfare, agriculture is of primary importance. In proportion as nations advance in population and other constituents of maturity, this task becomes more apparent, and renders the cultivation of the soil more and more an object of public patronage. Institutions for promoting it grow up supported by the public purse, and to what object can it be dedicated with greater propriety?"

But James Buchanan turned a deaf ear to the pleading of the people, and it was left for Congress to consider the subject once more, and for that patriot, Abraham Lincoln, whose heart was always in accord with the hopes and aspirations of the common people, to sign the Bill which gave away eleven million acres of the public domain for the education of the children of the industrial classes. The Agricultural College Land Grant Bill was signed by Lincoln, July 2, 1862, at the time when the United States were in the throes of an awful civil war.

By this grant there was given to each State in the Union thirty thousand acres of land for each representative it then had in Congress. It was specified that the income from the sale of all such land should constitute a fund, the interest of which should be forever used to maintain at least one college where the leading object should be the education of the children of the industrial classes. This was the grandest gift ever made for education.

Because of the immense bodies of land thrown upon the market through the homestead act, the grants to railroads, and the agricultural college land grant, before referred to, and because of lack of proper foresight and business judgment on the part of the agricultural colleges derive but a small measure from the original land grant. Believing that the

errors of a few who had handled this trust should not be visited upon the young of our country seeking education, Senator Morrill introduced a supplementary bill increasing the income of agricultural colleges, the bill passing August 30, 1890. By this second act, money derived from the sale of public lands to the amount of \$15,000 was appropriated to each State, this sum to be increased by \$1,000 annually until it should aggregate \$25,000, at which sum the annual appropriation should stand.

In 1887 Congress passed what is known as the Hatch Act, giving \$15,000 annually to each State in the Union for the establishment of an experiment station.

The income arising from the sale of lands granted in 1862, the annual appropriation of the United States, which amounts to \$25,000 for each State the present year and will so continue yearly, and the further appropriation of \$15,000 for experimental purposes, constitute the government gift to each State in the Union for the benefits of the colleges of agriculture and the mechanic arts, and for investigation. In many instances this government aid is supplemented by State appropriations. For example, in the State which I represent the agricultural college receives from the commonwealth \$35,000 annually for instruction and experimentation. Michigan has given her agricultural college over \$1,000,000 in all since its foundation in addition to the government appropriation. The manner of disposition of the original government land appropriation was quite diverse for different States. Connecticut, for example, turned this gift over to Yale College. Massachusetts founded a distinctly agricultural college at Amherst, giving it two-thirds of the grant and turning over the other third to the Boston Institute of Technology. New Hampshire gave her grant to Dartmouth College. New York's gift of 900,000 acres (the largest of all) went to Cornell University, where it was splendidly conserved through the wonderful foresight of that able and generous benefactor, Ezra Cornell. In most instances a goodly part of the money went to the enlargement of the scientific courses, and sometimes even to the further promulgation of the classics. In many institutions the mechanic arts department came rapidly into existence and accomplished untold good. I ascribe the marvelous advancement our States have made in engineering and mechanical arts directly to these schools; they have turned out thousands of young men trained in the sciences and in the handling of machinery; they have paid for themselves a hundredfold. In practically all cases, agriculture direct received less assistance and gained far less from this great grant than the friends of the measure had anticipated. It was found very easy to push the other sides of the institution and very difficult to advance the agricultural department. All of this is not difficult to understand now that the efforts of the earlier years are matters of history. Who in those years was able to tell what an agricultural college should be and how it should be managed? Scarcely was there a person in the country who could lay out any definite plan of procedure. The wildest theories prevailed, ranging from those born in classical minds, which would have the every-day farmer a classically educated gentleman, down to the so-called practical man who wished the students to wear a peculiar garb and to do the most menial labor, in the belief that by keeping the student close to the soil he would never lose his love for farming. The farmers generally were indifferent to the matter, for they had no theories to apply and sometimes preferred to criticize rather than assist, and so it was left to college trustees and college presidents to do as best they could. As the years rolled on it was found that few students were pursuing agricultural studies at the several institutions, and then arose a clamor among the farmers for a change. The National Grange took up the matter and urged the separation of the colleges where they were departments of universities, urging that young farmers would not attend these institutions along with students pursuing other courses, and that agricultural colleges could only be a success when established on a separate foundation. They pointed to the great success of the Michigan Agricultural College and the good work of the Massachusetts Agricultural College, both of which were separate institutions, and to the attendance in some other institutions. In some cases, institutions which bore the name of agricultural colleges and carried a large number of pupils in their catalogue were really not agricultural colleges at all, but schools of science and the mechanic arts located in the country, affording a good education in the lines taught at a minimum cost to the pupils. That the farmers were thoroughly dissatisfied with existing conditions, and that they were powerful and successful in their efforts at separation, is shown by the fact that in New Hampshire the agricultural college was wrested from Dartmouth and placed on a separate foundation at Durham. In Rhode Island the funds were taken away from Brown University and given to an institution in Kingston. Up in the hills of Connecticut was a little agricultural school established on a farm through the benefaction of a New York merchant. To this school young men were going for education in farming, while Yale College, receiving the land grants, had practically no agricultural students. The farmers of the State, acting as one man, pushed their efforts at separation until the funds were taken from Yale and given to the Stearns school at Mansfield. In several

of the Southern States separation has also taken place.

Let me return once more to those early days of experimentation in agricultural instruction. In some of the colleges there was not even a professor of agriculture to give instruction in that line; in others, matters were not much better, because upon a single professor were laid all the duties of instruction. There was no system of agricultural instruction which this teacher could follow; in other words, agriculture had not been put in "pedagogic form." There were books on agricultural chemistry, general works on farm practice, live stock, etc., but none of these were in form for class use. The few teachers who were really in earnest in those days were groping in the dark. Think for a moment of the tools they had to work with, compared with teachers in other lines. When a teacher is asked to give instruction in algebra or Latin, he can glance over the catalogues of publishers of educational works and note the names of dozens of books treating of his particular subject. As he approaches a decision in the matter, it is difficult to decide which of half a dozen text-books to choose. This is because educators have been at work for generations upon Latin and algebra text-books. In those days no one had taught the teachers of agriculture, and their efforts were but "the blind leading the blind." At these institutions those in authority, ignorant of what was required or of the possibilities, thought that one or two men could instruct in the whole field of agriculture, and for this cause matters were held back tenfold more than they should have been. Now we are learning to put men into each branch of agriculture, and as we divide up the work, with bright men back of each line, we are rapidly building up our schools into centers of *bona fide* agricultural instruction. They are no longer despised by our more progressive farmers, who now look to them with eager, anxious interest; they are beginning to have faith in them, and where once there was narrow suspicion and mild enmity, we now find an open-hearted and frank interest, such as has been evinced at this meeting in your welcome to the professors, and such as is seen in a thousand ways throughout this Province, as well as in my own country, in reference to agricultural progress. Your own country has been a leader from the start in agricultural education. Your school at Guelph has been an ideal institution in many particulars for American educators studying the subject, and has proved of untold worth to us in advancing our ideas along this unknown way. Your great system of experimentation, founded by the Central Government, with its headquarters at Ottawa and its branches reaching to every part of your vast domain, has been a constant source of admiration to the people on our side. Your numerous dairy schools and your system of travelling dairy instruction, together with the various other means of assistance to the people provided by the Government, have placed you far in advance of those on the other side of the border in many particulars. While the educational efforts on each side of the line are yet more or less imperfect and everything is immature, your people are to be complimented in the highest terms for the measures they have taken and the earnestness with which they have entered upon the solution of the great problem of how to lift agriculture to the highest plane of its possibilities.

TO BE CONTINUED.

### A Pen of Breeding Ducks.

In the beginning of the breeding season, which is now, one drake to four ducks or two drakes to eight ducks is about right, and ought to give the best fertility, if stock is properly fed. Later, in warm weather, one drake to five or six ducks will do.

As to a house for a small flock of ducks, a weather-tight structure is all that is necessary. Ducks should not be kept too warm; they can stand a great deal of cold and exposure. They will prefer to remain out in all the snowstorms, and will seek the house or shelter only at night. There is one important point to be observed in housing. Although they are naturally water animals, they cannot stand damp bedding. The litter must be kept dry, otherwise they will be crippled with rheumatism. Give them, at this time of year, as well as in warm weather, all the exercise possible. Yard them, if you will, but let the yards be of fair size.

A good ration for breeders is half corn meal and half wheat bran, to which add a liberal handful of coarse black or builders' sand; mix all thoroughly together with water and feed in rather a moist or sloppy consistency, and never dry. Three times a week add a small portion of soaked ground beef scraps to this ration. Add also boiled and fine-chopped vegetables, and give whole cabbages every day. Whole grain, like corn, is not a natural food for ducks, although they will eat it. Soft and moist food is more to their fancy. When they are fed, which should be only twice a day, fresh water should be within easy reach, as they will take a billful of feed and then wash it down with water. If the water is omitted they sometimes choke. Breeding ducks should not be allowed to become over-fat.—Country Gentleman.

Much time is saved and advantage gained by having machinery, implements, grains and grass seed in condition for immediate use before seeding.

**The Prize Mutton.**

I do not know by what authority the opinion of Mr. William Davies, a Toronto pork-packer, was asked for on the mutton carcasses shown at the Fat Stock Show at London and lately published in what is called the *Agricultural Gazette*. But I do think it was a stupid thing to publish the opinion of a man who in his letter clearly admits that he did not know what he was eating. He bought two pieces of mutton, as he supposed, and after cutting off most of the very thick fat, found the lean was rich, juicy, tender, and of fine fiber, and he says: "I imagined this was from a Shropshire or South-down sheep." There were no ear-marks on it, and he didn't know for sure what it was, so he drew on his "imagination" for a conclusion. He bought two more pieces, which proved "very unsatisfactory," and he says: "I think the last must have been a Cotswold or a Leicester." He didn't know for sure, so he drew on his "thoughts" for a conclusion. The letter was addressed to F. W. Hodson, Esq., Ottawa, who, I understand, is the High Commissioner of Live Stock for the Dominion of Canada, and Mr. Davies innocently adds: "I thought this would interest you. Of course, all lovers of good mutton know that the Downs are much superior to other breeds." Somebody had, no doubt, told him that, or he had heard somebody say it, and he seems to have *imagined* or *thought* it was a fact, and the High Commissioner thought this precious letter was good enough to put in the *Agricultural Gazette* to help to "eddicate" the benighted farmers of Canada so they would know just what kind of sheep to breed. It is but fair to state that the Commissioner appended a note of comment, in which he says: "Each carcass shown was conspicuously marked so as to indicate to which breed it belonged. It is a pity the retail stores had not kept a close watch on these markings so as to be able to inform customers just which breed they were eating." It is a pity, and it is not safe to leave some things around within reach of some kinds of people without being conspicuously marked. Mark Twain used to take the precaution to mark some of his sayings, "This is a goak"; and it was kind of him, for some innocent people might have imagined they were written in earnest, and the consequences might have been serious. Mr. Davies may have been eating Cotswold when he *imagined* it was Southdown, and he may have eaten Shropshire when he *thought* it must have been Cotswold or Leicester. He would not have been the first epicure who had been fooled into praising Cotswold or Leicester mutton when he "imagined" he was eating Southdown. But Mr. Wm. Davies is conspicuously announced in the heading of the article as the "President of one of Canada's most important and greatest national industries." Think of that. He is the same authority that, a few years ago, undertook to teach the farmers of this country which breed of hogs they ought to raise; and to prove that he knew what he was talking about, he went into the business of breeding hogs to show them how to do it; but he didn't stay at it long. He evidently concluded there was more money in letting the other fellows raise that breed. It was easier to preach than to practice. He was shrewd enough to see that there was more money and more fun in packing pork in the city than on the farm. He probably found the "Boers" more odoriferous than he had *imagined*. Perhaps it would be uncharitable to criticize the letter in question severely, for it is quite possible that the writer was not aware that it would be published, with conspicuous headlines, as the opinion of a notable authority. If he had imagined that it would go to the world in its original shape, it is only charitable to believe that it would have been "conspicuously marked" "Private"; but the Commissioner thought it too good to be hid under a bushel. It would be a pity to deny the poor, ignorant farmers the leading of such a helpful light, and he gave them the benefit of it "free gratis for nothing." **COTSWOLD BUCK.**  
Peel Co., Ont.

**Veterinarians Meet.**

At the annual meeting of the Manitoba Veterinary Association, held in Winnipeg on February 20th, the directors for the ensuing year were elected as follows: Drs. Rutherford, M. P., Dunbar, Martin, Fisher, Taylor, Torrance and Williamson. Subsequently the directors met and elected the following officers: Dr. Rutherford, M. P., Portage la Prairie, president; Dr. Fisher, Brandon, vice-president; Dr. Torrance, Winnipeg, secretary-treasurer and registrar; Drs. Dunbar, Martin and Torrance, examiners.

A hen without grit is like an old man without teeth—she can eat and perhaps keep in fairly healthy condition, but that is all. To be put to profitable use, food must be well chewed, and grit is the only teeth which a hen has.

**Camby Charlton's Stock Barn.**

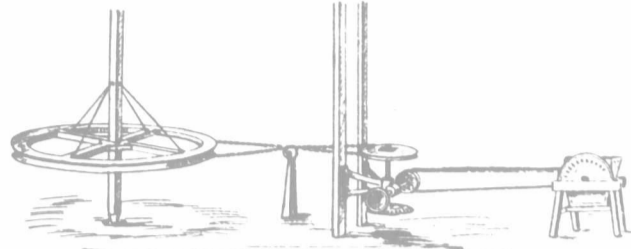
To the Editor FARMER'S ADVOCATE:

SIR,—Being a subscriber to your paper, and seeing some different cuts of barns and basements, I thought I would send you mine. It is 60 by 54 feet, is of stone, and has been built eight years. The wall is eight feet high and 20 inches thick, and is pointed. The inside is arranged as follows: On the south is room for ten cows, tied two in a stall. We tie altogether with chains. The stalls are 6 feet 5 inches wide and 5 feet from manger to gutter. The gutter is 16 inches wide, 6 inches deep at cow's hind feet and 5 inches at the other or back. The manger is 20 inches wide at bottom. In front of the cattle it slants from bottom of manger up 2 feet 4 inches from floor, and out 16 inches in front. These are all alike on every side. The wide black mark is to represent a 2-inch plank spiked on the posts in front of cattle. From this plank to outer edge of manger is 16 inches, which gives plenty of room to feed. From the top edge of plank up to top of post we have put wire. The first wire is 4 inches from plank, the second is 4 inches from first, the third is 5 inches, the fourth is 6, the fifth is 7, the sixth is 8. From the bottom edge of plank to manger is 18 inches. The slats rest on top edge of plank, and are fastened to wire with wire hooks. The slats are 2 feet apart. On the east end is room for 14 head of cattle; on the west is room for 8 head. The floors on east and west sides are made of concrete; on south it is blue clay and gravel. The mangers all around are concrete, with a partition 2 feet high in the center of every stall.

The water is forced from a spring well by a wind-mill which stands at the north-west corner of barn.

ary; to the north is a granary 12 by 12; to south is granary same size. Between the two is where my wheel is built for power to cut the feed. At the end of carriers is a chute where the cut feed goes into the cut-feed box below.

The horse power used was made by myself, and described in the FARMER'S ADVOCATE of Feb. 21st, 1898. The barn floor is 12 feet from bay to swing beam. From swing beam to the end of barn is 22 feet on the right, and to the left is the granary. In the center is the wheel, 15½ feet across; this suits the

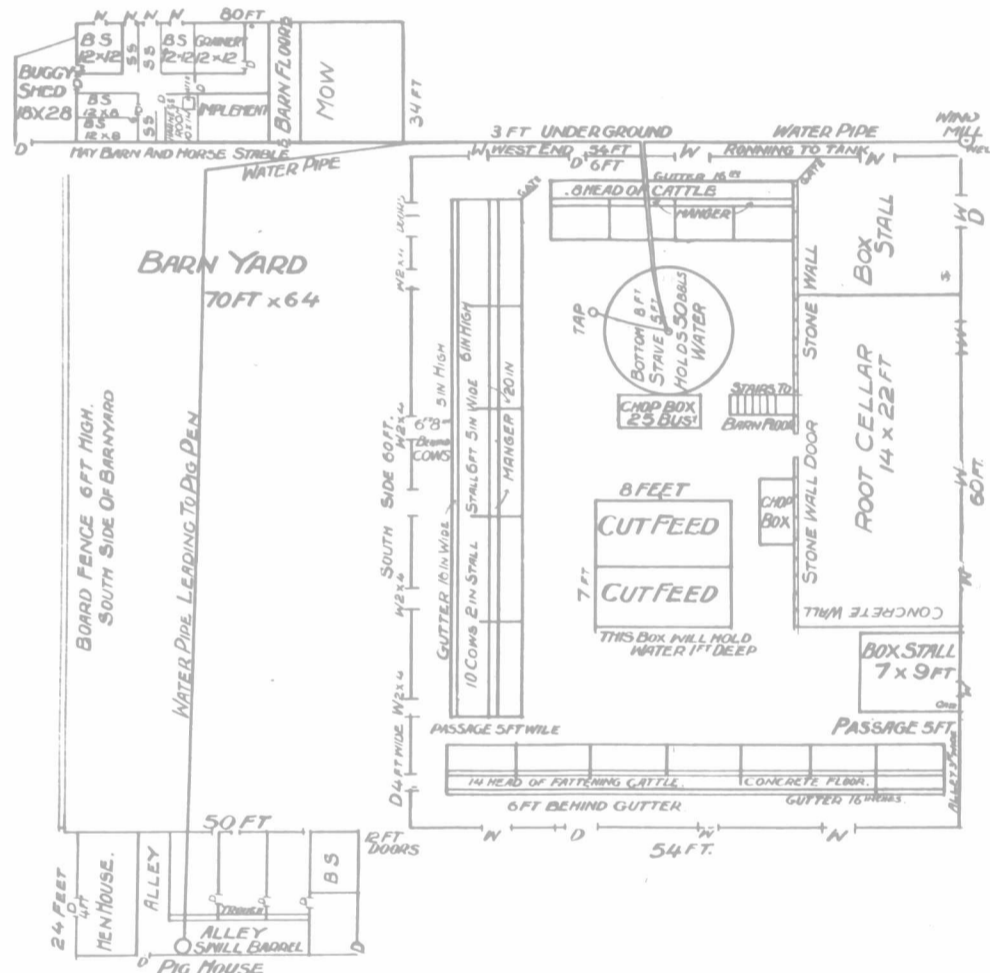


cutting box in the center of the barn floor. The rim is built up and grooved. Exactly in center is hole 4 by 4 inches for the upright axle. The axle is 4 by 4 inch scantling, with 3-inch round gudgeons at both ends. The arms of wheel have 4 half-inch round iron hooks 6 feet long; the hooks are fast in the arms with small eyes. There are also eyes in the axle about 6 feet from the floor; the wheel lies on the floor when not in use; the horses are then put inside the wheel; it is then raised up until the hooks can be hooked in the eyes on axle; this brings the wheel about 2½ feet from the floor, placing the draft for the horses where it ought to be. The cutting and pulping machines are run with a jack standing on end, bolted to two upright 4 by 4 inch scantlings. The jack stands under the swing beam, so that when the cutting machine is moved the barn floor is clear for driving in with loads. **ELGIN CO., ONT. CAMBY CHARLTON.**

**The White Scour in Calves.**

Usually about this time of year there is always a demand and general inquiry for something to stop white scours, or a good remedy for diarrhoea, in calves. Perhaps there are few diseases the causes of which are so little understood by the farmer, and for which there are so many absurd nostrums employed. We heresay that this trouble kills off more autumn calves than any other; if not, it at least leaves them so stunted, ill-shaped and bad-conditioned that no amount of care will bring them to be worth anything in the market, where they are described as runts.

This is due wholly to the farmer's carelessness in feeding, and this is the usual course as we have often seen it practiced: A quantity of separated milk or cold skimmed milk, as the case may be, is offered to the calf, which is making little progress in this thin dietary, so a pint or two of bran, raw corn meal or millfeed is thrown into the bucket with the milk for the calf to eat or leave as it likes. At any rate the calf is thin, running down with scours. First indigestion sets in, then constipation, and afterwards diarrhoea or white scours results. The fact is the calf is starved from birth. The first rich milk of the newly-calved cow acts as a natural purgative, cleansing the bowels from the meconium or first feces of the young animal. This being retained in cases where the calf is denied the first milk, acts as a foreign irritant; hence the constipation. This is followed by an acid secretion from the lining membrane of the intestines, which coagulates the milk and separates it into its individual parts—curds and whey. The curds or cheesy part remains as a foreign agent in the intestines, and the fluid or whey part comes away in the form of a white, semi-fluid, evil smelling, sour faeces—diarrhoea. This condition once in evidence, the acid condition of the intestines keeps up the irritation, as all milk supplied, even if whole milk, coagulates and acts as a fresh irritant. If with meal, the case is worse, for the stomach is incapable of properly digesting the quantity of meal it has gulped down without mastication. It ought to be well known that digestion begins in the mouth by the addition of large quantities of saliva, and when meal is fed it should be given DRY, and in small quantities, according to the size of the animal. No danger will result if fed in this way. The best feed is equal quantities of corn meal, ground oats and bran, which should be slightly salted, not only to make it palatable, but to increase a freer flow of saliva, and whatever milk is fed should be given separately in small quantities three times a day, and always warmed. If too young to do this, the writer has adopted the plan of taking half the quantity of milk and substituting in its place the same quantity of flaxseed gruel, which prevents the accumulation of the coagulated milk in the intestines, with good results. It is difficult to give each individual case as one meets with it in practice, but they will all come under the same description, caused by improper, irregular feeding, exposure to chill, winds, etc. We always recommend



BASEMENT PLAN OF CAMBY CHARLTON'S STOCK BARNS, PENS, AND YARD, IN ELGIN CO., ONT.

The tank in the basement is blocked up on timbers 3 feet from floor. The top of the tank is within 6 inches of the barn floor; it is 8 feet across bottom and 5 feet high. The water is conducted to horse stable and pigpen through 1-inch gas pipe, with a hydrant in both places under the ground 3 feet, so it will never freeze. The water pipes you will see marked on the plan.

**The Cut Feed.**—To explain this I will have to start at the cutting box. We cut every Saturday, so we keep it fresh all the time. It is put down from the barn floor into the cut-feed box, which is marked in plan. It is 7 feet by 8 feet, and water-tight one foot high, with a partition in center 4 feet high same as the outside. The cut feed is tramped into it as solid as we can get it, then wet with water enough to dampen it, and in 36 hours it will be warm. This makes it soft, and the stock eat it splendidly—cut straw, cornstalks, and hay enough to make it tasty. This, along with a little chop or meal and turnips is almost as good as ensilage. Half of this box full will feed 40 head of cattle from a day to a day and a half. So we have one half heating while we are feeding the other. Now, as regards to light in a stable, the most of people do not get enough windows in. We have 14 windows and 7 doors, and with the wire in front of the cattle it gives plenty of light to do chores by daylight. When you enter either door on south side you can see every one of the cattle if they are standing.

The barn above the basement is 40 by 60 feet, with lean-to 14 feet wide at the north. On the left of door is a mow 26 by 54; on the right above the swing beam is a mow 24 by 54 feet; under the swing beam in main part is 40 by 22, which is used as gran-

that some remedy should be kept on hand to head off this trouble, and have prepared a castor-oil emulsion for this purpose, containing a small quantity of pepsin; a teaspoonful given every day is attended with good results. Should the scour become chronic, a more powerful astringent is required, which, if given judiciously, will aggravate the disease they are given to cure. Prepared chalk, 1 oz.; powd. catechu, 1 oz.; powd. ginger, 1 oz.; peppermint water, 1 pt. Give 2 to 4 teaspoonfuls night and morning. Fresh burnt and powd. charcoal is also another remedy, and we cannot do better than recommend to give very young calves a wineglassful of lime water with the milk when hand feeding.

out the manure. The boat that we use is 5 ft. 2 in. long by 25 in. wide by 14 in. deep, and is such that we can take out in one load all the manure that the cattle on one side make in 24 hours. At both ends of this boat is a hook from which you can hang your whiffletree, so that it is not necessary to turn the boat around, but can unhook the horse and hitch him to the other end. The manure in the box stalls can be hauled the same way.

This manure is drawn out and spread on the land when it is frozen and has two or three inches of snow, but when the ground is soft it is placed in a pile in the field where the cattle are not allowed to tramp it. This way of disposing of manure after taking it from the stable is not settled in my mind as a good way, and I would like to have some of the readers' opinions on the matter.

When half-past ten comes the steers are turned out in a yard 72 by 80 ft. for water and exercise, and are left out an hour. Then when they are put in, there is a folding door at the end of the feeding alley which prevents them from going through to the opposite side or into the passage, as shown in Fig. 1. Then at half-past two the cows and young stock are let out for an hour, and when they are being let in or out these folding doors at the end of the feeding alley fold, as it were, and form a passage straight through to the yard. The door where all these cattle are let out, when opened half width, keeps them from getting in behind the steers. When the cows and young stock are put in, one-half of the folding doors is closed and fastened to the wall, thus keeping them in their own side of barn. By this it is seen that these doors answer two purposes, one to keep the cattle out of the

short time of fifteen minutes. The horses received their hay and oats, the yearling cattle in the box stalls their cut straw and ensilage, and twenty pounds of chop sprinkled over the feed after placed in the box. Out of the fifty in the barn forty-three received their cut straw and ensilage, and twenty-three of these received their full feed of chop over their food in the mangers. The remaining seven of the fifty received clover hay. All the cattle feed, which was the forenoon's meal, had been mixed a meal ahead in twenty minutes. The pigs got their usual feed of swill and slop. All this feeding, as stated before, has been done in fifteen minutes by one man.

The upper part of the barn floor is represented in Fig. 2. At the edge of the barn floor, to the west, is a chute immediately over the alley for feeding the cattle. Through this the clover hay is put down, then at the edge of the first floor is another chute where either long straw or cut straw is let down for bedding in the box stalls. Between the two floors is a granary 18 by 20 ft., and to the opposite side of the first floor is another granary 15 by 21 ft., with two hoppers next to the silos, and a bin at the other end. The chutes from hoppers lead to the passage alongside of the mixing room below. Next to this granary door is another door opening into the basement, where a person can descend by means of stairs that extend from the driveway above to the basement floor in the feeding alley below. This stair hangs on hinges, and can be raised and hung on a hook so as to allow the feed box in the feeding alley to pass.

Middlesex Co., Ont. D. A. GRAHAM.

**A Time-Saving Stock Barn.**

SIR.—The buildings that I will describe are on a 100-acre farm in Lobo Township, Middlesex Co., Ont., and were built in the year 1893, and are considered by many who have seen them to be the handiest in Middlesex Co. Fig. No. 1 is plan of the basement. The barn is 100 by 36 ft., and stands on a 9-ft. stone wall. At the east end are two silos, one being 9 ft. 6 in. by 13 ft.,

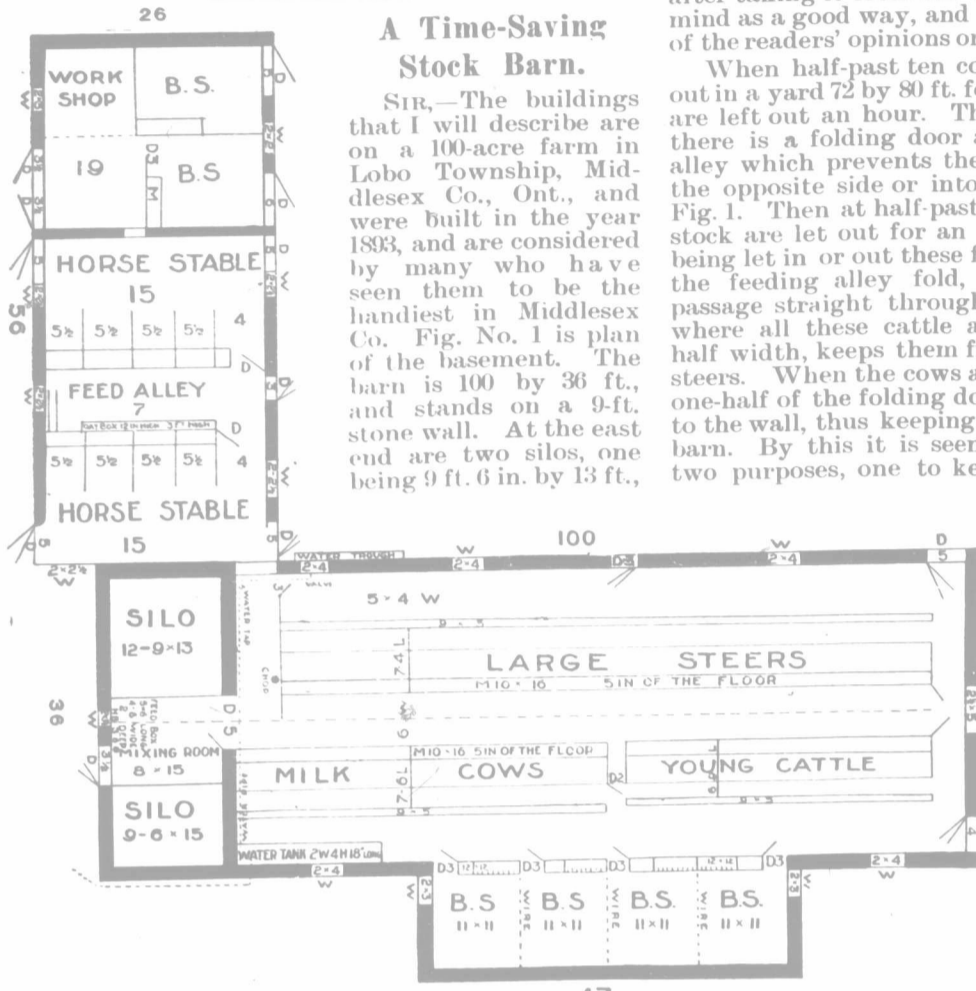


FIG. 1.—BASEMENT PLAN OF D. A. GRAHAM'S STOCK BARN, IN MIDDLESEX CO., ONT.

and the other 12 ft. 9 in. by 13 ft., both 25 ft. high, all inside measurements. They are separated by a mixing room 8 by 15 ft., in which all the feed for the cattle is mixed. As shown in Fig. 2, there is a door opening out of the cut-feed room just over the mixing room, so that the cut straw necessary can be put down ready to mix with the other stuffs. When we get the straw down we go into the silo and throw down the amount of ensilage needed, but before the ensilage is spread there is a handful of salt thrown over the straw. Then for the water we go to a tap three or four steps toward the horse stable, using enough water to moisten the straw. We then spread the ensilage and mix altogether. After it is all mixed it is placed in a large box 5 ft. 6 in. long by 4 ft. 8 in. wide by 2 ft. deep, which hangs on a track that runs along the feed alley, 6 ft. wide, from the mixing room to within 4 ft. of the west end of the basement, which part is used as a passage. The manger board flares into passage so as to lap 1 in. under flange of car. A common hay-fork car is used, and from this three chains are fastened to the box, two at one end and one at the other. This car runs along a track the same as that used in a barn for unloading hay or peas, and when the box is full a boy twelve or thirteen years old can draw it backward and forward quite easily.

On each side of this passage is a row of stalls: the one for steers and the other for cows and young stock. The stalls for the steers are 7 ft. 4 in. long, and vary in width from 6 ft. to 6 ft. 10 in. This enables me to place large steers in wide stalls and the smaller steers in the narrow stalls, thus showing them off to better advantage than if large and small steers were in stalls the same size. Then to the right are six double stalls 7 ft. 6 in. long for the cows, and varying in width from 6 ft. 8 in. to 7 ft. 4 in. The reason for this varying width is similar to that given for the steers, as all cows are not the same size. On this same side are six double stalls for the young stock, averaging in age from one to twenty months. These stalls are 6 ft. 9 in. long, and vary the same as the rest of the stalls, from 5 ft. 2 in. to 5 ft. 9 in. This is a very important point to observe in laying out a basement for animals of different ages. The mangers in every stall are raised 3 in. off the floor. This is a great help in keeping the cattle clean, as their droppings are less liable to fall onto the platform. Behind these cattle is a gutter 5 in. deep by 2 in. wide at the bottom and the side next to the cattle is faced with 8 in. brick on edge, while the opposite side of the gutter is rounded, the rest of floor being of Portland cement. Then between the gutter and wall is a passage 5 ft. 4 in. wide, which gives ample room for a person to use a horse and boat in hauling

the feeding alley when they are being let out, and the other to keep them from crossing to their opposite sides when being let out or in.

In watering cattle, all that is necessary is to turn a tap which lets the water run through a pipe from the tank—2 ft. wide, 4 ft. deep and 18 ft. long—to the trough in the east corner of the yard. The tank is set right behind the cows and has a float-valve which prevents the water from overflowing. This water is forced into the pantry in the house by a windmill from a spring well 14 ft. deep. In the house is a barrel into which the water is forced, and from here it runs to the tank in the barn through a 1 1/2-in. pipe 3 ft. underground.

The horse stable is 56 by 26 ft., and has nine stalls, four on one side and five on the other, separated by a feed alley 7 ft. wide. The hay is put down from a

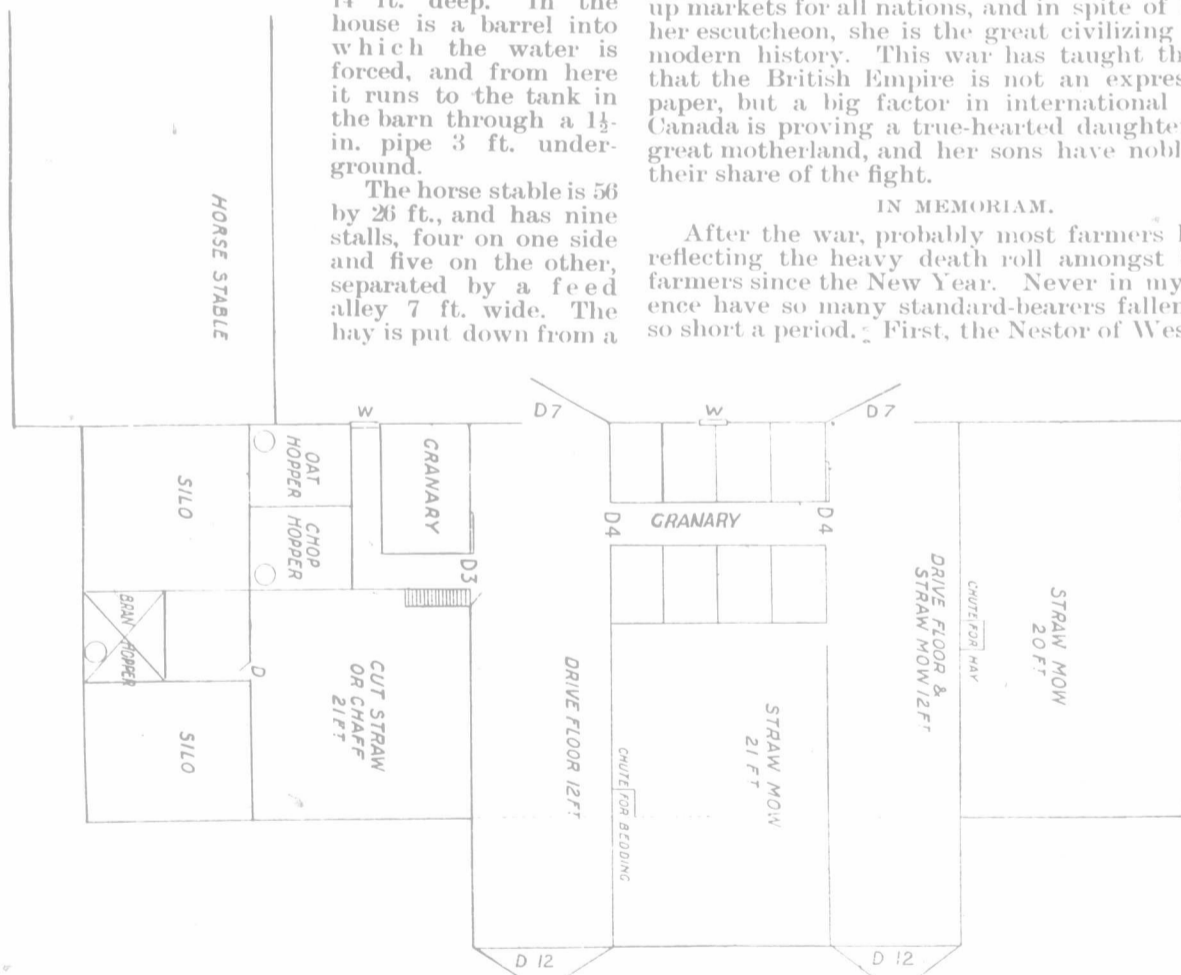
**Our Scottish Letter.**

THE WAR DISCUSSED.

The war is the great topic of conversation here, and by a letter which came in to-day from Alberta I learn that it is also the great topic in that far-off part of Her Majesty's dominions. Many young farmers are going off, having volunteered for the front; and while this splendid outburst of patriotism is pleasant to contemplate, one has feelings of regret when he contemplates the possibility of some of them not returning. Mr. Kruger is exacting a heavy toll from Great Britain—many noble families are in mourning already—and unless something unforeseen occurs, we are not near the end. The yeomanry forces are coming well forward, and some who thought soldiering fun are finding it grim earnest. Possibly few anticipated that citizen soldiers would be asked to go to the front. They have been asked, and their response is an eye-opener to continental nations. You have had some vapourings across the border from Canada, but the big solid heart of America knows that Britain opens up markets for all nations, and in spite of blots on her escutcheon, she is the great civilizing force in modern history. This war has taught the world that the British Empire is not an expression on paper, but a big factor in international politics. Canada is proving a true-hearted daughter of the great motherland, and her sons have nobly borne their share of the fight.

IN MEMORIAM.

After the war, probably most farmers here are reflecting the heavy death roll amongst Scottish farmers since the New Year. Never in my experience have so many standard-bearers fallen within so short a period. First, the Nestor of West Coun-



Through the engraver's error this plan is made too large to correspond with the basement which it covers.

FIG. 2.—UPPER FLOOR PLAN OF D. A. GRAHAM'S STOCK BARN, IN MIDDLESEX CO., ONT.

loft, as it is wanted, from a chute at the east end of this alley. Then in front of both rows of stalls is an oat-box 18 ft. long, 3 ft. deep, and 1 ft. wide, which will hold about 25 bushels. At the south-west end are two box stalls and a workshop, each stall being 9 by 13 ft.

In order to prove just how handy these buildings are, I can state that five horses, ten yearling cattle in the box stalls in the horse stable, fifty head of cattle in the main barn, and four pigs in the yard, were fed by Mr. D. Fletcher, who has been feeding cattle for me for the last three winters and who is thoroughly acquainted with the buildings, in the

try discussions, Mr. Alexander Wilson, Langfauld's, Dumfries, was taken away. Beginning life with few advantages, he struggled on, and in the end was recognized as a spirited farmer who had battled bravely with Fortune in none of her kindest moods and emerged victorious from the fight. Had Mr. Wilson's lot been in other places, he would have risen to eminence. He had a logical mind, keen observation, fluency in expression, a pawky humor, and could never be ruffled in debate. Another veteran has more recently fallen in Mr. Thomas Biggar, Chapleton, Dalbeattie. He was 88 years of age, and was one of the best known men in the south of



Scotland. A capable and enterprising farmer, he many years ago, in addition, founded the successful firm of Thomas Biggar & Sons, seedsmen and manure merchants, Dalbeattie. His son, Mr. James Biggar, has often visited Canada, where the firm had many friends, and both the McCraes and the Sorbys, at Guelph, were related to the deceased gentleman. Both Mr. Wilson and Mr. Biggar had served their generation, but the same cannot be said of Mr. James Archibald, Overshiels, Stow, one of the three brothers who made that great hill-grazing famous throughout the length and breadth of Scotland. Mr. Archibald's death was announced a week ago, and it is not too much to say that it created widespread consternation. He was in the prime of life, full of vigor and occupied with much business when the messenger came and he had to go. His skill as a breeder of Blackface sheep was equalled by a remarkable gift of expression and very considerable powers as a word-painter of his favorites. His acquaintance with hill-grazings in Scotland was unique, and there was scarcely one of them which he could not give a fair and accurate account of. As an arbiter he was popular far and near, and possibly did more work in that capacity on hill pastures than any other man, if not than all other men in Scotland put together. He was a fine example of the intelligent, widely-read rural Scot, and his place amongst flockmasters will not be filled.

SHIRE HORSE SALES.

Shire horse breeders have again had a favorable series of spring sales. Three of these recently took place, and high averages were obtained. At Holker, once famous for its Shorthorns, the Hon. Victor Cavendish got £145 apiece of an average for about 40 head. At Waresley, Captain Duncombe walked off with £143 of an average for about an equal number; and at Blythwood, in Essex, Sir James Blyth did very well with an average of £116. This was his first sale. Still, the Shire does not make progress except in England. There has been a considerable revival in the foreign demand, but so far Clydesdales have had it all. The Shire has scarcely had a look-in, and recent advices from America indicate that this will continue to be the case for some time to come. The high prices realized for Shires are very gratifying to read about, but they are something like the high prices realized for certain families of Shorthorns from 1870-79, and one fears that a similar collapse is not impossible amongst the wealthy folks who are running the Shire business as befell the Bates contingent in their far-off palmy days.

The absence of a spring show in Glasgow makes a blank this year, and it is to be regretted that the Glasgow Agricultural Society was compelled to make a change. It remains to be seen whether it will be a successful change, and it is too soon to form any opinion on the subject. Clydesdales are at present in good demand. We have buyers from Australia and Canada going over the country, and although their purchases are not numerous, they keep the thing going and cause movement amongst horses.

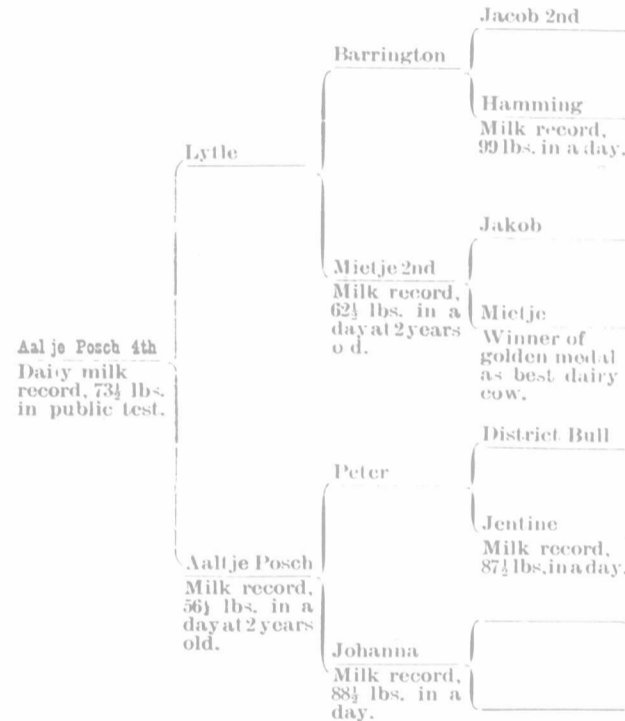
Considerable trouble is being caused by owners on your side when they sell an imported horse to a buyer from the United States. The regulations regarding free importation of registered horses are by no means understood, and all horses registered in Great Britain or in Canada in standard books will not go duty free into the States. The rule is simple enough when you know it. The animal to be imported must be registered. His sire must be registered and his dam must be registered. The sire of his sire and the dam of his sire must be registered, and the sire of his dam and the dam of his dam must be registered. "Registered" means "numbered." To those who understand about Clydesdale breeding and pedigrees, this regulation seems absurd. Many a horse whose dam or granddam has not been numbered has more Clydesdale blood in his veins than one which has the numbers behind; but this does not affect the question; the rules are there, and must be conformed to. By insisting on these rules, the Americans greatly assist the cause of pedigree registration in Scotland.

THE MILK TRADE.

Considerable discussion is going on here on the subject of the milk supply. The milk trade is a big factor in west of Scotland farming, and, indeed, but for it agriculture would be in a bad way. The future of the milk trade is causing some anxiety, as farmers are being harassed with regulations begotten of the tuberculosis scare. The city authorities can hardly be blamed for being strict, as the medical men have made so much ado about the matter. It is, of course, easier to raise than to allay a scare of that kind, and one of the proposals before the country is that the city authorities should have the power to control the sanitary and general health regulations of every dairy sending milk into the city. Glasgow is already possessed of very ample powers, and other municipalities are likely to follow suit. The issue is wholly in favor of the farmer, as he will require to be supplied with well-equipped byres and dairy premises and a pure water supply. No doubt many restrictions of an irritating nature have been imposed on the dairy farmer, but on the whole, the general trend of public opinion has been favorable to an increased consumption of dairy produce, and especially of whole milk. In any case it is admitted that dairy farmers will fare better by anticipating the legitimate demands of the public health than by waiting to be coerced into the adoption of measures by the imposition of harassing regulations. "SCOTLAND YET."

Observations on Breeding of Dairy Cattle.

It is an indisputable fact that we all are too much inclined to run after the blood of certain animals who have made large records, and their offspring, or even distantly-related animals are eagerly sought after, no matter how inferior and weedy they are individually, while we pass, unnoticed, animals possessing true breed type, individual merit, rich breeding and strong constitutional vigor to such an extent that they would be much more apt to produce great performers than those weeds which have no other special merit to recommend them than their high-sounding name, and it is especially the new beginner who is most apt to be led astray. A special study and close observation during the last twenty years has disclosed to me the fact that nearly all cows which had undergone the ordeal of making large records under a system of unnatural forcing have lost the power of transmitting to their offspring their own great producing qualities, and in every instance those produced before the forced records were made are much superior to those produced after. This being true of the females, is it not apt to be just as true of their male offspring? A study of the breeding of these large performers discloses the fact that they are more often the product of superior parents (possessing true breed type and rich breeding) than of special families. In this respect we should take a lesson from the Hollanders, who, through their superior dairy cattle, have become famous the world over. There, inbreeding, or even line breeding, is unknown; they are solely guided by individual merit and large performance. As a pointer, I will give the breeding of the truly great cow and world-beater, Aaltje Posch 4th, as she is bred exactly on these lines.



This should be an object lesson, and can be used as a guide by beginners in the art of breeding dairy cattle. H. BOLLERT. Oxford Co., Ont.

The Early Chicks.

It is not too early to begin to arrange for early chickens. The early-hatched bird is the one that is best from start to finish. It is the hardiest, the largest, and the most satisfactory in every way. When these conditions are found in a fowl there will be profit. Many of our readers will ask how this early chick is to be obtained, as they do not seem to have any control over the powers that be in their poultry yards and they cannot make the hens sit when they would like to have them do so. If hens do not wish to sit early, the incubator can be relied upon for the early-hatched fowls. If it is impossible or impracticable to get an incubator, the matter will have to be arranged for along other lines. We have been most successful in obtaining early chicks, aside from the incubator, when we had winter laying hens. Hens would lay well all winter, and by very early spring they would cease (about the time others are beginning) and would become broody and express an urgent desire to sit. These are provided with hatches, and the pullets from this hatch selected for winter layers again.

The chicks having been hatched out early, should be put into a warm coop which should be placed in an open shed where the cold wind will not strike and where the sunshine will warm up the surroundings. This is the plan, of course, where no brooders are used. But where the latter are used there will be but little use for the old hen at all. When brooders are managed just right, the chicks will be free from lice and will outgrow those reared by hens. Begin now to lay plans for early chicks, and if a failure to do so results, it may be well to ascertain why and try to avoid it another time.—Homestead.

Fruit Growing in Manitoba.

BY A. P. STEVENSON, NELSON, MAN. NO. 4—PLUMS.

It is encouraging to note that there is a growing interest in our native plums. Information is much sought after, with an evident desire to test varieties that have a local reputation. Perhaps it is eleven years since I first purchased, from one of those smooth, oily-tongued friends of humanity, my first plum trees. They were named Moor's Arctic. They got well established during the first summer, but were all dead the following spring.

Ten years ago, eleven varieties of the improved native plum were brought in from Minnesota and planted, together with six varieties of Russian plums from Iowa. Without doubt, it will be of some value to intending planters of this much-desired fruit to know of the behavior of these varieties, their present condition, quality and hardiness. One of the earliest plums to ripen with us is the *Cheney*. The tree is a thrifty and upright grower, very hardy and desirable. The fruit is large and, when ripe, is deep red in color. The skin is thin and disappears when thoroughly cooked. The fruit of this variety is injured more by plum pocket than all other varieties we grow, but it sets so much fruit that it can easily afford to lose half; season, second week in September. The *Rollingstone* ripens its fruit after the *Cheney*, and is one of the best for eating out of hand; skin thick and free from astringency; tree low-growing and bushy; a rather shy producer with us. The *Wyant* is a wide-spreading tree, with good foliage; fruit medium in size and quality; ripens rather late—some years fruit injured by frost; tree very hardy. *Rockford*—the fruit of this variety is rather small, but firm, rich and sweet; tree productive, but very much subject to the Aphidae or plant-lice. *Bicby*—fruit medium, handsome, and of good quality; fairly productive; tree a little tender some years. *De Sota*—one of the best known and most widely planted of the improved native varieties; fruit ripens too late to be of any value to us here. *Luedloff's Red*—our most prolific variety; fruit of medium quality; season medium; hardy. *Newton Egg*—fruit large, dark red, and of poor quality; tree hardy and productive. *Weaver* ripens its fruit too late in the season. A number of other varieties are promising well, but have not fruited—will probably hear of them later. Of the six Russian varieties planted, none have shown sufficient hardiness to withstand our winters.

*Location and cultivation.*—With care and culture, our improved native plums can be grown on any good soil, but they love a moist, rich soil, and, if at all convenient, give this the preference, but the planter would be wise if, in selecting varieties, he give the preference to those that have been successful on land similar to his own. Twelve feet apart each way is about the right distance to plant, but it will depend much on the habit of the tree planted. The *Wyant* requires considerably more room than the *Cheney*. It is a good plan to grow garden crops between the trees, such as carrots or mangels, for the first few years, or until the trees come into bearing, then it is best to give them the whole space. I would suggest that the young plum trees be trained to a single stem for eighteen inches to two feet from the ground, then let the head branch out. This will get over the very serious difficulty often experienced of large limbs giving way at the crotches when loaded with fruit. Plum trees require little pruning, only enough to keep the top in shape and the center open to admit light. Early in spring is the best time for pruning.

*Propagation.*—Plums are usually increased by grafting, budding or piece roots, as they do not come true from seed. Grafting should be done in early spring, before the buds swell, on stocks grown from seed of the wild plum sown in the fall, eighteen months previous. But stone fruits are difficult to graft or bud—it is a skillful operation, and to the inexperienced would likely be unprofitable.

To the beginner, propagation by piece roots is probably the best, but provided only if the tree from which it is desired to propagate is growing on its own roots. Late in the fall cut out some of the small roots around the tree, make into cuttings six inches long, tie in bundles and bury in the ground till spring, then plant out. Another advantage of this plan of growing trees is, the trees being on their own roots, any suckers coming up can be safely planted, while suckers from grafted trees are of no use.

CHERRIES.

During the last ten years, eleven varieties of the most hardy known have been tried. The only crop reaped has been experience, and the price paid for it coming high, it may be of some value to others. Briefly, then, I would say there is no cherry tree of any value in either the United States or Canada that is worth the time and labor of planting in Manitoba, leaving altogether out of consideration paying high prices for them. These conclusions have been arrived at after ten years' experience in an extra favorable location, with all of the best and hardiest varieties known.

GRAPES.

These also have been a continual vexation of spirit. The great difficulty is our seasons are too short for the maturing of the fruit, even of the earliest varieties offered at the present time by any nursery firm, but we have every confidence that the future holds something in store for us yet in the grape-growing line.

### For Good Roads.

To the Editor FARMER'S ADVOCATE.

In view of the experience of the past wet year in the matter of roads, or rather the want of them, I venture to suggest that this is an opportune time to discuss matters concerning the failure of the old system and the substitution for it of some more efficient method. For those living from fifteen to twenty miles from the railway, as some of us do, there is no other question concerning our business of such moment.

The statute labor system, copied, I believe, largely from that in force in Ontario, while it may have afforded, in the old days, the only practicable method of filling a mud hole or bridging a creek, has, for reasons well-known to your readers, certainly passed its days of usefulness.

The Territorial Government, failing to profit by our experience, a few years ago instituted a statute labor system there, which, while superior to ours in several particulars, has already been found wanting, as may be seen from comments in the local papers, and provision has even been made for the substitution of a cash system when the majority of ratepayers in a district (usually a township, I believe) so desire it.

Most of our progressive municipalities have, I understand, abandoned the old system and now collect varying amounts of cash in lieu thereof, and the results of the change, in some of them at least, have been most gratifying. For instance, the Clerk of Birtle Municipality informs me that in the two years during which they have collected \$2 per quarter-section they have done more work than they did in the previous fourteen under the old regime, and I may state that in our own Municipality (Archie) the admitted value of the improvements done under the old system only reaches six per cent. of the nominal cost.

As to the expenditure of the cash, when it is collected, there is a difference of opinion as to the merits of the "day labor" and "contract" systems. Some uphold the "contract" system, considering that it is not safe—and I am sorry to say the fear is sometimes justified—to allow Reeves and councillors to hire their neighbors; but I have heard of dishonest practices in awarding contracts, through only notifying favored parties. As far as my experience goes (and I must admit it is not great) the "contract" system has not proved a success. Owing to the necessity of hunting scrapers, etc. and the frequent inexperience of the tenderers, who, naturally, do not wish to lose money on the job, the prices paid are frequently very high, \$5, \$6, and even \$8 per day for a man and team being not uncommon rates of pay. On the other hand, day labor for short terms is frequently unsatisfactory, as neither men nor teams are of much use until they become acquainted with the work, which was a frequent cause of failure under the old system even when the men were willing to work; and the tool and inspection troubles were ever present. As a solution of the problem, I would suggest the following plan, which, as far as I am aware, is untried, but would, I think, overcome the difficulty without any great outlay in initial cost: Select a well-principled, hard-working man as working foreman, with or without a team as the number of men to work under his direction would be small or great. He should, preferably, have a prior knowledge of the work, which should be previously laid out by a surveyor if the municipal authorities are incapable of doing it, and he should be paid a good salary, placed under bonds, and hired for as long a season as is considered advisable. Then all residents desiring to work on the roads should be required to give notice, by a given date, of the length of time they wish to work on the roads and the date and locality in which they would prefer to put in the time; those selected would work under the direction of the foreman, who in turn would be under the general supervision of the reeve and councillor of the ward. This plan would necessitate but little loss of time through moving, as the townships could be taken in rotation and the outfit would only need to be moved when the money allotted had been expended. It would probably effect a saving in wages, as cost of living would be less if a caboose was provided, which, besides affording accommodation for the men, would also contain small tools, horse feed, etc. As regard stonework for culverts, etc., it would perhaps be advisable to have that done by a qualified stone mason, as the dry stone walls and poplar stringers so frequently built last but a short time, and frequently fall shortly after erection, through unskilled workmanship. As cement is now procurable at \$3 per barrel, and even less in quantities, it would, I think, be advisable to have all walls over two feet in height laid in cement mortar, with flanking walls, at least on the upper side, to prevent the earth being washed out behind the stonework.

I hope that others may be led to express their views on the subject through your columns.

Archie Municipality.

F. J. COLLYER.

Keep the eggs clean by keeping the nests and everything about the henhouse clean. When eggs get dirty, as they sometimes will in spite of all precautions, they should be washed before being marketed, but it is better not to have to wash them. Receivers of eggs say that washed eggs will not keep, and that the solutions sometimes used to make dirty eggs look nice and clean destroy the keeping quality.

### Cost of a Creamery.

The probable cost of a creamery well equipped with good machinery and utensils (on the separator system) will be from \$2,500 to \$3,500, varying according to the quality and price of material used, and also to the amount of work done by the farmers by way of preparing the foundation and hauling the material for building.

The machinery, utensils and fittings, will cost from \$1,000 to \$1,500; the price of iron having advanced so much that it is difficult to give exact figures. One separator will be sufficient for a factory receiving from 5,000 pounds to 10,000 pounds of milk per day.

The boiler should be from fifteen to twenty horse power, and the engine from eight to twelve horse power. There is no economy in having a small boiler and engine.

A creamery should be centrally located and surrounded by good roads, be provided with an abundant supply of pure water, and, if possible, have cement floors, as they are easily kept clean and have a tendency to keep the room cool. A good storeroom should also be provided, in which to put the butter, where the temperature can be kept below 38° Fahr., and the services of an expert maker secured, for the success of the factory depends to a great extent on the buttermaker.

The milk should be paid for according to quality, and if there is not sufficient milk to be able to run the factory on the separator system, I would advise starting on the cream-gathering system, which is more economical, as it is cheaper to draw the cream than the milk, and if the farmers are educated in the best methods of skimming their milk and caring for their cream, a very good quality of butter can be produced.

The milk from at least 400 cows should be furnished, and from as many more as possible in order to insure success and lessen the cost of manufacturing. The price paid for milk will vary according to the quality of the milk and the market price of butter. It usually requires from 21 to 25 pounds of milk per pound of butter.



LEICESTER YEARLING WETHERS.

Winners of first prize and breed cup at Smithfield, 1899.  
PROPERTY OF E. F. JORDAN, DRIFFIELD, YORKSHIRE.

The milk may be collected for a distance of five miles from the factory. If it is drawn farther than five miles in the hot weather it is often delivered at the factory in very poor condition, and the cost of drawing is so great that it reduces the profits of manufacturing considerably. The cost of running the factory depends somewhat on the system on which it is managed. If the farmers draw their own milk the butter is usually made for 2c. to 3c. per pound, but if the buttermaker does the drawing he usually charges about 4c. per pound of butter. The subject of starting and operating a creamery is one on which a great deal may be written, but as your subscriber no doubt intends starting on a small scale, and space in your paper is valuable, I have confined my answers to his questions to as few words as possible.

ARCHIBALD SMITH,  
Superintendent Western Dairy School.

### Wintering Idle Farm Horses.

In this country where a great deal of horse power is required to get the farm work done quickly in the summer time, and where there is little or no work during the long winter months, there is apt to be an excessive and unnecessary mortality among farm horses from lack of proper feeding and care. The stable should be warm, well lighted, clean and comfortable, with good ventilation, but free from drafts. If the horses at the time of quitting work in the fall are in an average healthy condition, fed on a grain ration composed of two parts oats and one part bran, and of this mixture given one gallon per head daily, divided into two feeds (any animal low in condition to be allowed a little extra), with the usual roughage, fodders, hay, oat straw or an occasional oat sheaf (a few carrots will be found very beneficial, as they are very fond of a variety), watered twice a day, with access to salt at all times, groomed once a day and given a liberal amount of exercise daily out in the yard or some other sheltered spot, provided it is not too stormy, by the time spring comes they will be in good condition for spring work. When it does start, be merciful to your beasts and see that the collars fit nicely, as well as the other parts of the harness, and save a lot of suffering to your horses from sore shoulders, etc.

Wallace Municipality. ALLAN STRUTHERS.

### The Problem of Self-Government in the N.-W.T.

BY JOHN HAWKES, REGINA.

The Consolidated Ordinances, 1898, of the Northwest Territories will be searched in vain for any legislation providing for the formation of municipalities. All clauses in the old Municipal Ordinance along this line are omitted. The existing ordinance provides minutely enough for the conduct of municipalities, urban or rural, when once established, but no guidance is forthcoming for the erection of municipalities. There is nothing to prevent, but there is also nothing to aid. If a community desires to erect itself into a municipality it must proceed by special legislation. Once erected, the machinery will be found already existing for its conduct. It goes without saying that the special ordinance must be in conformity with this machinery; but this is about all. The meaning of this is that a complete change of front has taken place in the Territories in the matter of local self-government. In the early days, the gradual but general extension of municipal self-government over the whole of the Territories as settlement advanced was assumed by the then legislators as a matter of course. At present the establishment of municipalities (outside of leading towns) is looked upon as something which will be the exception and not the rule. Rural municipalities have been tried in the balances and found wanting. There never were many, and only one or two now survive. This breaking away from tradition leaves the Territories in the position of having to work out an old problem under new conditions and on new lines. Any student of the problems of local government will see at a glance that this constitutes a position unique—or which we believe to be unique—in the history of the development of this continent. The intention to-day in the Territories is to establish a system of local self-government such as may be suited to the actual needs of the Territories, discarding all municipal tradition and precedent where they do not apply to the special needs and circumstances of the case and the wishes of the people. The attempt may be successful so long as the Territories remain thinly settled; and it may be successful for all time; but, on the other hand, it may be found wanting when the weight of population becomes heavy, as it undoubtedly will in time. The new departure may have to be abandoned under the pressure of that weight, and the municipal system may have to be adopted in the long run. Nothing but time can decide; but the spectacle of a vast new territory trying to work out its own salvation in its own peculiar way is one that, when those outside become aware of it, cannot fail to be watched with great interest. At present the mass of people in the Territories have but an imperfect realization of the exact position of the problem; and outside the Territories the men with a really clear idea of the situation might probably be counted on the fingers. The story of the evolution of local self-government in the Territories, as it stands at present, has never been told, except in a broken way; and if we tell it here, as briefly and broadly as may be, it is because we believe the farmers of Canada will be specially interested in knowing how an almost purely farming and pastoral community, like that of the Territories, is attempting to grapple with what, after all, is the vexing problem of necessary local taxation. In estimating the situation, it must be borne in mind that the vast area affected is not a province, although it is not anticipated that the fact of the attainment of provincial status will affect the particular line of policy sought to be carried out. To understand the present, the past must be glanced at.

#### A RETROSPECT.

When in 1882-3, settlement in the Territories began in earnest, this settlement broke in upon a primeval plain a thousand miles across. True, there was a fairly broad strip to the east under settlement, viz., Manitoba, and some fourteen or fifteen years ago this strip was widened as far west as Elkhorn. Manitoba was under the municipal system. It may occur to eastern readers to ask wherein the difference lay between Manitoba in its early days of self-government and the Territories, both forming part of the same great plain. The answer is that Manitoba, for political reasons, was made a province at a time when its population was exceedingly small. It did not grow, but sprang, into a province, and adopted the municipal system as a matter of course and without looking for anything else. On the other hand, the Territory is undergoing a fairly long apprenticeship, and when she becomes a province it will not be because the interests of other provinces, and of Canada at large, demanded it, outside of her own claims, but because in a process of evolutionary development she has arrived at a stage when her rights and capacities, her general needs, and the number and quality of her population, demand that she become one of the confederated provinces.

The settlement that poured in at the beginning had but little time to study governmental problems. The old Northwest Council had provided them with a pretty fair reproduction of the Ontario municipal law, which they, the people, were free to adopt or not, as they chose. Wolseley (with the present Senator Perley as its first reeve), South Qu'Appelle, and Fort Qu'Appelle, three adjacent districts, speedily became rural municipalities; Regina became a town municipality on being chosen for the

capital. The assumption was, as before stated, that municipalities would spread, but, as a matter of fact, they did not. And the result was that for many years the Territories, with an ever-increasing population, blundered perfunctorily on without any system of local self-government, except in a very few of the towns, and the even fewer rural municipalities.

Some sort of government there was of course. The school system was, in the main, excellent; and the school taxes were practically the only taxes paid. There was legislation allowing the formation of statute labor districts, but this permissive legislation was but little taken advantage of. There were ordinances in plenty, but nearly, if not all, legislation was on permissive lines. The question will be asked, How could a great expanse of country be run at all under these conditions? Without going into details, it may be stated that a certain sum was granted from Ottawa for the public service of the Territories. At first, there was an annual struggle among members of the old Northwest Council as to who could get the most of this for roads and bridges and other objects in their respective districts. Then a change was made, and the money available for improvements was equally divided among members. This system was manifestly unjust, for the district with a small population and few natural obstacles to traffic got as much as a district with a relatively dense population, or cut up by rivers and ravines requiring much bridging and heavy grading. Yet this system continued year after year. Permissive legislation was on the book with regard to fire-guarding, but there was no real system and no compulsion. Year after year the prairies were swept by fire and immense damage caused, but nothing—that is, nothing really effective—was done. And all this time the assumption remained that in time municipalities would come. Eventually, the Territorial allowance, never more than reasonably sufficient, ceased to expand with the expansion of the country, and it became evident that something must be done.

The fact that the people of the Territories could not be prevailed upon to go in for municipalities may seem strange to inhabitants of the provinces, who regard a municipal system as a matter of course, and who probably cannot easily conceive a civilized condition in which it does not exist. Whatever the reason may be, it is a fact that after the first rush the people of the Territories set their faces like a flint against municipalities. Legislation was permissive; it was left with them to say whether they would tax themselves, and they, not unnaturally, declined to do so. The annual portion of the Ottawa grant obtained by each member provided for their worst necessities. On the level prairie road-grading could be dispensed with. The prairie formed in most cases a fine natural road-bed. The improvement money available was principally used for the bridging of streams and the grading of steep hillsides. Now and then a member would devote a sum to the plowing of some long fire-guard, but in most instances the guards were allowed to become again overgrown with grass and weeds. And so the Territories rubbed along, with each member acting as a kind of amateur surveyor—often with astonishing results—and dispensing an annual grant practically at his own sweet will. Such a system—and especially with the prairie-fire fiend raging through the land every spring and fall—manifestly could not last forever. The municipal bubble finally collapsed when Fort Qu'Appelle, Wolsley and, we think, Indian Head applied to the Assembly to be disorganized, and their request was granted. The increased population of the country, with all it entailed and without a proportionate increase of the grant from federal funds, made the situation very straitened. The Government came to the conclusion that the farmer must do something for himself.

It is only fair here to interpolate a remark as to the federal grant, to prevent misapprehension in the minds of eastern readers, who will think the western farmer had a bonanza all these years in escaping from local taxation except in the matter of schools. We in the Territories claim that not only are we entitled to every cent we get from Ottawa, and more also, but that the farmers on these prairies are the most heavily-taxed community in Canada for federal purposes, owing to all our staple needs, from overalls up to farm machinery, being under a heavy tariff. It is not within the scope of this article to argue this proposition; it is, however, only just, in passing, to state it.

We have, then, outlined the situation as it existed in the Territories three or four years ago, when it became evident that there must be a new departure. Hand-to-mouth and slipshod had to go.

#### PRESENT CONDITION OF AFFAIRS.

The step taken by the Government was in the direction of compulsory statute labor districts, in which the labor might be used for road improvements, etc., or for safeguarding from prairie fires. The measure met with considerable opposition in the Assembly and out of it, but it carried. From a compulsory point of view, the measure was weak. Perhaps there was wisdom in this, because the western farmer was not in the humor to be crowded too quickly along the line of compulsion. The line of least resistance was chosen. In the first season, numbers of townships, having the requisite number of residents, flatly refused to organize. Still, the obedience to the ordinance was fairly general. The ordinance received assistance from an ally in the fall who had not been counted on. That ally was the fire fiend. In some portions of the Territories

prairie fires raged very destructively and provided a useful object lesson. Take the case of two townships, one of which had organized and used the statute labor for fire-guarding, and the other, which had declined to do so and had no township fire-guards. The one township had been free from fire, the other was a blackened waste, without fall or spring pasture. Next year the latter township organized without a murmur. Blemishes were found in the ordinance. For instance, in the first case the laying out of the work was left to the elected overseer. It was speedily found that overseers were troubled with a good deal of human nature, and laid out the work sometimes more for the benefit of themselves or their friends than for the general good. This was remedied by placing it in the power of the annual meeting to say what work should be done. The overseer thereby had his wings clipped, as it were, and it was left to the taxpayers to lay the work out themselves. The second season saw that in the districts occupied by farming settlement (as distinct from ranching or stock-raising) the kick had largely subsided, and there was a general acceptance of the ordinance.

But the Territories are large and varied. Alberta is not Eastern Assiniboia, neither is Saskatchewan West Assiniboia; and, again, Northern Alberta and Southern Alberta are like different countries, while the foothills of the Rockies are like nothing else in the whole area. Some districts are heavily settled, others sparsely settled; others have no settlement at all. Many townships had settlement, but not sufficient to bring them under the compulsory provisions of the ordinance. All this meant patchwork where uniformity was desired. This has been met to some extent by the forming of large districts, which are operated under the direct control of the central government at Regina. These cover large areas, whereas the ordinary districts may not cover a larger area than two townships, or seventy-two square miles.

But the application of the same law to farming districts and ranching districts also creates a difficulty. Farming means, in wheat-growing districts especially, fairly close settlements. Ranching necessarily means a large area of pasture and few people. The result is that in the ranching districts of the West there is still a large amount of dissatisfaction, and the matter will probably be brought up at the ensuing session of the Northwest Assembly.

#### Beef Cattle and Wheat Raising.

In my opinion, a grass rotation and the growing and finishing of beef cattle would best fit in with wheat-growing, for the following reasons: By a grass rotation you retain or store up humus and fiber in the soil, as well as get a sod on the surface, which is bringing it back to something like its original state. By continual cropping we have the surface lying bare for the greater part of the year, and, as a natural consequence, it becomes dried out and loose, so that in spring and early summer, which is, generally speaking, when drought affects us most, it is very liable to be so dry and drift so badly with high winds as to materially affect the crop. Now, my system is in preference to summer-fallow; to seed down with not less than 8 lbs. of timothy seed to the acre mixed with the grain—either wheat or barley—and drilled in as soon as possible in the spring, so as to get it started before the soil becomes too dry. I have never missed a catch this way when sown early in spring. I do nothing to it after the crop is cut until next spring, when, as soon as the growth has started, I give it two strokes of the harrow to break down stubbles and chickweeds. Then it is left until fit to cut. Nothing is done to it after the hay is removed, unless we have well-rotted manure to spread on it. Generally, nothing is done until after the second cut of timothy is taken off, when it is plowed about three inches deep and disked down to start weed seeds. This I find a good way to clean the land of most noxious weeds. The second crop is likely to be light, but I think it pays to leave it for the extra sod it gives the land. Land treated in this way gives two good crops of wheat, is generally clean, and ripens much earlier than summer-fallow. Now, here is where the cattle come in for converting the hay and as much straw as possible into manure to be put back on the land. Finishing beef cattle or attending to them in winter when there is nothing else to do fits into wheat-farming well. My reasons for preferring beef to dairying are: because during our short summer season, when there is always such a rush, particularly during harvest and fall, beef cattle, if provided with pasture and water, need little or no attention, whereas dairying needs the almost constant attention of trained and competent persons every day of the year. Of course, a man's situation and personal tastes would have to be considered. Ours is decidedly a wheat or grain growing district. There are no natural hay meadows and no vacant lands to pasture herds on. There is also no reason why a couple of brood mares of the right sort, properly mated and cared for, should not be profitable on a wheat farm if given proper attention. They will do a lot of work during the rush of spring and harvest and fall work. Hogs may also be handled with profit, but I think dairying and hog-raising go better together.

Timothy has done well with me as a hay crop, and it is good for fall pasture, but is too late in starting in spring to be an ideal grass for permanent pasture, and it runs out in about three seasons and becomes very weedy and dry. JOHN SWEET.

#### Markets---Calf Rearing.

To the Editor FARMER'S ADVOCATE:

Thanks for your criticism of my former letter, which has given me food for reflection. Still, your objection only applies to export cattle, for which there is now always a market. Apropos to this, I would like to tell you a little incident of the days when "Bob" Ironsides was buying in a very small way in Manitoba: I took down a dressed hog, and on his quoting me a cent less than I knew he was paying the day before, I kicked. "Well, friend," says Bob, "I could have given you a cent better yesterday, but a man brought in two hogs last night and glutted the market." He then spoke very strongly about the poor market, and finished up by declaring his intention of altering all that very soon; and he most certainly did. He and his partner have been real farmers' friends, and were always good straight men to deal with. I do not suggest for one moment that the supply of cattle in Manitoba has any influence on the world's prices, but it has an immense one on the home prices. It is one of those questions in which theory and practice do not join hands, for the simple reason that the farmers are not shippers, and often their only knowledge of the state of the market is derived from the prices offered by perhaps one solitary local buyer, which, unless they happen to have a bunch of extra well finished cattle, they have to accept. With such a range of what might be and what is opening out, I had better stop and return to the calves.

#### CALF-RAISING.

To raise a good calf, commence by using the very best bull available. Continue by feeding your cows through the winter, instead of "scratching" them through at a straw stack. Take the calf away as soon as dropped, and neither cow or calf will fret (if cold weather, I let the cow lick the calf dry). I feed new milk for from two to three weeks; feed three times a day. Feed skim middle of day till calves drink it well, and then drop whole milk for skimmed. Use boiled flaxseed for supplementary feed, starting with very little and increasing to about a pint of the jelly in each feed. That is the system, but I think I had better mention the rocks one has to steer clear of to raise a good steer. Never feed sour milk, at all events till calves are 3 months old. Never feed cold milk, or too hot. Look out sharply for any indication of scours, which is the result of too hot or too cold milk, or too much flaxseed on the start. Feed three times a day as long as the calves will come for it, which will be till they are about two months old. The biggest rock of the lot in raising yearlings, is raising good calves in the summer and then letting them go to pieces in the winter. Always have your calves so that you can get hold of a handful of loose hide on their ribs without hurting your finger ends, even in the severest weather, and they will grow all winter; and good shelter, with hay and half a gallon of crushed oats at each end of the day, will do it. Second winter they will do well on straw, if good, and a ration of oat chop. Watch your beast and feed according to its needs, and whilst never letting them go back, don't throw the profits into the manure pile by over-feeding; a handful more to one and a handful less to another, just as they need it. I have one cow that will get fat on half a gallon of crushed oats at each end of the day, and straw; others will take three times that to keep in condition. I always use oats or mixed barley, and oats for crushing, but the judgment exercised in feeding has more to do with condition than the description of feed. I have no separator, having very few stock. I keep more sheep, but intend to increase my dairy to separator size.

ARTHUR C. HAWKINS.

Lorne Municipality, Man.

#### Government Combination Stock Sales Condemned.

I am decidedly opposed to holding combination public auction sales of pure-bred stock. In my opinion, there is no need of them with the demand we have for Shorthorns at the present time. There is not enough in the country to supply the demand, and there is no place an animal will sell better than right out of its own stable, and buyers are not all prepared to buy at the same time. In general, buyers would have more confidence in buying from breeders than buying at public sales of that kind. The two sales tried in Toronto some years ago should convince anyone they cannot be made a success. I attended a combination sale in Aberdeen in Oct., 1897, where they were selling Shorthorns and Polled Angus. I found there was not one of the principal Shorthorn breeders represented there, and out of about 80 Shorthorn bulls, there were not over six good ones, the rest being culls. The animals were not all sold, as one of the breeders in conversation with me said they could do better to take them home and sell privately than take the prices they were offered that day, which I feel satisfied would be too often the case with that kind of sales here; and their sales are conducted as well as it is possible to have them, and since the demand has increased over there, the combination sales have gone back. JOHN ISAAC.

Markham, Ont.

### A Few Suggestions to Newcomers.

BY ANGUS M'KAY, SUPERINTENDENT EXPERIMENTAL FARM FOR N.-W. T., INDIAN HEAD.

As I receive many inquiries during the year from new settlers and others as to the breaking and cropping of land in the Territories, it will save time to use, with your kind permission, the columns of the FARMER'S ADVOCATE to give, from results obtained on the Experimental Farm, some of the more important conclusions arrived at in these necessarily important matters.

#### BREAKING.

Breaking, as is well known, is the starting point in a new settler's life on a prairie farm, and coming, as many do, from foreign lands, no idea can be formed from observations as to how or when it should be done to secure the best returns. In fact, many settlers who have been in the country for years are still undecided upon this point. Some break shallow, others deep; some wide, others narrow; some backset breaking, others disk harrow after breaking; some break in May or June, and others in July or August, as time permits or fancy dictates.

Prairie land may be divided into two classes, viz., open and scrubby. The prairie land of Assiniboia, with its thick, tough sod, represents the former, and the prairie covered with willow or other scrub, growing through a thin and easily-worked sod, represents the latter.

Taking first the open prairie with its thick, tough sod, there can be no particle of doubt that it should be backset after breaking, and the backsetting worked down as fine as possible. Where the prairie is smooth, breaking should be done shallow, one and one-half inches being about the depth at which a plow works the best. The sod should be turned completely over and left flat in the space of the last furrow, not as in other countries, allowed to rest on the edge of the preceding furrow. On rough or hummocky ground, which, by the way, is usually the best wheat land, deeper breaking must be done to get below the grass in the low places, 2 to 2½ inches in most cases being the necessary depth. This, like the shallow breaking, requires to be left as flat as possible. Before breaking it is well to burn the grass, especially where the land is hummocky.

#### BACKSETTING.

After breaking, from six to seven weeks is required to rot the sod. Backsetting may then commence, and it is best done by plowing in same direction as breaking, and two inches deeper. Before backsetting it will be an improvement if the breaking is disk-harrowed, or by other means cut up as much as possible. Either from want of implements or time, this is not often done, but the outlay or extra work will be abundantly repaid by the returns obtained from land so worked. Between the time of the completion of backsetting and the end of the season, the more work that can be given the land the better, as the sod cannot be worked too fine. Besides improving the seed-bed, it gives a better protection to the grain roots during the hot winds of July and August.

Deep breaking, followed by disking, is often done in many parts of the country, but it is not justified by either the saving of time effected or the results of the crops, as from six to eight bushels more wheat per acre can be depended upon, year after year, from land broken and backset. The time supposed to be gained by not backsetting is lost in the extra depth of breaking and the time required to thoroughly disk or cut up the sod. In addition to this, when the land is plowed the second time the work will be found as heavy as backsetting done at the proper time.

In districts where willow or other low-growing scrub abounds, the sod is not usually very thick or tough, and for such lands breaking and backsetting is impracticable. Only one plowing can be done, and this must be sufficiently deep to turn over the sod and turn up as many of the scrub-roots as possible. After plowing, the roots should be collected and burned and the land harrowed or disked, and the land made as fine as possible before the end of the season.

A newcomer often experiences considerable difficulty in choosing a breaking plow, and it is, in fact, a matter of opinion among many of the older settlers as to which is the best make. In the early years the "John Deere" and other American makes of both walking and riding plows were almost entirely used. Now, however, several Canadian firms turn out satisfactory implements, and on the Experimental Farm we have found nothing superior to the combined stubble and breaking plow turned out by Canadian firms. A long-handled plow is preferred, as it is more easily held in the ground. Only those who have used a short-handled plow with a belly-sharpened share know the difficulty of turning a satisfactory furrow with such an implement.

A plow with a fourteen-inch share for both breaking sod and plowing stubble gives the best results. A narrower share for a shallow, and a wider one does not leave the sod flat enough to rot properly.

As between a walking and a riding plow, a new settler should invariably use the former. Better breaking can be done with it and with the same

horse power as would be used on a riding plow, as much land can be turned over per day. The work is not, however, as easy on the man.

#### TIME TO BREAK.

From the earliest date of the settlement of the country it has been clearly demonstrated that the best time for breaking is during the rainy season, or, in other words, during the month of June. Before this the sod is generally dry and difficult to work (unless the spring happens to be wet, which is rarely the case), and after the rains are over the sod becomes so hard and dry that it will be found almost impossible to do even the poorest kind of work. Beside this, even if it were possible to turn the sod over, the subsequent insufficiency of moisture to rot the sod would be almost certain to insure a failure of the crop, no matter how much work had been put on the land after breaking. There is obviously not the same objection to breaking previous to the rainy season, the rainfall subsequent to breaking being sufficient to rot the sod, which is the chief consideration if the land is to be cropped the following year.

Breaking done in June always has and always will give the best results, but if, through lack of force, a settler will be unable to plow all the land desired in this month, he should commence to break in May, and not continue in July, especially if the rains are over, as they usually are, early in this month.

It is a matter resting entirely with the settler himself as to how much he can or should break. If he has command of good horses and abundant feed, 1½ to 2 acres can be turned over in a day by a man and team (usually three horses). Where feed is scarce one acre per day is all that should be attempted. A yoke of oxen with plenty of feed will break one to one and one-quarter acres per day.

Only too frequently do new settlers put off the work of breaking; a house has to be built and a hundred and one other things attended to; but during the month of June at least everything else should be set aside and every working day spent at the plow.

Breaking and cropping the same year is a great mistake, and while it is a temptation and frequently a necessity to raise something for the support of the family for the coming year, the returns are not in any way satisfactory, and the land is in some way so affected that good crops cannot be grown for two or three years, or until the land has been fallowed. This, of course, refers more particularly to open prairie, with its thick, tough sod, than to scrubby land with thin sod.

When a settler finds it necessary to grow something the first year, the land should be broken three or four inches deep, as early in the spring as possible, then sown, and by harrow or disk made as fine as possible. Potatoes have the least injurious effect on the land of any crop that can be grown on newly-broken ground.

#### SEEDING.

Taking it for granted that the settler has his land in good condition by breaking in June, backsetting and harrowing, the next point to be considered by him is "seed." This is a most important matter, and in connection therewith many old as well as new settlers make a serious mistake. An old settler has not the same excuse for sowing poor seed as a newcomer, but both frequently suffer heavy loss by so doing. Good seed sown on properly worked land will give satisfactory returns under conditions which will cause inferior seed to result in a partial or, in some cases, a total failure. If good seed cannot be procured, a larger quantity per acre should be sown, an addition of 30 to 50 per cent. in many cases not being too much.

#### SEED PER ACRE.

For well-harrowed backsetting, 1½ bushels seed wheat per acre is sufficient, but when backsetting is rough and the seed cannot all be covered, 2 bushels per acre should be sown. On breaking, the same quantity should be used as on rough backsetting. Two and one-half to three bushels seed oats and two to two and one-half bushels barley should be sown per acre, according to the condition of breaking or backsetting.

#### TIME TO SOW.

Seeding time is naturally one of the most important periods in a farmer's year, and a settler's success or failure is often attributable to his attention or inattention to work at this season. In the early years backboard farmers and many others were very remiss in this respect, and suffered accordingly, many even at this date failing to see the absolute necessity of sowing their seed at the proper time.

The growing season in the Territories for all cereals is short. On the Experimental Farm, during the past nine years, the average time required to mature Red Fyfe wheat, free from frost, has been 120 days; oats and barley, 100 days. The longest period that wheat has been in the ground and ripened safely was 136 days; oats and barley, 120 days.

In the past nine years wheat sown during the first three weeks after the opening of spring has given the best returns, the second week being better than the first or third. The fourth, fifth and sixth weeks' seeding generally produces more straw and a smaller yield of grain; the fifth and sixth weeks' rarely escaping frost.

In our years' test, oats have given the best and earliest crop when sown from May 5th to May 10th. If sown earlier, May frosts are liable to injure the

young plants, and if sown later, a heavier crop of straw, with a correspondingly lower yield of grain, has been the result.

Barley, in the same number of years, has done best when sown about May 10th, the same forces operating against earlier or later seeding as with oats, and, in addition, where barley is sown after May 15th, the dry weather, which is almost sure to set in at the time the grain is heading out, causes short heads and poor yields of inferior grain.

The early or late opening of spring has made no difference in results where grain has been sown at dates above mentioned. With late springs the growing period is shorter, but is always long enough to ripen the grain before frost comes in the fall. In early springs frosts are more prevalent, and growth is retarded even if the plants escape permanent injury.

#### VARIETIES OF GRAIN TO SOW.

Up to the present time Red Fyfe wheat has in every way given the best results, and, although longer in maturing than some other varieties, should be sown as the main crop by every farmer in the country. In addition to its well-known superior milling qualities, it withstands spring frosts better than any other variety, and this in many parts of the country is a very desirable feature.

Wheat grown on old land summer-fallowed, should be used for seed on breaking or backsetting. Grain grown on stubble land should not be used for seed, as stubble land and new breaking have a tendency to produce soft wheat.

There are many varieties of oats suitable for the Northwest Territories, and for so large a country it is difficult to name one variety adapted to every district. Banner oats give the best satisfaction on the Experimental Farm and in many parts of the Territory of Assiniboia, but for Alberta and Saskatchewan early sorts may be found more reliable, although in some districts of those Territories excellent returns are obtained from Banner oats. Among the earlier varieties Welcome and Improved Ligowo may be relied upon to produce satisfactory results.

Of the barleys, Odessa, Mensury and Rennie's Improved 6-rowed varieties, and Canadian Thorpe, a 2-rowed sort, are the best. The latter gives the largest and plumpest grain, and has a stiffer straw than any other variety of either two- or six-rowed barley.

#### SMUT.

To the majority of old settlers no advice need be given with regard to treating seed grain for the prevention of smut, but to the new arrivals who have no idea as to the serious loss occasioned by smut in wheat, oats and barley, some information may be of value. No matter whether it be smutty or perfectly clean, wheat seed should be treated every year before sowing. For ordinary free seed one pound of bluestone (dissolved by crushing fine and stirring in hot water), mixed with two patent pails cold water, is sufficient for ten bushels seed. For smutty seed two pounds to ten bushels should be used.

The solution can be applied by sprinkling it on the grain and stirring thoroughly, or, preferably, by soaking the seed in the solution. An ordinary coal-oil barrel and two oat sacks are all the appliances necessary for the latter method.

After the grain has been treated, either by sprinkling or soaking, the seed can be dried by turning it on the floor or other suitable places, or in grain bags placed where air and heat have easy access.

When used soon after treatment, and the seed is swollen, a larger quantity per acre should be sown, but no injury is sustained by seed treated weeks before seeding, and the grain will have dried out and assumed its natural size.

For oats and barley, formalin has been found more effective than bluestone, and from the various tests made the following treatment is preferred: Formalin, 6 ounces; water, 10 gallons. Dip seed in solution, allowing it to remain for five minutes. No injurious effects will, however, follow a longer immersion.

Oats will be considerably swollen after being in the solution even five minutes, and unless thoroughly dried before seeding, care should be taken to sow more seed per acre. One pound formalin will treat from 40 to 50 bushels seed, and may be purchased from druggists at a cost of 60 to 75 cents.

### Licensing of Stallions Recommended.

To the Editor FARMER'S ADVOCATE:

SIR, Your enquiry re the "syndicate system," etc., of stallions to hand. It is something that I have given very little thought, hence could not give an opinion that would be of very much service to your readers, though I think the licensing, annually, at not less than \$40 per stallion, of every stallion that is allowed to serve a mare, *by accident or otherwise*, would be decidedly a great benefit to the horse breeders of Canada. At present I know of stallions that are serving mares at from \$3 to \$5, per insurance, that actually would not be even fairly good geldings if castrated, and no breeding back of that, and it is astonishing the number they serve per annum, and some of the worst-looking foals come from them that you ever saw, and it is remarkable the number of fairly good mares that are taken to the embrace of some of them. There are no less than three of such animals owned within one mile of where I am writing.

Bothwell Co., Ont.

O. A. COATES.







### Lump Jaw and Compensation.

DEAR SIR.—Will you kindly give through the columns of the ADVOCATE your opinion of that troublesome disease known as lump jaw, that is causing considerable loss to farmers hereabouts? It is now quite impossible to sell an animal that has the slightest appearance of the like. Do you consider the trouble contagious, and to what extent, and is it transmittable to human beings? Why does it only affect the head and neck of animals, and why do not sheep and horses also suffer from it? At least, I have never known of a case. Would the milk of a cow so affected be dangerous to use, and would the owner be liable in so doing? I understand all Government inspectors have orders to destroy all animals so affected, and to see that no part escapes being burnt or buried, but that the owner has no claim for compensation. If this is true, why is it that the owner is not dealt with as in other cases of contagious diseases? I have had to suffer the loss of a cow that was worth at least forty dollars. I called a veterinary to operate who was a Government inspector, and he pronounced it a case of incurable lump jaw, and that I had better destroy her, which I did, and he would not allow the hide to be sold, and that I could not get any compensation for my loss. Now, if there is any way of getting any compensation, you will confer a favor by giving the necessary instructions how to proceed. It seems to me by not allowing compensation it is an encouragement for parties having such animals to secrete them from the inspector for the purpose of disposing of them. JAMES SAMPLE, Kent Co., Ont.

[EDITORIAL NOTE.—We have submitted the foregoing letter to the Dominion Minister of Agriculture, whose reply is as follows, and which the readers will notice sustains our position regarding this ailment.]

Ottawa, Feb. 15th, 1900.

DEAR SIRS.—I beg to acknowledge yours of the 12th inst., enclosing letter from Mr. James Sample, enquiring about actinomycosis.

The veterinarians are not altogether at one in regard to this disease. The Department has tried to deal with it in a practical way to entail the least loss upon the individual owner or the community. The instructions to our inspectors are, if the disease is in the incipient stages to recommend the use of iodide of potassium, which will generally cure it if taken early enough. Where the disease is fully established it is not possible to cure it, and we cannot allow such an animal to be exported from the country, because in foreign ports they are held to be diseased, and reflect upon the condition and reputation of our Canadian cattle, and interfere with the success of our foreign trade. When these animals are slaughtered for local consumption we leave it in the hands of the local health officers to decide whether they are unfit for human food. The veterinary branch of my Department does not undertake to do this. When animals affected with this disease are noticed by our Government officers we are obliged to quarantine them, acting on the above lines.

Premising that there is a difference of opinion amongst the veterinarians, I venture to say that my own judgment is that this disease is not in its true sense a contagious disease; that the spores of the disease if rubbed on another animal would not cause the disease; but probably if they were got into the mouth or jaw of the other animal they might, though that is not by any means certain. Thus, if a sound animal were to lick the running sore of a diseased animal it is quite possible that the disease might be communicated to the sound animal. Some, however, contend that the disease can only be communicated when the spores have been taken into the mouth of the animal when it is fed on grass on which the spores of the disease live. I do not think there is any doubt that the matter running from a diseased animal scattered upon grass in a pasture or on the roadside may multiply and spread the disease to those animals which afterwards eat that grass.

The question of the spread of the disease in the system of the diseased animal is also somewhat doubtful. If the disease is in an advanced stage many veterinarians believe that it affects the blood, and consequently may spread through the whole system of the animal. Some, however, consider that this is not the case, and that only the diseased parts and those immediately adjacent to them are dangerous. I am not prepared to express a positive opinion upon this.

The paragraph of your correspondent, asking why it is that the owner is not dealt with as in other cases of contagious diseases, shows he does not know the law in regard to contagious diseases. The owner is dealt with exactly the same as with other diseases, such as tuberculosis or anthrax in cattle, or glanders in horses.

The payment of compensation is entirely permissive, and the Government has never paid compensation except in extraordinary cases. It is true that in regard to hog cholera systematic payment of compensation was adopted some years ago, and is still carried on; and also in the case of Pieter cattle disease, a local disease of very peculiar character in Nova Scotia, the same system has been adopted. No doubt the owner of the cow in question suffered a loss, but there is no way for him to get compensation under the present system adopted in regard to such payments. I think that the above outline of what is being done and the instructions given to our inspectors answer the questions pretty thoroughly. SYDNEY FISHER.

### Mr. Blake's Poultry House.

The following is a description of a complete and handy poultry house for a farmer. The entire building is 33 ft. by 12 ft., and affords plenty of space for the fowls kept, which are about thirty. The walls are double-boarded, with tar paper between, and the floor of double plank. The east end, which is 9 ft. by 12 ft., takes up the roosting pen. This has one small window in the south side. The roosts are from 2 to 3 ft. from the floor. There is a passage about 3 ft. wide from this room to the scratch room, which is 12 ft. by 12 ft. The scratch room contains the dust bath, a slide, a door 4 ft. wide for cleaning out the building, and a window 3 ft. by 2 ft. This room also contains a small amount of chaff, about 2 in. deep, in which the hens scratch for whole grains. There is a door on the north side, through which we enter with the feed. A passage leads from this room to the western room, which is 12 ft. by 12 ft., and contains a window in the south side, a watering pot, mash troughs, grit pot, and the nests, which are 1 ft. square and darkened by a partition between them and the window.

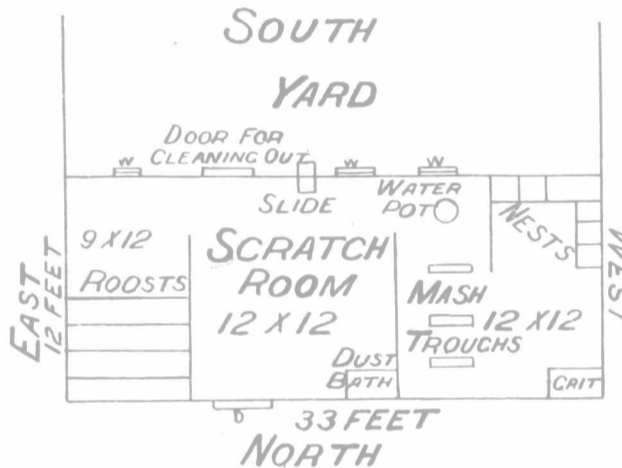
The fowls kept are Brown Leghorns, and are excellent layers. In the winter they are fed the following rations: Morning—Three quarts shorts, chop and corn-meal. Noon—From 4 to 6 quarts of oats and wheat tailings, and a root or so. Night—Corn or other whole grains. CLAUDE BLAKE, Elgin Co., Ont.

### The Flour Mite

(*Tyroglyphus siro*, Gerv.)

BY DR. JAS. FLETCHER, DOMINION ENTOMOLOGIST, OTTAWA.

An occasional enemy of the miller, which sometimes occurs in large numbers, and always causes much consternation when it does so, is the extremely small mite, *Tyroglyphus siro*, much better known under the familiar name of Cheese Mite and Ham Mite. This is a minute white eight-legged creature, of which a very much enlarged figure is given at Fig. 1a, the actual size of which is  $\frac{1}{16}$  of an inch. These mites frequently swarm in countless millions over old cheese, hams, dried meat and other stored



PLAN OF CLAUDE BLAKE'S POULTRY HOUSE.

produce of various kinds. They are also frequently found where flour or grain has been stored for some time, and particularly where the grain has been damp. These insects belong to the *Acarina*, or Mites, a division of the same order as contains the spiders.

There are frequently two species associated together and injuring produce in the same manner.

These merely differ in one being slightly larger than the other and having a few more and rather longer hairs; but both are so small as to escape the notice of most people, unless they occur in very large numbers. I have lately received from Mr. Geo. H. Greig, of Winnipeg, a box of the common Flour Mite (which had been found in large numbers in an elevator at Roland, Manitoba), with a request for information concerning the insect and the best way to clear the elevator of their unwelcome presence.

It was at one time thought that the Flour Mite and the Cheese Mite were different species, but this is now known not to be the case. Owing to the fact that this mite can feed on so many kinds of food products, it has been carried to almost every inhabited part of the world. An interesting account of its habits can be found in a valuable pamphlet on "Household Insects," issued by the United States Division of Entomology. Many writers have treated of the Flour Mite from a very early date. Aristotle, who wrote about 350 years before Christ, spoke of it as "The smallest of living creatures." It was not, however, until 30 years ago that its full life-history was known. And it was then discovered by the Swiss naturalist, Claparède, that what was thought to be another kind of mite, named *Hypopus*, was merely a form of this one which appeared when the food supply failed, and was, in short, a sort of resting stage in which the insects could exist for a long time without food.

These mites propagate with remarkable rapidity in warm houses and during hot weather. The females are said to bring forth their young alive; these soon become mature and begin to reproduce, so that a colony once established increases with

prodigious rapidity as long as foods abound and there is sufficient warmth. When a cheese is infested the mites soon devour a large part of it if left undisturbed, the cast off skins and pellets of excrement appearing as brown dust. When the food is all devoured, they can live a long time, nearly 3 months, without feeding, and some which have reached a certain stage of development undergo a complete change to what is known as the *Hypopus* state, referred to above, when they have a hard brown skin into which all the legs can be withdrawn in repose, and in which state they can live without food for a much longer time even than the ordinary soft form. When an opportunity occurs they attach themselves to some small animal or another insect and are carried to a place where more food can be found.

It is not often that this insect is complained of as attacking grain; but in 1885 about 5,000 bushels of best lake shore wheat was placed in a grain elevator, an old building which had stood vacant for some years, at Milwaukee, Wis. During the summer the owner of the wheat noticed that it was swarming with these mites, soft white microscopic creatures as fine as dust. They were only found in one bin of a single elevator; they were so numerous, sifting through the wheat in the spout, that they could be swept up every morning from the floor below. The wheat was freed from them by being passed through a fan before shipping.

In another instance a supply of flax seed was found to be badly infested.

**Remedies.**—Owing to the great tenacity of life of these mites, when once a building is badly infested it requires great care and cleanliness to free it from their presence. The contents should be got out and sifted and all screenings and dust burnt as soon as possible. The mill should then be swept out thoroughly, fumigated with sulphur and afterwards thrown open to the action of the frost. The reason that these mites do not more frequently increase to such numbers as to attract attention is because they are often destroyed by cannibal mites of the genus *Gamasus*, which occur with the Flour Mites and prey upon them ravenously.

Bisulphide of carbon is now used to some extent in mills for the destruction of insect enemies, and might, if thought worth while, be used against the Flour Mite by closing up every entrance and leaving some to evaporate from a shallow dish placed high up in the building. Its use, however, necessitates great care, as the vapor is heavier than air and is exceedingly inflammable.

### Single Ownership or Syndicate?

SIR.—I would much prefer in all cases single ownership of stallions, or any other male animal, to ownership by syndicates. It is much easier for the seller to deal with one purchaser than to deal with half a dozen or more, all of whom may have different opinions as to the style or quality of the male desirable for their district. Also, it seems to me that it must be very much more satisfactory for the man who intends to put a female to a male, to have to deal with only one owner. Still, on the other hand, it is necessary to consider the requirements of the country and its facilities.

Are farmers in this country, as a rule, in a position to become individual owners of very valuable entire animals? If not, what is the best method for them to adopt in order to become the breeders and owners of the same?

I must say that during my ten years' experience in this country as a breeder and importer, I have been led to believe that the farmers of Canada are not, as a class, financially strong enough to become individual owners of first-class horse stock, though there are exceptions. In this idea, however, I may be entirely wrong, as owing to the decline of prices in every branch of farming products, since 1880, farmers have not felt much like investing in horses, because prices since that time have not been very remunerative. Unfortunately for the farmers of Canada, there are practically no wealthy land-owners distributed throughout the country who can afford to pay special attention to the keeping up of studs, herds, etc., of high-class pedigree stock during times of depression. Your question, then, comes very appropriately at a time when business is commencing to improve. "What are the advantages or otherwise of the syndicate system?"

In answer to this question, I would point out most emphatically, that it is utterly impossible for breeders or importers of stock to continue to do a credit business. Such a course, as you are well aware, will sooner or later be the ruin of anyone, and has within your memory been a source of most grave difficulty to the breeders and importers of Canada. Yet the bulk of enquiries which are received daily by them contain the clause, "What are your terms?" showing that our farmers still look to the credit system.

Now, if the credit system is an impossibility, and if farmers cannot afford individually to buy, the only alternative system that I can see is the one of syndicating stallions; and if properly carried out by honest parties on both sides, there appears to me no reason why it should not be a success and give satisfaction to all persons concerned.

In districts where there is no one farmer rich enough to purchase a horse, there may be several farmers who combined together can raise enough cash to purchase a stallion which will greatly improve the breed in that district. Possibly, also, the larger the syndicate and the more powerful, the more uniform will be the breed of horse in that section, also the better the quality.



As an instance, let me quote the case of a bull which was bought some years ago by an Agricultural Society, to go to their section of Ontario. That bull was used on everybody's cow, no matter whether the patrons lived one or twenty miles away. The district soon became famous for its breed of cattle. To-day, pretty nearly every other farmer in that district owns a bull of some breed, of some or no quality, and drovers practically pass the district by. So it is far better for a community to be widely interested in one good horse (if it cannot afford to keep more than one) than for a dozen persons in that same community to be travelling a dozen different breeds or qualities of horse, when there are not more than enough mares for one.

Unfortunately, there is no good without its attendant evils, and though the principle of syndicating horses is right where the strong individuals (financially) do not exist, there are many frauds practiced on the public. Let me quote one case which came to my knowledge. I mention this case because it does appear to me that it is one of the slickest instances of syndicate work which was ever put through in Canada. Two men in a buggy arrived at the village of H—one night, driving a lame trotter, and leading behind the rig a Coach stallion. Having supped, slept, and breakfasted, they enquired for the local veterinary, wishing to consult him about the driver, which had got injured on the road. Soon after being summoned, the "vet." appeared, was taken out to the stable, and being somewhat of a sport, he recognized a little speed in his patient, and requested to be driven around town. After a short, quick drive, they re-lighted at the hotel, and on further examination the case was pronounced to be disease of the navicular bone, the owners being advised to stay over a few days whilst the horse was being treated. Nothing loath, but pretending reluctance, they complied with the request. The Coach horse, of course, needed exercise, and was taken out daily before the assembled and admiring crowd of villagers and farmers. In the meanwhile the principal storekeeper was interviewed and convinced what a splendid thing for the farmers it would be to have a good horse located in that district, and was half persuaded to put a few shares into a syndicate (for the good of the country) if the farmers agreed to purchase the horse. Shortly the funds of the two adventurers were exhausted. Then, first, the "vet.," and afterwards the hotel-keeper, were persuaded to take shares (there was no possibility of their getting cash for services rendered) in lieu of the expenses incurred for medical attendance, board, etc. The storekeeper on being told that the two principal horsemen of the village were in favor of the syndicate, and being ignorant of the fact that their advocacy had practically cost them nothing, took some shares, but paid cash. One or two prominent farmers received two shares for one share paid up. After this the deal went through like a shot. The horse was sold for ten times what he cost, and when I explained to the local vet. how nicely he had been fooled and made a stool pigeon of, he for the first time in his life admitted that he was not as smart a man as he had always supposed himself to be. HORSE BREEDER.

**How to Make the Langstroth Hive.**

BY A. E. HOSHELL, LINCOLN CO., ONT.

"Kindly describe how to make the Langstroth hive from start to finish," asks a questioner. All movable frame hives are Langstroth (which is the

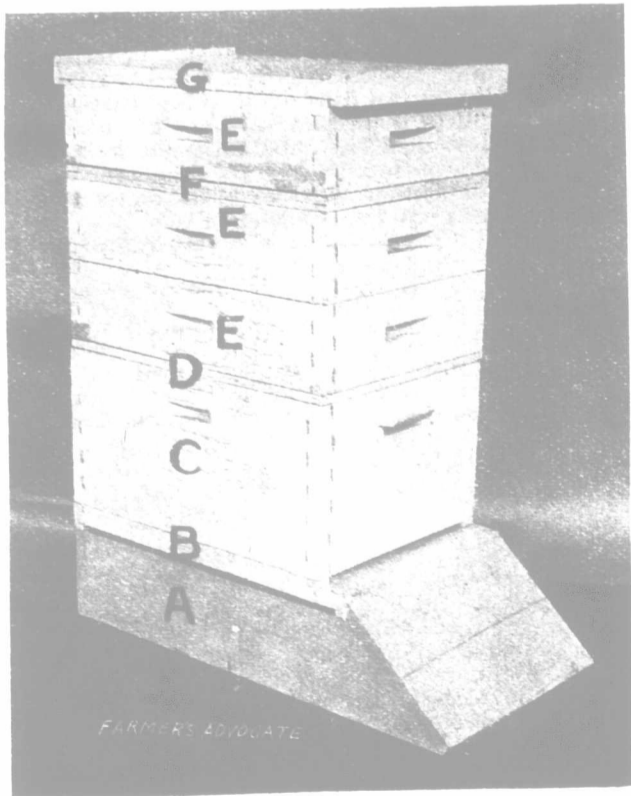


FIG. 1.

inventor's name), no matter by what name known, or what their size or shape, the intention being to perform all necessary operations with our colonies through manipulating these frames when filled with comb by the bees. The original Langstroth frame was 9 1/2 in. deep by 17 1/2 in. long or thereabouts, and hives now having eight or ten such sized frames in their brood chamber are by common consent usually known among beekeepers as eight and ten frame

Langstroth hives in preference to those having other sized frames. Among the many movable frame hives, I recommend that which Fig. 1 represents. It is called the "Dovetailed Hive," because of the way it is put together at the corners, viz., notched or dovetailed, and is an eight-frame Langstroth hive, the brood frames being as above, 9 1/2 in. deep by 17 1/2 in. long, and of the Hoffman self-spacing style, Fig. 2, D. Fig. 1 is the hive complete for comb honey, just as it appears when in use during

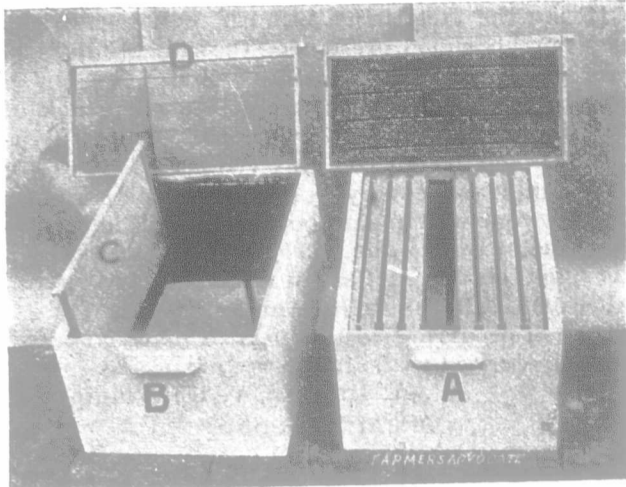


FIG. 2.

the honey flow in June or July. A is the stand which supports the hive proper about 6 inches from the ground; B is the bottom board, which is loose from the hive; C is the brood chamber, or breeding apartment of the hive; D is the queen excluder; E E E are three comb-honey surplus cases, and occasionally four are required; F is the bee escape; and G the cover. The stand could be dispensed with and the hive blocked up, but I do not advise it. This outfit would be the necessary hive fixtures for one swarm hived into it, and worked for comb honey, but for every colony wintered in one of these hives there will be required, in addition to the above, one extra bottom board, brood chamber, and cover.

Fig. 2 explains the construction of the brood chamber. A represents it with one frame removed. When complete it contains eight frames wired like D, and filled with foundation the same as E, and a follower or division board like C. Between this follower, when in place, as in A, Fig. 2, and the side of the case is a wedge (this is not shown), which keeps it and the frames all up together and properly spaced; the upper part of the end bars of the frame being wider than the rest of them keeps them the right distance apart. B is the outer shell. It is made of 3/4-in. lumber, 20 in. long, 13 1/2 in. wide, and 9 1/2 in. deep. The upper edge of the end pieces are rabbeted and covered with a tin strip folded so as to form a folded tin edge to suspend the frames from so they will not be glued fast by the bees. Hand-holds are cut in the sides and ends, and immediately above and next to the end ones hand-blocks are nailed to give a still better grip. The follower, or division board (C), is made of thin stuff and cleated to prevent warping; it is of the same length and depth as the frames, and, like them, when in place hangs suspended from the tin rabbets by its top bar. D is a broad frame. It is 17 1/2 in. long by 9 1/2 in. deep, the top bar projecting 1/2 in. each way to suspend it by. Its end bars are 1 1/2 in. wide

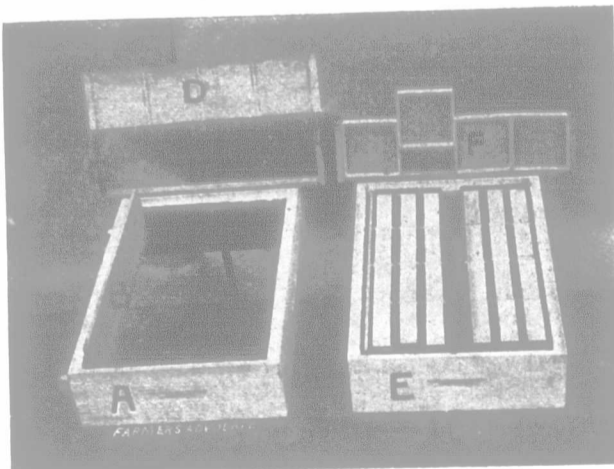


FIG. 3.

at the top, and so preserve the right spacing sideways, while a small staple driven into them just below the projecting part of the top bar keeps the frame in correct position endways. It is wired with No. 30 tinned wire, as shown, to support and strengthen the foundation and comb. E represents a similar frame with foundation in. It is necessary sometimes to use less than eight frames in the brood chamber, in which case dummies or fillers are required to occupy the space of the frames removed. These are made the same as the follower (C), except that they are 1 1/2 in. thick, and when dropped into the case occupy exactly the same space as a frame.

Fig. 3 is the comb-honey surplus case and its parts. E is the case complete, with one section holder and its corresponding sections and separa-

tors removed. It is composed of an outer shell (A), with a follower (B), and a wedge which is not shown, seven section holders like C, which hold four sections each as F (one section is here seen partly removed), and seven separators same as D. By observing the top of E these parts can all be seen, except the wedge which is between the follower and the side of the case, and their adjustment in the case readily understood. The outer shell (A) is made of 3/4-in. lumber, has hand-holds in its sides

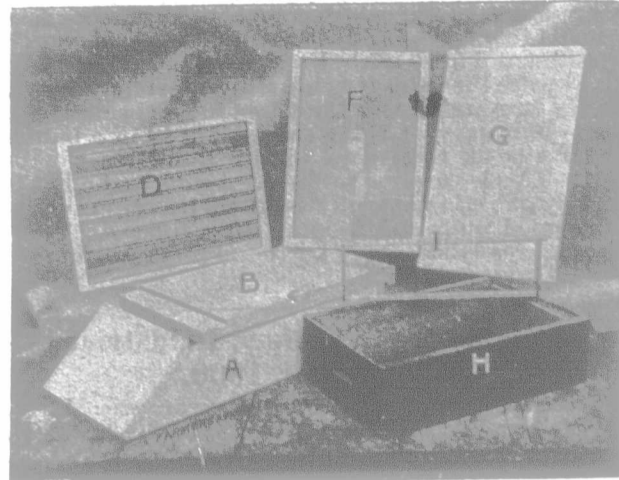


FIG. 4.

and ends, is 20 in. long, 13 1/2 in. wide, and 4 1/2 in. deep. The upper edge of each end piece is rabbeted on the inner side 1/4 in. downward, so that the end pieces of the section holders can be readily gotten hold of with the fingers and lifted out. On the lower edge of each end piece and clear across the case, is nailed a heavy piece of tin, which projects inward about 1/4 in., and upon these tin strips the follower, section holders and separators are supported when in place. B, the follower, is a plain 3/4-in. board, 4 1/2 in. wide, and fits the case loosely endways by about 1/4 inch, and by wedging between it and the side of the case everything is kept tight and in place. C is a section holder; it is simply a frame without a top bar, and will hold four 4 1/2 x 4 1/2 in. sections and foundation the same as F. The end pieces are 1 1/2 in. wide, and the bottom piece 1 1/2 in. wide, which is the exact width of the sides and bottoms of the sections they hold. D is a separator; it is simply a piece of thin veneer, and the same length and depth as the follower, B. A separator is used between every row of sections, so that the bees will build their comb even and straight in the sections and store about the same amount of honey in each. The follower, section holders and separators are all the same length and depth, and are all supported in place by the tin rests on the bottom edges of the end pieces of the shell, A.

Fig. 4 is the remaining parts of the hive. A is the stand, and is made of cheap 3/4-in. lumber. B is the bottom board partly removed from the stand. It is cleated together, as shown, at the ends, and has a rim 3/4 in. deep, partially about the upper side, upon which the hive rests, forming the entrance to the same and a passageway for the bees underneath the frames in the brood chamber. D is the slatted queen excluder. It is placed just on top of the brood chamber, as in Fig. 1. The worker bees can pass through it, but the queen and drones cannot; thus it confines the brooding to the brood chamber, so keeping the honey in the cases above clean and bright, as the rearing of brood in a comb always discolors it, no matter where it takes place. This queen excluder is the same size around the outside as the hive; that which is seen between its slats is strips of perforated zinc slipped into saw kerfs cut in the edges of the slats. The perforations in the zinc are such a size that the worker bees can pass through them, but the queen and drones cannot. F is the bee escape. It is a 1/2-inch board, bound as shown, and has a tin arrangement in the center which allows the bees to pass but one way through it. It is used for ridding cases of honey or empty comb of bees. Fig. 1 shows the way it is used. F is the escape, with a case supposed to be full of honey above it. The bees can pass downward through the escape to the line below, but cannot return. G in Fig. 4 is the hive cover, a plain board cleated same as seen in Fig. 1. If extracted honey is to be produced, then two extra brood chambers like C, Fig. 1, will be required, instead of the three cases E E E, for the bees to store their honey in. Some, however, do not like such large, deep cases for extracting, and use what are called half-story extracting cases. Fig. 4, H, is one of these with the frames removed. I is a frame for the same. These cases and their parts are made the same as the brood chamber (Fig. 1, C), except that they are but 5 1/2 in. deep, and the top bars of the frames are not so thick as in the brood frames. Compare Fig. 4, H and I, with Fig. 2, B and D, and this will be seen. All the frames in the hive, and also the section holders, come just even with the bottom of the cases which hold them, but are about 5-16 in. below their upper edges. If halved together at the corners (and it is as good as dovetailing, if properly nailed), this hive, except, perhaps, the frames, which can be bought, can be built by any good woodworker, but he should have a perfect sample of each part to work from, and be careful to make everything accurate, so that all parts will be interchangeable if more than one hive is to be used.









MY DEAR CHILDREN.—

I suppose you have been all suffering from the war fever lately—the boys especially. One little chap was showing me his scribbler the other day. It was crammed with sketches of soldiers in bright uniforms. He had a box of colored chalks to do them with. There were soldiers on horseback and soldiers on foot—whole regiments of them. General Buller and General Simons were riding gallantly after the Union Jack. Even the Boer flag was there, with one solitary Boer under it.

If you ever intend to be a soldier, you had better begin to practice now. When things go wrong, and you are inclined to be unhappy, remember that a soldier who can't put up with a little discomfort is not worthy of the name. Try to be as plucky as one of our Irish soldiers in South Africa. He was hit with a bullet, and remarked cheerfully: "Ah, and if the bastes haven't hit me; that's one ter them!" Then he got another, and said as coolly as ever: "Sure, and they've struck me the second toime!" Another bullet struck him, and he said: "Well, that's number three. I do think they might let a feller alone after they've hit him wance!"

One cheery fellow can brighten up his comrades by laughing and joking and looking on the bright side of everything, and then they are much more likely to win, when the fighting starts. It is very true that—

"The man worth while,  
Is the man who can smile  
When everything goes dead  
wrong."

It is also true that a boy who is grumpy, cross and rude in his own family will probably be the same if he ever becomes a soldier in camp.

Let me tell you of a boy who would make a splendid soldier.

It had been raining for three days, and everybody was in the dumps. Father was stern and mother tired, baby Polly fretful, and Bridget cross. Soon Jack came in with the breakfast rolls from the baker's. He left his rubbers in the porch, and came in rosy and smiling. "Here's the paper, sir," said he so cheerily that his father answered quite pleasantly: "Ah, thank you, Jack." His mother looked up at him smilingly as he touched her cheek gently with his lips. "The top of the morning to you, Pollywog," he said to his little sister, and delivered the rolls to Bridget with a "Here you are. Aren't you sorry you didn't go yourself this beautiful day?" The whole family cheered up instantly. "He is always so," said his mother to herself. "Our Jack is always so sunny and kind and ready all the time."

Then there is another quality that soldiers need—*determined perseverance*. It is often said that an Englishman never knows when he is beaten. This spirit of never giving in to difficulties often turns a defeat into a victory. You had better get into training now. When your lessons are hard to do, don't give up in despair and say, "I can't!" It is cowardly to give in at the first difficulty. In fact, there is far more real satisfaction in fighting your way through difficulties than in having everything made easy for you. Why, you don't enjoy even a game if you can win it too easily. Unless you have "a foeman worthy of your steel" there is no fun in playing, and it is just the same with work.

"If you've tried and have not won,  
Never stop for crying;  
All that's great and good is done  
Just by patient trying."

Though young birds in flying fall,  
Still their wings grow stronger,  
And the next time they can keep  
Up a little longer."

Though the sturdy oak has known  
Many a blast that bowed her,  
She has risen again, and grown  
Loftier and prouder."

If by easy work you beat,  
Who the more will prize you?  
Gaining victory from defeat,  
That's the test that tries you."

You may think I am preaching only to the boys; but this sermon is for the girls too. We are all

bound to "endure hardness as good soldiers of Jesus Christ," and nice soldiers we make, don't we, when we can't bear even very tiny hardships bravely? If you make a great fuss over everything disagreeable, how would you ever bear to be wounded? If you never do a single thing to help anybody else—unless you have to—would you be likely to face danger and death for the sake of helping a wounded comrade?

Think of these things, my dear boys and girls, and then look about for a chance to practice pluck, cheeriness, determination, endurance, and friendliness. You will find chances in plenty wherever you are, or my name is not—

COUSIN DOROTHY.

Nobody.

"Nobody broke it! It cracked itself.  
It was clear 'way up to the toppest shelf.  
I—perhaps the kitty-cat knows!"  
Says poor Ned  
With his ears as red  
As the heart of a damask rose.

"Nobody lost it! I carefully  
Put my cap just where it ought to be.  
(No, 'tism't behind the door,  
And it went and hid.  
Why of course it did,  
For I've hunted an hour or more."

"Nobody tore it! You know things will  
Tear if you're sitting just stock stone still.  
I was jumping over the fence—  
There's some spikes on top,  
And you have to drop  
Before you can half commence."  
Nobody! wicked Sir Nobody!  
Playing such tricks on my children three,  
If I but set eyes on you,  
You should find what you've lost!  
But that, to my cost,  
I never am likely to do!



"LOVE GROWN COLD."

Travelling Notes.

AUSTRALIA.

Now that one's sea-legs are a little steadier, it is possible to somewhat fill in the mere outline given in our last issue of Brisbane, Sydney and Melbourne. Travellers, except the most seasoned, can testify to the possibility of rushing through cities, driving and sight-seeing, and yet being unable to give a very clear idea of it all until body and brain are rested and tension relaxed. At all events, such is our condition; and now, resting and luxuriating in the loveliest of spots, we can recall the sights and wonders of Australia's great cities and ourselves re-joy them, perhaps more than when actually rushing through them. Well, our first landing (after Honolulu), as before mentioned, was at Brisbane, the metropolis of the wealthy colony of Queensland. It was founded in 1824. Kipling says:

"The Northern strip beneath the Southern skies,  
I build a nation for an Empire's need,  
Suffer a little, and my land shall rise  
Queen over lands indeed."

As a mineral-producing colony, Queensland takes the lead, her mineral wealth including nearly all the precious metals; while in gold, her only rival is western Australia. At the present time the Colony carries twenty or twenty-five million sheep, and the value of this year's wool is estimated at about \$15,000,000. Brisbane possesses most beautiful botanical and acclimatization gardens, fine and well-kept streets, and a good electric tram-car system. Time pressed, however, and much as we regretted so short a stay—ships wait for no man (or woman)—we had to turn our backs on the first bit of our Sister Colony we had

yet trodden, and take to the briny deep once more—devoutly thankful that at least it was not for long, for, oh! that rampageous Pacific Ocean has been nigh the death of some of us, and one heard a whisper aboard that even the captain "hissself" was "under the weather" (to put it mildly) during the first portion of our voyage! So, sails set, funnels smoking, screw rasping, and ho! for Sydney, Queen City of the Southern Hemisphere.

On entering Sydney harbor, one is at once struck by its romantic beauty and its innumerable islands. Shark Island is used as a quarantine station; Garden Island as a naval store depot; Cockatoo Island is the site of the women's prisons. Then there are Goat, Spectacle and many others too numerous to specify. It is indeed a sight, the entrance to that harbor. The shores rise abruptly to a great height, literally clothed from base to summit with luxuriant vegetation, and what added to the grandeur of nature and thrilled our loyal hearts to the core was the sight of several British war-ships anchored in the harbor—England protecting her colonies. Sydney is the headquarters of the British fleet in the Southern Hemisphere, and by permission of the Naval Defence Act, the Australians contribute \$150,000 for the support of the fleet in these waters. We felt a wild desire to up and shout "Rule Britannia" right there on the spot. In all directions the waters of this lovely harbor encircle the city, which is built on four hills and the valleys which lie between. Its splendid site and its excellent location have made Sydney the real capital of Australia and the distributing center of the South Pacific. As in the other great cities, it is intersected by tramways, steam, cable and electric cars and the hundreds of hansoms and double-decked busses, which remind one so much of Old London. The large and attract-

ive shops, the fine streets, beautiful buildings, and wealthy people are all there. As for the abundance of fruit, it seemed wonderful indeed to find in December profusions of strawberries, raspberries, most luscious early peaches, loquats, passion-fruit, apricots, nectarines, mangoes, bananas, pineapples, persimmons, cherries, medlars, etc., etc. (Can there be an "etc." after all this array?) There is also a great variety of nuts.

It almost seems like too vain repetition to say that a certain situation is unequalled, for we seem to have found these unequalled places all over in our travels; but one is perhaps inclined to give the palm to the botanical gardens at Sydney. Perfectly planned, perfectly cared for, they stand pre-eminent. It is said that this collection of outdoor plants and shrubs excels in variety even the renowned Kew Gardens in England. The extent is over 40 acres, and the beautiful fountains and statues, the tropical plants, ferns, orchids, etc., in endless variety, make a veritable feast of gorgeous beauty never to be forgotten. Our stay in Sydney was short; but here sure we made the most of

it, for since we became "globe trotters" we've thoroughly learnt what "Multum in parvo" means, when it comes to sight-seeing in few days. Now for Melbourne; and as we stayed longer there, we shall be able to say more about it.

"Love Grown Cold."

JEAN AUBERT.

Poor little Cupid! One does not often see him like this (in pictures at least). He is generally pictured as a mischievous imp, with bow and arrow ready for the fatal shot which comes at some time to most of us. But now young Love looks chilled and thoughtful. Is he trying to comfort the beautiful girl? She is getting, apparently, all the warmth to be got, but alas! it is too little to revive Love grown cold. There is much beauty in this work. A deep undercurrent of thought seems to lie in it, apart from its artistic beauty; and the wintry aspect of the surroundings add to its suggestiveness.

Perhaps the saddest thing in our lives is Love grown cold. Ah! the pity of it, for it generally means that only the one grows cold, whilst the other lives on and suffers! A beautiful picture one can hardly help looking at without a certain sad regret that such things have been, are, and will be again.

"Oratory is a gift, not an acquirement," said the proud politician as he sat down after an hour's harangue. "I understand," said the matter-of-fact chairman. "We're not blamin' you. You did the best you could."



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**BINDER TWINE FOR SALE.**

SEALED TENDERS addressed "The Warden of the Penitentiary, Kingston, Ontario," and endorsed "Tender for Twine," will be received until the 20th of March next, inclusive, for the twine on hand and unsold at that date, together with the output of the Penitentiary factory between that date and the 31st July next.

The twine will be delivered f. o. b. cars, Kingston, in quantities to suit the purchaser. Terms—cash on delivery. Particulars as to quality, grades, etc., may be obtained by inspection at the Penitentiary warehouse. Each Tender must be accompanied by an accepted cheque for \$2,000, which will be returned to unsuccessful tenderers.

Tenders for fifty-ton lots will be received also if accompanied by an accepted cheque for \$500, on the terms before mentioned.

Orders from farmers in pursuance of the advertisement dated January 22nd will be received and filled until the 20th of March, instead of the 1st of March, as stipulated in the former advertisement.

J. M. PLATT,  
Warden.  
Kingston, 26th February, 1900.

**GOSSIP.**

R. McLellan, of Moropano, writes, under recent date, that his stock is doing particularly well this winter. He has five young calves by imported Sir Colin Campbell, four of them roans, and all good ones.

Walter James, Maple Grove, Rosser, Man., recently purchased from Mr. Bradford, of Stone-wall, a Yorkshire boar, from Brethour stock. Mr. James thinks this stock of exceptional merit. He also reports many inquiries for bulls, but is practically sold out. Many of his old customers in Argyle, Rockwood, and Meadow Lea, have been so well satisfied with stock purchased from him before, they have been coming back. He reports stock all doing well.

Mr. S. A. Bedford, Superintendent of the Experimental Farm at Brandon, has been in poor health since August. This has prevented him from giving his usual addresses before the Farmers' Institutes of the Province. Last week Mr. Bedford underwent an operation at the Brandon General Hospital which promises to be successful, but it is questionable whether he will be sufficiently strong to undertake any institute work until the June meetings.

By announcement in their advertisement elsewhere in this issue, Messrs. Knittel Bros., of Boissevain, offer for sale the celebrated Yorkshire Coach stallion, Knight of the Vale, registered in Vol. V, of the Yorkshire Coach Stud Book of Great Britain and Ireland (1799), and also in the American Cleveland Bay S. B. (999). Knight of the Vale was shown a number of times at the Winnipeg Industrial Exhibition, besides many local points in the Province, and has been a very successful prizewinner. No less than five times he has been a sweepstakes winner at the Winnipeg Industrial. He is a splendid specimen of the Yorkshire Coach, and his rich breeding and perfect conformation make him in every way a most desirable type of horse for use in this country. He has stood for service at Boissevain and vicinity for six seasons, and his colts have been successful prizewinners at Winnipeg and elsewhere. He is very popular in the district, and will be a splendid addition to the stud of whatever district is fortunate enough to secure him.

J. A. S. Macmillan, of Brandon, has recently sold that magnificent Clydesdale stallion, Burnbrae, to Mr. Bailey, of Carberry. Burnbrae is well known, and has an unbeaten record in the showyards. Certainly one of the best Clydesdales brought into Manitoba in recent years. In reviewing Mr. Macmillan's stud in our Christmas number, the following is said in regard to this horse: "He is a big, toppy, handsome bay, with four white legs and white blaze. He has for sire the imported Rosewood (726), a grand, heavy-boned horse, and a second-prize winner at the World's Fair, Chicago, in 1893; he by Macfarlane (2988), by McGregor (1487). The dam of Burnbrae is Young Bloom, by the Regent (5408), running back to Prince of Wales (673). In addition to Burnbrae, Mr. Bailey has in his stables four Clydesdale mares, all in foal to Burnbrae; an extremely fine young filly, by Prince Patrick, out of Elspeth McGregor; all these being purchased from Mr. Macmillan. Mr. Macmillan has just recently landed a carload of Clydesdales, 14 mares and two fillies, and two stallions, one winner of second at Chicago Horse Show in 1897.

**LISTER'S**

**Alexandra and Melotte**

**CREAM SEPARATORS**

STAND UNRIVALLED FOR LARGE OR SMALL DAIRIES.

"The proof o' the puddin' is the prein o't."

Do not be misled by interested agents, men of ready speech, who are all selling the "best" machine, no matter how cheap and worthless they are, and which certainly are the best for separating the unwary farmer from his hard-earned money. Listen to men in your own rank who have tested them:

WHITESAND, ASSA., 15TH JANUARY, 1900.

Dear Sirs, Please send me a copy of your Dairy Handbook. I expect to milk 17 to 20 cows this summer; am milking 11 at present date. I use one of your 7½ Alexandra separators to skim the milk. Have used this machine four years with greatest satisfaction, and it shows no sign of wear yet. Repairs have cost me 10 cents in the four years.

Yours truly,  
ALFRED HUTCHINSON.

For full description, prices, and copies of reliable testimonials, address:

**R. A. LISTER & CO.,**  
LIMITED.

232 KING STREET, WINNIPEG, MANITOBA.

**Sub-Surface Packer and Davidson's Grain Pickler.**

Manufactured by  
**THE Brandon Machine Works Co.**  
BRANDON, MAN.



**David Maxwell & Sons,**  
ST. MARY'S, ONT.

PATENTED

**STEEL ROLLER BEARINGS**  
**IMPROVED STEEL FRAME**

And combined Foot and Lever Drive, improvements you will not find on other churns. Do you want the best? Then don't purchase until you see it. Sold by the leading wholesale houses in the Dominion.

No.	Capacity	Churns from
0	6 gal.	1 to 3 gal. cream.
1	10 "	1 to 5 "
2	13 "	2 to 7 "
3	20 "	3 to 9 "
4	25 "	4 to 12 "
5	30 "	4 to 14 "
6	40 "	8 to 20 "

**CANADIAN DAIRY SUPPLY COMPANY,**  
236 KING ST., WINNIPEG, MAN.  
Agents Manitoba and the Territories.

**YOUR ATTENTION**

Our No. 1 Collection contains 33 full sized packets of the best Vegetable Seeds, sufficient to furnish vegetables throughout the year, and one packet of Wild-Garden Flower Seeds, which we will send prepaid to any address in the Dominion of Canada or United States for the extremely low price of \$1.

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Our No. 3 Collection contains 8 packets of Vegetable Seeds for 25c.

Our No. 4 Collection contains 40 packets of Flower Seeds for 50c.

Our No. 5 Collection contains 20 packets of Flower Seeds for 25c.

Our No. 6 Collection contains 10 packets of Flower Seeds for 25c.

All postpaid on receipt of price. For varieties in above collections see our Handsome Illustrated Catalogue containing other great offers. Mailed free to any address.

**R. ALSTON, Royal Greenhouse & Seed Establishment, WINNIPEG, MAN**

**KNIGHT OF THE VALE.**

**Coach Horse Stallion for Sale**

The celebrated Yorkshire Coach stallion, Knight of the Vale, Nos. 1799 and 1868.

**KNITTLE BROTHERS**

Desire to sell this horse, with a view to replacing him, as he has stood for service in the vicinity of Boissevain for six seasons. For particulars apply,

P. O. Box 148, Boissevain, Manitoba.

**J. E. SMITH,**

**IMPORTER AND BREEDER.**

HAS FOR SALE—

**CLYDESDALES**—Bargains in Stallions and Mares, all ages.

**SHORTHORNS**—Choice Bulls, Cows and Heifers.

**HERFORDS**—17 Heifers.

All animals registered in their respective herd books. Everything for sale except the stock bulls, Lord Stanley 2nd and Golden Measure. If notified, visitors will be met at the station. Come and see the stock. Satisfaction guaranteed. Write or wire

**J. H. SMITH,**  
Smithfield Ave., BRANDON.  
P. O. Box 274. Telephone 1.

**Clydesdale Horses for Sale**

12 young Clydesdale geldings, raised in the country, and of good weight (nearly all from registered mares, some of them imported), and sired by the celebrated prizewinning imported horses, Raith Laddie, Pure Clink, and Balgreggan Hero. Also one Clydesdale stallion. For further particulars apply to

**A. & G. MUTCH, Craigmiles, Lumsden P. O., Assa.**

**Marchmont Stock Farm,**  
MIDDLECHURCH, MAN.

**Scotch-bred Shorthorn Cattle**

**PRINCE ALPINE (IMP.),**  
7 YEARLING BULLS. 10 BULL CALVES.

**W. S. LISTER, Middlechurch, Man.**

**YOUNG BULLS**

of Missie, Mina, Roselud, Strathallan, Wimple, and other choice Scotch breeding. Also, females at moderate prices.

**W. S. LISTER,**  
MIDDLECHURCH, MAN.  
Marchmont Stock Farm, near Winnipeg, Man.

**Shorthorn Cows and Heifers for Sale**

Of good breeding. Prices right.

**GEORGE RANKIN, HAMOTA, MAN.**  
"Melrose Stock Farm."





NOTICES.

A Satisfactory Feed Cooker.—"The Ripley Hardware Co., Grafton, Ills.—Gentlemen,—The Cooker we ordered from you Nov. 11th, 1899, far exceeds our expectations and fills a long-felt want, and honestly believe it will doubly pay for itself in six months. Should we not be able to get another, could not be persuaded to let it go for ten times the price of it. We usually keep from 200 to 300 Yorkshire hogs, and have been using a large furnace for heating water and food, and find your Cooker can be run with seventy per cent. less fuel than it took to run the furnace. I am free to say that every farmer who has stock, be it cattle, sheep or swine, could not invest money better than by putting in one of your Cookers. D. C. FLATT & SON, Importers and Breeders Large Yorkshires, Millgrove, Ont.

Canadian Carriages at Paris Exposition.—The J. B. Armstrong Manufacturing Co., of Guelph, Ont., have shipped to Paris for exhibition among Canadian manufactures, a number of their high-class carriages, including a lady's phaeton on Armstrong springs, with rumble seat trimmed in all-wool cloth, and with full leather top, and finished in the finest style of workmanship. There is also included an Armstrong Extension-top Surry, trimmed in leather and with full leather top, finished in dark green and with silver mountings. Other styles, equally elegant, were included to make up a very creditable example of Canadian manufactures.

Battle's Thorold Cement.—Among the many basement-barn walls built with "Battle's Thorold Cement" last year, was one fifty by seventy feet by nine feet above footings, by the Hon. E. J. Davis, Provincial Secretary, on his farm near King, Ont., York Co. Mr. Davis also put in cement floors for horses and cattle with Thorold cement, and the farmers living near there are much pleased with both walls and floors. This barn has stabling for thirty-eight head of cattle and four horses, leaving room for a large root-house, feedway, etc.

CANCER CURED WITHOUT KNIFE OR PLASTER. FULL PARTICULARS FREE. -OM F. STOTT & JURY, Bowmanville, Ont.

Norwood Bridge Poultry Yards, WINNIPEG, MAN. Breeder of high-class T. C. B. Minorcas, Houdans, and White Wyandottes; also Bronze turkeys, Pekin Bantams, Pekin ducks. Young stock for sale of all varieties. Write or call.

PLYMOUTH ROCKS HIGH-CLASS STOCK. -m WILLIAM LAUGHLAND, - Hartney, Man.

J. C. & A. W. FLEMING, Rosebank Stock Farm, Pilot Mound, Man. Breeders of Poland-China pigs and Cotswold sheep of choice quality, offer select seed potatoes of eighty varieties. Write for catalogue. -m

BLACK MINORCAS. Young stock for sale—some beauties. Satisfaction guaranteed. -m A. M. ROBERTSON, KEEWATIN, ONT.

FORT ROUGE POULTRY YARDS. A few birds left for sale: Light Brahmas, Plymouth Rocks, G. Wyandottes, Indian Games, Langshans, B. turkeys, Pekin ducks, Guinea. Also fancy pigeons, and Belgian rabbits. S. LING & CO., WINNIPEG, MAN.

Poultry Supplies. Pamphlet, "How to Make Hens Lay in Winter." Ask for it. R. DOLBEAR, 1238 Main St., Winnipeg, Man.

Agents:—Our book on South Africa and the Boer-British War is a regular bonanza for agents. Big cheap book. Sells on sight. Outfit free to canvassers. The Linscott Publishing Co., Toronto.

AGENTS WANTED for the Gem Sickle and Tool Grinder, with Saw Gunning attachment. A necessity to every farmer. D. M. McMILLAN, Brandon, Man., sole agent for Manitoba and Eastern Assiniboia. -x-m

CANTON Scotch Clipper Plows Made with wood and steel beams in all sizes. Are the best general purpose plows in use. The mold, share and landside are made from the very best soft center steel, extra hardened. They are guaranteed to work perfectly, light draft and durable. Try one and you will be a friend to Canton Plows. Made by PARLIN & ORENGORFF CO., CANTON, ILLINOIS. JOHNSTON & STEWART, AGENTS, WINNIPEG, MAN.

NATIVE RYE GRASS. I have a quantity of choice Native Rye Grass (Lycopodium tenuifolium) seed for sale. F. E. WENMAN, Spruce Lawn Farm, Souris, Man.

Northern Pacific Ry.

Condensed Time Table from Winnipeg. MAIN LINE. Morris, Emerson, St. Paul, Chicago, Toronto, Montreal, Spokane, Tacoma, Victoria, San Francisco. Lv. Daily..... 1.45 p.m. Ar. Daily..... 1.05 p.m.

PORTAGE LA PRAIRIE BRANCH. Tues., Thur., Mon., Wed., Sat., Fri. 4:20 p. m. 4:20 p. m. Leaves Winnipeg. 6:25 " 5:56 " " Oakville. 7:20 " 6:30 " " Portage la Prairie. 8:25 " 7:15 " Arrives Beaver.

LAKE BRANCH. Mon. & Fri. 8:40 a. m. Leaves Portage la Prairie. 9:20 " Arrives Oakland. Mon. & Fri. 9:30 a. m. Leaves Oakland. 10:20 " Arrives Portage la Prairie.

MORRIS-BRANDON BRANCH. Morris, Roland, Miami, Baldur, Belmont, Wawanesa, Brandon. Also Souris River Branch, Belmont to Elgin. Lv. Mon., Wed. & Fri. 10.40 a.m. Ar. Tues., Thurs. & Sat. 4.40 p.m.

FOR FURTHER INFORMATION APPLY TO H. SWINFORD, Depot Building, Water St., Winnipeg, Man.

CANADIAN PACIFIC Ry.

If You INTEND SPENDING THE WINTER IN A Milder Climate

Write or call for particulars of rates, routes, etc., TO CALIFORNIA, HAWAIIAN ISLANDS, JAPAN, BERMUDA, and WEST INDIA ISLANDS, OR THE OLD COUNTRY. Reduced Rate Excursion Tickets.

Apply for particulars to any C. P. R. agent, or to C. E. McPHERSON, GEN. PASS. AGENT, WINNIPEG.

BEEMAN GRAIN CLEANERS ARE THE BEST. "JUNIOR" Our Great Successor Machine. It separates oats from wheat and all foul seeds, cleans flax, timothy, clover, clover hay, and all other crops. Prices are very low. Write for circulars. BEEMAN & CO., 2902 Pleasant Ave., Minneapolis, Minn.

STAY AT HOTEL LELAND The Leading Hotel of the West. ALL MODERN CONVENIENCES. RATES, \$2 to \$4 PER DAY. W. D. DOUGLAS, Prop., Winnipeg, Man.

FOR SEEDS 1900 KEITH & CO., WINNIPEG, MAN. Catalogues mailed on application. P. O. Box 333.

GOSSIP.

At a recent meeting of the Council of the Shorthorn Society of England it was resolved: "That in view of the increased trade in pedigree and show cattle, the Council desire to urge upon the various railway companies the necessity of increasing the number of special cattle vans for the conveyance by passenger trains of valuable breeding stock, and where not available, to permit such animals to be carried in horse-boxes at cattle van rates."

The special committee appointed to consider modifications in the present show system of the Royal Agricultural Society, last meeting of the Council reported, suggesting that the annual show should be held in a permanent situation after the termination of the present rotation of districts in 1902, preferably near some large town in the center of England. All ten members of the Committee signed the report, although Sir Jacob Wilson entered a reservation.

AN IMPORTANT AUCTION SALE OF AYRSHIRES. The executors of the late James Johnston, of Montreal, announce a dispersion sale of the well-known and up-to-date herd of Ayrshires kept at his farm at Como, Quebec, on March 11th. These cattle are richly bred, and selections from the herd made good records in the showing a few years ago. There ought to be good things in the sale worth looking after.

THE Very Best PLACE FOR THE FARMER'S SON TO SPEND THE WINTER MONTHS IS AT THE Winnipeg Business College.

WRITE FOR HANDSOME CATALOGUE (FREE). G. W. DONALD, SECRETARY.



The Good Enough Sulky Plow CAN NOT BE BEAT.

The Price will please you and its work will surprise you! Write for illustrated circular. It will pay you.

MINNESOTA MOLINE PLOW CO. H. F. Anderson, Agent, Winnipeg, Man. DR. BARNARDO'S HOME.

The managers of these institutions invite applications from farmers and others for boys and youths, who are being sent out periodically, after careful training in English homes. The older boys remain for a period of one year at the Farm Home at Russell, during which time they receive practical instruction in general farm work before being placed in situations. Boys from eleven to thirteen are placed from the distributing home in Winnipeg. Applications for younger boys should be addressed to the Resident Superintendent, 115 Pacific Avenue, Winnipeg, or P. O. Box 970; and for older boys, possessing experience in farm work, to Manager, Dr. Barnardo's Farm Home, Barnardo, Man.

THAT'S RIGHT! Read the Papers

and you will be surprised to learn that you have been paying too much money for your stationery. We have everything you want—Account Books, School Supplies, Municipal Forms, etc., and we'll do your printing neatly and cheap. Give us a trial order, or write for prices.

The FORD STATIONERY CO., One door north of P. O., P. O. Box 1273. 407 Main St., Winnipeg.

Seeds that Will Grow. Importers of northern-grown seeds, acknowledged to be the most suitable for Manitoba and N. W. T. We have the largest stock of field, garden and flower seeds ever collected together in this country to select from. Our large and handsome catalogue for 1900 sent free on receipt of name and address.

J. M. PERKINS, Seedsman, 221 Market Street, WINNIPEG, MAN.

Agents We have the authentic life of the great evangelist Moody. Large book, liberally illustrated. Great seller. Prospectus free. BRADLEY-CARRETSON CO., Limited, Brantford.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. Impossible to produce scur or blisters. Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. THE LAWRENCE-WILLIAMS CO., TORONTO, CAN.

For One Dollar I will teach any person to make their own Ointment and Condition Powders. This is no fraud. THOMAS ANGER, - COULEE, ASSA.

Estate of late James Johnston, Esq. IMPORTANT AUCTION SALE THE WELL-KNOWN HERD OF REGISTERED AYRSHIRE CATTLE (about 25 head)

belonging to the above-mentioned estate will be sold by public auction, by order of the executors, at "Robertland" Farm, COMO, QUE., on WEDNESDAY, 14th MARCH, 1900, at 12 o'clock, noon. Full particulars in catalogues, which may be had on application to the undersigned. WALTER M. KEARNS, AUCTIONEER, -OM MONTREAL, P. Q.

OAKLAWN FARM

as ever, greatly excels all other establishments in the quality and numbers of its PERCHERONS and FRENCH COACHERS ON HAND: 229 STALLIONS—234 MARES Home bred and imported, including a few CHOICE SHIRES

At the Illinois, Iowa and Michigan State Fairs of 1899, Oaklawn's exhibits in 22 stallion classes won 18 first prizes. Prices and terms reasonable.

DUNHAM, FLETCHER & COLEMAN WAYNE, DU PAGE CO., ILLINOIS.

FOR SALE AT REDUCED PRICES. 1 No. 7 Alexandra Cream Separator. 1 No. 1 Alexandra Cream Separator. 1 Springer Cream Separator. 2 Springer Cream Separator Bowls. 1 Iron Cheese Press. 1 Wooden Cheese Press. Address: BOX 524, LONDON.

Important to Breeders and Horsemen. Eureka Veterinary CAUSTIC BALSAM.

A reliable and speedy remedy for Curbs, Splints, Spavins, Sweeney, etc., etc., in Horses, and Lump Jaw in Cattle. See pamphlet which accompanies every bottle, giving scientific treatment in the various diseases. It can be used in every case of veterinary practice where stimulating applications and blisters are prescribed. It has no superior. Every bottle sold is guaranteed to give satisfaction. Price 75c. per bottle. Sold by all druggists. Guaranteed remedy for sterility in cows, with full instructions. Price, \$2. Prepared by THE EUREKA VETERINARY MEDICINE COMPANY, London, Ont. -om

Imported Shire Stallion FOR SALE.

A winner at two Toronto Spring Horse Shows; big ringer, good looker; good action, clean, flat bone; active, sure foal-getter, and all right. Just the sort to leave big, useful, sound stock. Address: JOHN SEMPLE, BOX 73. -om TOTTENHAM, ONT.

Shire Stallions IMPORTED AND CANADIAN-BRED, FOR SALE BY

Morris, Stone & Wellington, WELLAND P. O., ONT.

**GOSSIP.**

John Bell, Amber, Ont., advertises in this issue 15 Clydesdale stallions of different ages, imported and home-bred. Parties interested will do well to look up the advertisement and write Mr. Bell, or see the horses. The farm is only a short distance from Toronto.

**M'CORMACK'S AYRSHIRES AND BARRED ROCKS.**

Jas. McCormack & Son, Rockton, Ont., write:—In sending a change of advertisement, we might state that owing to the very dry season, pasture and water being scarce, our cattle went into winter quarters thinner than usual, but have done well since. We have four fine young bulls, ranging from 13 months to 3 years old, which we are offering at very low prices, quality considered. Our imported bull, Glenora Sultan, is growing into a fine bull, is of a fine type, and crossed on our Jock Morton and Neidpath Jock females should produce something good.

Our "National strain" Barred Plymouth Rocks have proved themselves the equal of anything that grows in the Rock line. At five of the leading shows this winter they never failed to win. At Guelph we won 3rd on cock, 1st and 3rd on hens; at Hamilton, 1st on cock, 2nd on hen, 2nd and 3rd on pullets, first pen; at Toronto, 1st on pullet; at Galt, 3rd on cock, 3rd on hen, 1st on pullet, and tied with four others for 2nd; at Brantford we won 2nd and 3rd on hens, 3rd and 3rd. Those prizes were won in the keenest competition with the leading fanciers of Ontario. All the birds we showed were owned by us, and all, with the exception of one cock and one hen, were of our own breeding. Any party buying either birds or eggs from us can depend on getting the same strain as our winners. We have a few fine cockerels left, which we are offering at right prices, and will have fine matings for this season's egg trade. Look up our advertisement.

**LAST CALL FOR THE BIRRELL SHORTHORN SALE.**

March 14th is the date of the dispersion sale of the entire herd of Shorthorns belonging to the estate of the late Mr. John E. Birrell, at Mosboro Station, G. T. R., 5 miles from Guelph, together with a selection of some 12 or 15 head from the herd of Mr. David Birrell, of Greenwood, from whom we have word stating that the cattle are a right nice lot, low down, thick and massive, and in really good condition, though they have had no special fitting, as the time for preparation has been so short, but are in the very best condition to buy. The breeding of the animals will commend them to all who know of the excellence of the long line of first-class imported bulls that have been used in the herd in the last 30 years. There are in the catalogue about 15 of the excellent Scotch Crimson Flower family, descended from Imp. Crimson Flower, by Refiner, bred at Kinellar, and imported by that expert judge, the late J. S. Thompson, of Whitby; a cow for which \$300 was refused at one time. This has been a very profitable family wherever they have gone, combining quality and character with good feeding capacities, and producing many prizewinners. There are 10 or 11 Minnies descended from Mara, a capital cow, bred by Hon. R. A. Alexander, of Woodburn, Ky., and purchased by Messrs. Birrell & Johnston, at one of Mr. Geo. Miller's sales, for \$345. This family has been noted for being generally heavy milkers and of fine breed character, and the long list of Scotch bulls used on them since coming to Canada have given them superior beefing qualities as well, so that they have been money-makers in many hands, and never better than now. There are three descendants of imp. Lady Florence 277, bred by Mr. Amos Cruickshank, of Siltlyton, and imported by Mr. J. S. Armstrong, of Speedside, Ont., who, it is said, paid \$200, or \$1,000, for her. There are two well-bred representatives of the famous old Ury tribe, the very oldest tribe at Kinellar, and from which has come many of the best Scotch cattle. There are also two members of the good old Lavinia family, a tribe that has produced many show animals, including the Toronto sweepstakes cow for two years in succession, "Ruby Vengarth." These are all under 2½ years old, except nine cows, and they are not old. The young bulls in the sale are said to be in prime condition and really good, low down, blocky fellows of true Scotch type, and include the imported 2-year-old Prince Cruickshank (75277).

Among the sires used in the building up of this herd have been Imp. Scotsman 2nd, bred by the Duke of Buccleugh, winner of 1st prize at the Provincial Exhibition; Imp. Lewis Arundel, 1st prize as a 2-year-old at Toronto, and sold for \$1,200 to go to the United States; Imp. Indian Chief (bred by A. Cruickshank), sire of many sweepstakes winners; Imp. Duke of Lavender, Imp. Warrior, and Imp. Clan Campbell, all bred at Kinellar. Warrior was 1st at Toronto once, and twice second, and was sold for \$800. With such foundation stock, and the use of such a class of bulls, it would be surprising if good cattle were not produced. Mosboro is convenient of access and the train service is good. There should be a large attendance of breeders and farmers at this sale. The winter will be well gone, and it seems like a favorable time to buy.

**Find Your Level.**

Are you waiting your time in a lowly position when you should occupy a higher one? If you are tired of your present position, and you want to sell for a better position without loss of prestige, write to us.

**Change Your Occupation.**

There is money to be made in Mechanical, Architectural, and Draughting, or Civil, Mechanical, or Electrical Engineering. Write to us for particulars.

The International Correspondence Schools, Box 3906, Scranton, Pa.

PLEASE MENTION FARMER'S ADVOCATE.

**Is the Best Too Good For You?**

If It Costs No More than What is Not the Best? There is but one answer possible, and if you will take the trouble to look it up you will find that

**The Ellwood Woven Wire Fences**

made of highest quality Bessemer spring steel wires, heavily galvanized, well woven, are the most durable, efficient, economical Fences, will last a lifetime and save you money. Get facts from our agent in your town, or failing to find our agent write to the manufacturers.

**American Steel and Wire Co.,**  
CHICAGO. NEW YORK. SAN FRANCISCO.

It will only take two minutes to read our **SPECIAL OFFER** for February and March Orders.

On any and all orders we receive from Breeders and Farmers during February and March we will allow 5 per cent. discount from our regular price, or in place thereof, pay the freight to your nearest railroad station. We will also accept bankable notes to run 3, 4, 6 or 8 months, in payment for Cookers, but we will not allow any discount or pay the freight on any time sales. We guarantee our Cooker to cook more feed and heat more water in less time and with less fuel and attention than any cooker made.

Take advantage of our Improved Reliable Food Cooker, special offer and get the Tank Heater and Steam Generator, one of the greatest feed savers, labor savers and money makers the feeder can possibly have. Cooks a barrel of ground feed in 30 minutes; 25 bushels of ground corn in 2 hour water in tanks 100 feet from Cooker. Used and recommended by feeders throughout the United States and Canada. Highest awards at Omaha Exposition in 1898, and at Toronto, Canada, and at Dallas, Texas, in 1899, and at State Fairs everywhere. Sold on a positive guarantee. Your money back if it does not come up to the contract. Send for 1900 Century Catalogues at the Chicago, St. Louis, and Cedar Rapids Poultry Shows in Jan., 1900. It has no flues to rust out or leak. No scorched feed if you use it. The best machine of any kind proves the cheapest in the end.

**RIPPLEY HARDWARE CO., Box 100, GRAFTON, ILL.**

**THORNCLIFFE Stock Farm**

The largest stud of Clydesdales in Canada, headed by the Champion Stallion of all ages,

**"LYON MACGREGOR."**

**Clydesdales FOR SALE.**

The largest stud of superior imported Clydesdales in Canada; 15 stallions of different ages, warranted pure, sound, and money-makers; inspection invited. Those horses are not got up for show purposes, they are fed and exercised with a view to usefulness.

**JOHN BELL,**  
Clydesdale Farm, Amber P. O., E. R. York, Ont.  
Agincourt Station, C. P. R. or G. T. R.  
Trains met by appointment.

**Clydesdale Stallion**  
3 YEARS OLD IN MAY.

Dark brown, choice quality, excellent action; imported sire and grandam. The Prince of Wales and Darnley cross. He is closely related to winners and champions. Early buyers will find prices right.

**JOHN CAMPBELL,**  
FAIRVIEW FARM, ON WOODVILLE, ONT.

**ROBYNNESS & SONS, HOWICK, QUE.**  
BREEDERS AND IMPORTERS OF

**Clydesdale Horses & Ayrshire Cattle**  
Specializing in the breeding of fowls for farmers.

**Shire Stallion (Imported)**  
FOR SALE.  
A very fine white stallion, over 1 year old, address JOHN WILSON, Leamington, Ont.

**ROSEDALE STOCK FARM.**  
Clyde and Shire Horses, Scotch Shorthorns, Leicester Sheep.

One Imp. Clyde stallion, rising three years old, weighs 1,875 lbs., and is as good as he is heavy; also a Canadian-bred Shire colt, 1 year old. A few choice young bulls, 11 and 12 months old. The Duthie bull, Prime Minister, heads our herd. Can furnish a carload of young bulls at reasonable figures. My motto, "The best is none too good."

**J. M. GARDHOUSE, Highfield P. O., Malton, G. T. R.**

**JOHN DRYDEN,**  
BROOKLIN, ONTARIO,  
BREEDER OF  
**Scotch Shorthorns,**  
—AND—  
**Choice Shropshire Sheep.**

**ARTHUR JOHNSTON**  
Greenwood P. O. and Telegraph Office,

**SHORTHORNS**

I have six young females for sale—three are in calf and three old enough to be bred. These heifers have four or more crosses of the finest Booth sires, on imported Marr and Gordon Castle foundation, a desirable and needed line of breeding.

—om D. ALEXANDER, Bridgen, Ont.

**HAWTHORN HERD OF DEEP-MILKING SHORTHORNS.**  
We are offering 5 young bulls for sale, of first-class quality, and AI breeding. —om Wm. Grainger & Son, - Londesboro, Ont.

**SCOTCH SHORTHORN BULLS AND HEIFERS**  
HERD ESTABLISHED IN 1872.  
Such sires as imported Royal George and imported Warfare have put us where we are. Imported Blue Ribbon now heads herd.

**A. & D. BROWN,**  
ELGIN COUNTY, —om IONA, ONTARIO.

**W. D. FLATT,**  
Hamilton, Ontario, Can.,  
Importer and breeder of

**Shorthorn Cattle.**

**GOLDEN FARM (IMP.)—26056—(72610).**  
My herd is one of the largest in America, both imported and Canadian-bred. A very choice selection of both sexes always on hand for sale. Personal inspection invited. Address all communications: **JAMES SMITH, Mgr., Millgrove, Ont.**  
R. R. Station and Telegraph, Hamilton, on main line Grand Trunk RR. —om

**Hillhurst Farm.**  
ESTABLISHED 1864.

**Scotch Shorthorns.**  
SIRE IN SERVICE:  
**Scottish Hero and Joy of Morning.**  
BRED BY W. DUTHIE, COLLYNIE.  
Oldest Stud of Hackneys in America. Shropshire, Dorset Horn and Hampshire Down Sheep. —om

**M. H. COCHRANE,**  
Hillhurst Station, Compton Co., P. Q.  
1833 —om 1900

**WM. LINTON**  
Aurora, Ont.

Telegraph and telephone. Trolley car passes the farm every hour from Toronto and return.  
Can furnish a carload of first-class Shorthorn bulls, from 11 months to 2 years, at lowest living prices. —om

**ARTHUR JOHNSTON**  
Greenwood P. O. and Telegraph Office,

**SHORTHORNS**

OFFERS FOR SALE, AT MODERATE PRICES,  
**13 IMPORTED AND HOME-BRED SHORTHORN BULLS**  
**17 IMPORTED COWS and HEIFERS**  
**22 HOME-BRED COWS and HEIFERS**  
Many of them from imported cows, and by imported bulls. Catalogues on application.  
Claremont Station, C. P. R., —om or Pickering Station, G. T. R.

Scotch Shorthorns FOR SALE.

100 head to select from: 15 grand young bulls by Valkyrie =21806=, and cows and heifers of all ages, of the most approved breeding, served by (imp.) Diamond Jubilee =28861=, now at the head of our herd. T. DOUGLAS & SONS, Strathroy Station and P. O. Farm 1 mile north of the town.



SHORTHORN CATTLE AND LINCOLN SHEEP.

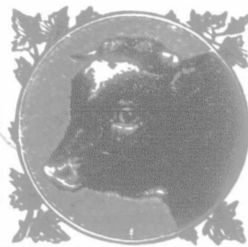
Imp. The Baron at head of herd. Seven young bulls for sale—good ones. Also a few females. Stud rams all imported from H. Dudding, Esq.; the same blood as the 1000-guinea ram.

J. T. GIBSON,

DENFIELD, ONT.

SPRING GROVE STOCK FARM

Shorthorn Cattle and Lincoln Sheep. Herd prize and sweepstake at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by Topsman =17347=, champion at Winnipeg, Toronto, London and Ottawa, 1899. High-class Shorthorns of all ages for sale. Also prizewinning Lincolns. Apply



T. E. ROBSON, Ilderton, Ont.

John Miller & Sons,

BROUGHAM P. O. and TELEGRAPH OFFICE. OFFER FOR SALE....

4 Imported Clydesdale Stallions. 10 Scotch-bred Shorthorn Bulls. ... PRICES REASONABLE.

Claremont Stn., Pickering Stn., C.P.R. G.T.R.

Correspondence Invited.

SCOTCH SHORTHORNS.

About 10 head cows and heifers in calf to Golden Stamp (21330). Also 5 nice young bulls.

Shore Brothers,

White Oak, Ont.

SPRINGBANK FARM.

Shorthorn Cattle, Oxford Sheep, and Bronze Turkeys. Young bulls for sale. JAS. TOLTON, WALKERTON, ONT.

25-Shorthorn Bulls-25

From 6 to 18 months. Also a limited number of females, among which are grand, thick-fleshed and choicely bred animals, mostly solid red colors. Speak quick, for they will not last long. G. A. BRODIE, BETHESDA, ONT.

STOUFFVILLE STATION, G. T. R.

SHORTHORNS and BERKSHIRES.

Choice young bulls and heifers for sale. Also Berkshire pigs of the most approved breeding. Meadowvale Station, C. P. R. S. J. PEARSON & SON, Meadowvale, Ont.

BONNIE BURN STOCK FARM

Forty rods north of Stouffville Station, has for sale three excellent young Shorthorn Bulls, yearling and two-year-old Heifers in calf. Shropshire Lambs, both sexes; also Berkshires. At very moderate prices. D. H. RUSSELL, Stouffville, Ont.

Clover Leaf Lodge HERD OF Shorthorns

A number of choice young bulls, heifers and cows, excellent milking strains. Correspondence invited. R. CORLEY, Belgrave P. O., Ont., and G. T. R.; Wingham, C. P. R.

SHORTHORNS

Choice bulls ready for service, by Scottish Chief =27244=, by Scottish Pride (imp.). Dam Fane's Gem, by Guardsman (imp.).

BERKSHIRES.

Modern type, well-bred boars and sows, all ages. ALEXANDER LOVE, EAGLE, ELGIN CO., ONT.

R. & S. NICHOLSON

SYLVAN P. O., PARKHILL STATION.

Scotch Shorthorns, imp. and home-bred.

The Imp. Clipper bull, Chief of Stars, heads the herd. Eight extra good 2-year-old heifers for sale, in calf to Chief of Stars (72215). Inspection invited.

2 Thoroughbred Hereford Bulls for sale—1 and 2 years old. W. R. COLEMAN, "Oakdale Farm," Cookstown P. O., Ont.

THE FARMER'S ADVOCATE. HIGH-CLASSED Auction Sale of Thoroughbred Shorthorn Cattle AND COTSWOLD SHEEP.

The following registered Shorthorns will be sold on the farm of FITZGERALD BROS., Mount St. Louis P. O., Simcoe Co., Ont., on

WEDNESDAY, MARCH 7, 1900:

19 Cows and Heifers. Those of breeding age, bred to Imp. British Statesman (63729) - 30833 - 7 Export Steers and 4 Beef Heifers. 15 young Bulls ready for service, and 16 Ewe Lambs. The above cattle are of the highest quality of improved Scotch breeding. Catalogues will be furnished on application.

Trains will be met on day of sale at Coldwater and Phepston on G. T. R. Sale starts at 2 o'clock p. m. TERMS - Nine months' credit will be given on furnishing approved joint notes. 6% per annum discount for cash. Hillsdale Telegraph Office.

Auction Sale of Shorthorn Cattle On TUESDAY, MARCH 13th, 1900,

19 head registered Shorthorns, 11 Females and 8 Bulls, including a three-year-old Cruickshank bull, bred by Mr. John I. Hobson, Mosboro, sired by War Eagle (a Toronto sweepstakes winner). The cows are in healthy breeding condition, are good milkers, from good milking strain, and have calves at foot, and good sound pedigrees with top crosses of Scotch-bred bulls. All will be sold without reserve, the proprietor having sold his farm. Sale to commence at 12 o'clock. Terms of sale, eight months credit on approved joint notes, 6 per cent. per annum off for cash. Teams will meet trains at Acton, G. T. R., morning of sale. Catalogues will be sent on application to

THOS. INGRAM, AUCTIONEER. MICHAEL LAMB, ACTON P. O., ONT.

IMPORTANT AUCTION SALE OF Scotch-bred Shorthorn Cattle

RELONGING TO THE ESTATE OF THE LATE MR. JOHN E. BIRRELL, 5 MILES FROM GUELPH, ONT. AT MOSBORO STATION, G.T.R. On Wednesday, March 14, 1900.

37 HEAD HIGH-CLASS SHORTHORNS 25 FEMALES AND 12 YOUNG BULLS.

Including the imported two-year-old Prince Cruickshank (75277). The sale will also include all the farm horses, grade cattle, store pigs, farm implements, hay, seed grain, and roots on the farm, and will be without reserve. The farm will also be offered, consisting of 170 acres, and is the valuable and well-equipped Holson homestead. Terms made known at time of sale. Catalogues will be ready about February 20th, and will be mailed on application to

THOS. INGRAM, Auctioneer, GUELPH, ONT. DAVID BIRRELL, GREENWOOD, ONT.

20 - Imported Scotch Shorthorns - 20

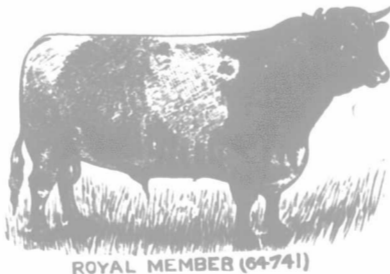
2 BULLS, 1 and 2 YEARS OLD; 14 HEIFERS, 2 YEARS OLD; 4 YEARLING HEIFERS.

THIS importation came out of quarantine on the 12th July, and representatives of many of the leading Scotch families are amongst them, including Minas, Brawith Buds, Secrets, Mysies, Beauties, Lady Mays, Lustres, etc. The home-bred herd contains Indian Statesman =23004=, and 15 young bulls from 6 to 18 months old, and 50 cows and heifers of all ages. Registered Shropshires, yearling rams and ewes, ram lambs from imp. Flashlight. Any of the above will be sold at reasonable prices. Correspondence or a personal visit solicited. Catalogues on application.

Burlington Junction Station and Telegraph Office, G. T. R., within half a mile of farm. W. G. PETTIT & SON, FREEMAN, ONT.

10 Imported Shorthorn Bulls ALL SCOTCH.

21 IMPORTED HEIFERS. ALL SCOTCH. 21 IMPORTED HEIFERS. ALL SCOTCH. ROYAL MEMBER (64741)



Heifers all in calf to imported bulls. Also a number of first-class home-bred animals of either sex. The oldest home-bred bull we have was calved in April last. Correspondence or a personal visit solicited. Catalogues on application.

H. CARGILL & SON, CARGILL, ONT. Cargill Station and Post Office on G. T. R., within half a mile of barns.

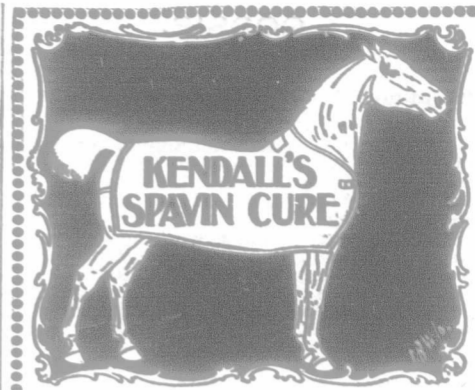
SHORTHORN BULLS AND HEIFERS Maple Lodge Stock Farm

ESTABLISHED 1854.

SHORTHORNS.—Exceptionally good young bulls by Cathness =22065= and Abbotsford =19446=. And choice heifers in calf to Abbotsford and our grand young imported bull, Knuckle Duster (72573). We have the best milking strains. LEICESTERS. The very best imported and home-bred rams and ewes for sale. Write us for prices.

Exeter Station, G. T. R., half mile from farm. H. SMITH, HAY, ONT.

PLEASE MENTION FARMER'S ADVOCATE. ALEX. W. SMITH, MAPLE LODGE P. O., ONT.



WORTH \$50 A BOTTLE To This Man.

It may be worth a like sum or even more to you.... Fingal, Barnes Co., N. D., March 19, 1898. Dear Sirs:—I have used your Kendall's Spavin Cure and think it a good Liniment. I have cured a Spavin on my best mare, and I would not take \$125 for her, which I offered for \$75 before. I will be pleased to have your book and receipts for this enclosed stamp, as I read on the carton. FRANK SMITH, Hartington, P. O., Ontario, Mar. 6, '98.

Dr. B. J. Kendall Co. Dear Sirs:—Enclosed please find a two-cent stamp for your valuable Horse Book. I had one but it is lost. I have used your Kendall's Spavin Cure without one failure in years, and consider it the best Liniment for man or beast in the market. Please send me the book as you advertise it on bottle, for horse. GEORGE BROWN. It is an absolutely reliable remedy for Spavins, Splints, Curbs, Ringbones, etc. It removes the humor and leaves no scar. Price, \$1; six for \$5. As a Liniment for family use it has no equal. Ask your druggist for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," the book free, or address

DR. B. J. KENDALL CO., ENOSBURG FALLS, VT.

River Bow Stock Farm. B. SNARY & SONS, CROTON, ONT.,

Breeders of Shorthorn Cattle, Poland-China and Chester White Swine. We offer for sale three good fleshy young bulls; a number of cows and heifers; six Poland China and Chester White boars; twenty Buff and Barred Plymouth Rock cockerels. Prices moderate.

40 Herefords Bulls, Cows, and Heifers, for immediate sale.

Alfred Stone, 5 Douglas St., GUELPH, ONT.

Ingleside Herefords CHAMPION HERD OF CANADA.

75 head of Herefords of show-yard character, headed by the champion bull, MARK HANNA (74230). This herd is rich in the blood of "Corrector," "Ancient Briton" and "Rupert," on an "Anxiety" foundation. Send for illustrated catalogue.

TAMWORTH SWINE. Bacon type, high quality, low prices. H. D. SMITH, COMPTON, QUE.

F. W. STONE ESTATE, GUELPH, ONTARIO.

The first Hereford herd established in Canada by importations in 1850 of the best prizewinners of England, followed by repeated further importations, including winners of first prize at Royal Agricultural Show. Choice young Hereford Bulls for sale. Also McDougall's Sheep Dip and Cattle Wash, fresh imported, non-poisonous and reliable; thoroughly tested by over forty years' use on farms of above estate.

Aberdeen - Angus.

Five bulls, 9 to 19 months, registered in American H. B. Descended from "Logie the Laird," 3rd champion of both Highland and Royal Northern Shows, Scotland. Kyma (Imp.), by O. A. C., first-prize at Royal Northern, Aberdeen. Emlyn (Imp.), and Jus (Imp.), by O. A. C. Drafts from this herd won medals, numerous first and other prizes at Toronto, Ottawa, Quebec, Montreal, London, and Guelph and Provincial Fat Stock Shows in the last three years.

JAS. SHARP, ROCKSIDE, ONTARIO.

8 SHORTHORN BULLS 8 From 8 to 19 Months.

Thick-fleshed reds and roans, out of Bates-bred Scotch-topped dams, and by Lord Stanley 4th, twice a winner at Toronto. Registered Yorkshires later. G. & W. GIER, Grand Valley, Ont.

FOR SALE: TWO CHOICE SHORTHORN BULLS. GAVIN BARBOUR, Crosshill, Ont.

PLEASE MENTION FARMER'S ADVOCATE.

GOSSIP.

In writing to advertisers, mention the "Farmer's Advocate."

MR. DUDDING'S SHORTHORNS AND LINCOLNS AT RIBY GROVE.

One of the most important annual home sales of stock which take place in England is that which Mr. Henry Dudding holds at his home farm at Riby Grove, near Great Grimsby, Lincolnshire, England. Recently a respite from close attendance at office work became necessary, and a cordial invitation from Mr. Dudding having been received, the writer journeyed to the home from whence the thousand-guinea ram was sent, and also where, a decade or so ago, the late Mr. Torr's grand herd of Shorthorns roamed and grazed. A thorough English welcome was found on arrival, as all who go to Riby always find. Mr. Dudding's holding is upwards of 3,000 acres, and his herd of Shorthorns exceeds 300 head, with a registered flock of 1,400 ewes of Lincoln Longwool sheep. A grand holding this is, and one whereupon one can see a herd and a flock unsurpassed for purity of breeding and excellence of quality in any country. The herd is certainly not so well known as it ought to be. Very probably from the unparalleled success of the flock the herd has in a measure escaped notice, but from the fact that at its annual sale last year its 15 bulls averaged over \$500, and one of them made the highest price of any bull sold by auction in England last year, it is evident that the right sort are kept and bred here.

Canadian Shorthorn breeders are great admirers of Scotch blood, and they go to Scotland for it, and have to pay accordingly. Equally good blood as this, and Scotch as well, as will be seen from the following pedigrees, can be got at Riby. Let your breeders go there first and the journey to Scotland will not be undertaken to buy bulls.

The following are some of the principal stud bulls and other young bulls now in the herd: Pride of Fortune 73240, bred by Duthie, by Pride of the Morning 64546, dam Flora 92nd, bred by Duthie, by that noted bull, William of Orange 50694.

Prince of Perth 73306, bred by Mr. Vickers, by Administrator, dam Bertha, by Golden King, a prizewinner at last year's shows. Dows, by Waterloo Duke, bred by Mr. S. J. Webb, a noted winner, and out of a noted strain of blood by Lord Chesterfield.

Prompter 69255, by Prefex, born '97, dam Rissington Lass, by Empire, a champion winner in 1890, and full of the best strains of Garmes' old Gloucestershire blood.

Golden Robin 68718 (97), bred by J. D. Willis, sire Roan Robin 57892, dam Golden Sunshine by Royal Junus 54972. This bull was used by Mr. E. Acroyd with most satisfactory results, and he has been equally successful at Riby, besides securing very prominent notice in the show-yards.

Rosario is one of the grandest bulls in service, and his pedigree and ancestry is such that this should be the case. Himself a prizewinner, he is by Wiltshire Count (Deane Willis), who won 16 firsts, 10 seconds; out of that unique cow, G. Harrison's Rose Blossom, who won 35 first prizes and 19 second prizes, the aggregate for son, sire and dam being 84 prizes. It may be mentioned this bull is getting a grand lot of calves. Shanghai, a grand Scotch bull, from Wilson of Friesmill, by Granite City 70570, out of Sunflower 10th, whose sire, Coldstream, was one of the most noted Scotch bulls. Dairyman, a grand, dark red bull, first at Lincoln in 1889, by Shylock 71590, out of Dairy Maid 2nd, by Lord Harry, another descendant of Garmes' old blood. Royal Tathwill, by Scottish Royal 65566, Golden Chief, by Golden Robin, a pair of very handsome bulls, the latter going back to Bates' Wild Eyes, a noted family. Charming Duke, by Unicorn 69735, out of Sylvan Charmer 20th, by Cambridge Duke 26th. This Charmer family is a noted milking strain. Victoria's Cup, bred by D. Fisher, of Piltchry, by Christmas Cup 70155, out of Fernflower, by Major 59419. Marchmount, a deep roan, bred by C. M. Cameron, by Fortune 7667, dam Marchioness 15th, by Merlin, whose full sister, Marchioness 16th, took first and champion prizes in 1885 in strong Scotch classes, and stood R. N. to the Queen's heifer, Frederica, when the latter won first and champion at Smithfield in 1888; and several other very excellent young bulls of the highest breeding quality.

A grand old Cruickshank cow, Jessie 1th, by Royal James, was easily noticed; her produce has been and are first-class winners in good and strong classes. Then, we noticed Superior Blossom, another grand heifer by Lord Douglas. Another grand heifer, Lady 21st, highest priced female at the Scotch sales, 1889, by Idol, out of Lady 7th, by Merlin, is of exceptional merit, having won first at the Black Island Show as one of a pair last autumn, her dam having bred for three successive years prizewinning bulls at the Inverness Show and sales in 1885, '86, and '87. Twin Princess 9th, by Idol 68701, dam Twin Princess 7th, by Lord Violet 56103. This cow was dam of Tip Top 68704, 1st champion at Inverness in 1886, and who was sire of Merlin, who sold for \$1,000 in the Argentine. Jill 2nd, bred by McWilliams, by Spice Box 63402, out of Jill 1st, who traces back to Gravesend 16191, a very noted Cruickshank bull. A yearling heifer, Jewel, by Pride of Fortune, out of this cow, is one of the most promising in the herd. The females are, in fact, typical and characteristic representatives of the best lines of Booth, Bates, Cruickshank, and Garmes blood. A judicious combination has been made, and the young bulls and heifers, which space does not permit us to notice, are as good as can be found elsewhere, and there cannot be the slightest doubt but that all who are desirous to obtain leading specimens of the best lines of Scotch horn blood can do so at Riby, and they can, if desired, purchase subject to passing the tuberculin test, an advantage all breeders will not allow.

There is no space to note the Lincoln flock; this must be left over for another time. Suffice it, therefore, to say that it never was in better condition than at this present time. The demands upon its resources are larger than ever, new customers come and old ones remain; thus, the competition is keener than ever. All who can should attend the annual sale, where the reserved portion of the yearling rams and a grand lot of young heifers and bulls, will be offered for sale without reserve on July 21, 1900. All are welcome, and every assistance will be rendered to all buyers.

The Largest Herd of Ayrshires in America. The Largest Herd of Guernseys in Canada.



HEADQUARTERS for UP-TO-DATE STOCK

Those desirous of purchasing fine breeding animals should communicate with us for present and future deliveries; full particulars and information cheerfully given. If not sold can dispose of two choice Ayrshire bulls, about 12 months, sired by "Matchless." One Ayrshire bull, prizewinner at Toronto and Ottawa, rising 2 years. One splendid stock bull, 3 years.

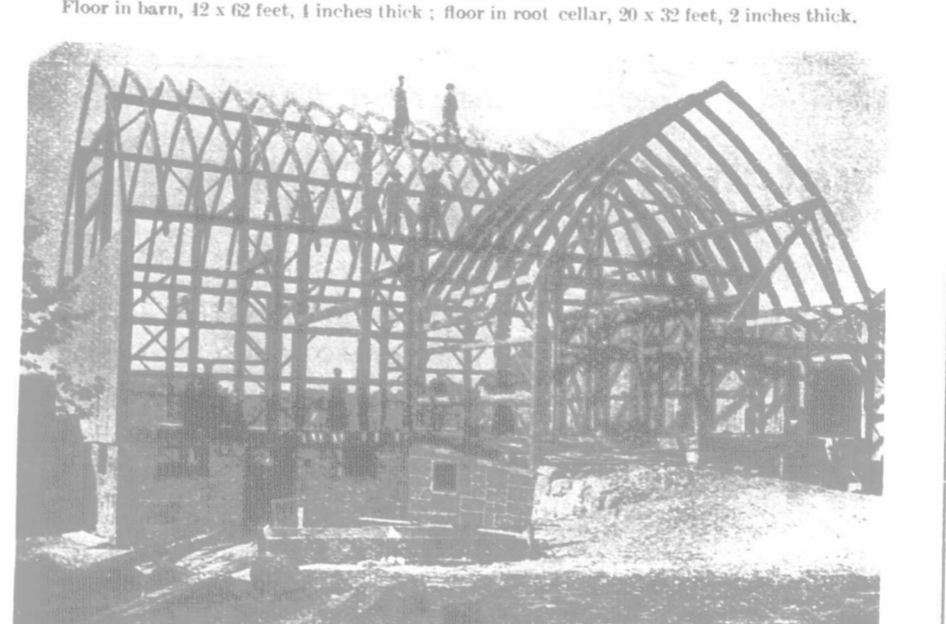
ISALEIGH GRANGE FARM, Danville, Quebec. J. N. GREENSHIELDS, PROP. T. D. McCALLUM, MGR.

FLOORS FOR HORSES AND CATTLE

WERE PUT IN THIS BARN OF MR. G. W. KEAYS, HYDE PARK (NEAR LONDON), ONT., WITH

Battle's Thorold Cement.

Floor in barn, 42 x 62 feet, 1 inches thick; floor in root cellar, 20 x 32 feet, 2 inches thick.



Read what Mr. Keays has to say about his Floors and Thorold Cement:

TO THE ESTATE OF JOHN BATTLE, Mfrs. of Thorold Cement, Thorold, Ont. HYDE PARK, ONT., DEC. 3, 1899. Dear Sirs,—Having built a barn 42 x 62, with root cellar in connection 20 x 32, I used for the stable floors, which are four inches thick, and the root-cellar floor, which is two inches thick, 40 barrels of your Thorold Cement. I can truthfully say that the floors are giving complete satisfaction in every way. I regard them as far ahead of plank, brick or stone floors, and much cheaper. I can highly recommend you to travellers, Marcus Ware, who laid my floors. He is a first-class workman.

Estate of John Battle, Thorold, Ontario.

Paints

House, Barn, Roof, Bridge, Wagon, Implement, Coach. Paints Ready for Use.

Varnishes

for Carriages, Implements, Wagons. Interior and Exterior Finish.

WHEN PURCHASING PAINTS OR VARNISHES, SEE THAT THE PACKAGES BEAR THE NAME OF

The Canada Paint Co., Ltd., MONTREAL AND TORONTO.

\$200 Do you want a Snap? Now is your Chance. \$200 One good Jersey cow, 7 years old; one good Jersey heifer, 3 years old; and one bull, 3 years old; or, if preferred, a good yearling bull. All registered in the A. J. C. C. Both cows due to calve soon can call to Handsome Rioter, one of Mrs. E. M. Jones' best bulls. All for the low price of \$200 (if taken before cross drop their price will rise at least one or two dollars more). Also young Jersey bulls, and choice choice Jersey grade heifers, at reasonable prices.

Jersey Cattle MONEY IN YOUR POCKET. Mrs. E. M. Jones, Box 324, BROCKVILLE, ONT., CAN.

GLEN ROUGE JERSEYS.

WILLIAM ROLPH, Markham, Ont., offers twelve Jersey Bulls and Heifers (pure St. Lamberts), out of tested cows. Grand individuals. Prices right.

BRAMPTON JERSEY HERD.

Brampton's Monarch (imported), Canada's champion bull, 1888, heads 75 head, which numbers 75 head. Now for sale, high-class cows and heifers in calf, heifer calves, and 6 extra choice young bulls, sired by Monarch, the best we ever saw. They are from tested show cows. A few high-grade springers.

B. H. BULL & SON, BRAMPTON, ONT.

FOR SALE: Entire Herd of Jerseys, 17 Head

St. Lambert Strain. Good opportunity for purchasers. ROCK BAILEY, Union.

Maple Glen Stock Farm.

Special Offer. For immediate sale, 10 choice females of rich breeding. Some are prize winners, "test" winners; others bred to bulls of rich merit, ranging in age from one to eight years old. Also a bull one year past, and a couple of Sylvia DeKol August bull calves. C. J. Gilroy & Son, Glen Buell, Ont. Brockville, on C. P. R. or G. T. R.

3 Holstein-Friesian Yearling Bulls FOR SALE.

Prices right. Apply to WILLIAM SUHRING, Sebringville, Ont.

SOUTH SIDE FARM CO., White Bear, Minn.

Have fine butter-bred Holstein Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

MAPLE HILL HOLSTEIN-FRIESIANS

Three Yearling Heifers, sired by Colanthus Abbecker 2nd, and in calf to Daisy Teake's King (brother to Daisy Meake's Queen, the great test and show cow). Three Bull Calves, sired by De Kol 2nd's Paul De Kol Duke, the great butter-bred bull; dams, the fine show cows, Lady Akkrum 2nd, Cornelia Artis, and Madge Merton.

G. W. CLEMONS, St. George, Ont.

OH, YES! We sell Holsteins, singly or a carload. For sale now—7 bulls, over 1 year; 7 calves, over 1 month; 15 females, any are desired, bred to any one of our great bulls, Calamity Jane's Paul, Homestead Albino De Kol, Count Calamity Clay, three of the greatest bulls in America. State just what you want.

The Big 4 at Brookside

THEIR HOLSTEINS: Netherland Hengerveld, Official test, 26.66 lbs. DeKol 2nd, " " 26.57 " Belle Korndyke, " " 25.77 " Helena Burke, " " 25.45 " We want to sell 40 cows and heifers, and 20 young bulls, bred in the lines above mentioned. Write, stating exactly what you want.

HICKORY HILL AYRSHIRES.

A few choice dairy bulls for sale, or will exchange for first-class fresh milk cows, if taken at once. N. DYMENT, Clappison's Corners, Ont. Hamilton Station.

AYRSHIRES FOR SALE.

The kind that can speak for themselves. Size, constitution, dairy and show combined. Six young bulls for sale, by Glencairn 3rd (imp.), dam Primrose (imp.). Five from Napoleon of Anchenbrain (imp.). Their dams are all Glencairn heifers. Five of their dams were shown last fall at Toronto, London, and Ottawa. Also a few good cows. No culls sold.

JAMES BODEN, TREDINNOCK FARM, STE. ANNE DE BELLEVUE, QUE.

Ayrshire Bull Calves of 1899

3 YET on hand, and more to come within the next month, from some of our best imported cows. Will sell at reasonable prices. Address: ROBT. HUNTER, Manager to W. W. Ogilvie, LACHINE RAPIDS, QUE.

Maple Cliff Dairy and Stock Farm

Ayrshires and Tamworths for Sale: 1 yearling and 5 fall calves, and a number of heifers. Five Tamworth boars, fit for service, and 40 fall pigs.

R. Reid & Co., Hintonburg, Ontario.

BARRED PLYMOUTH ROCKS.

\$30 silver cup and gold medal winners at the "Ontario," Peterboro, 1900. More prizes than any four breeders at Toronto, London and Ottawa Fairs, 1899. Blood will tell.

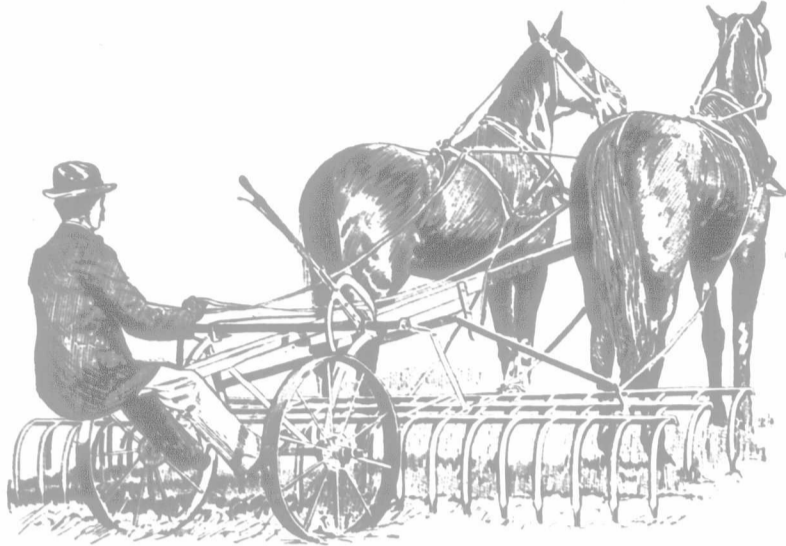
EGGS \$2.00 and \$3.00 per 15. \$3.50 and \$5.00 per 30.

ASKIN POULTRY YARDS, London. GEO. W. MILLER, PROP.



# HALLOCK'S Success <sup>Anti-Clog</sup> WEEDER and Cultivator

THE BEST CULTIVATOR IN THE WORLD -- SO DECLARED BY FARMERS WHO HAVE TESTED IT.



READ WHAT A FEW OF THEM SAY:

Carleton, Neb., Jan. 8, 1900.  
Dear Sirs,—I bought one of your weeders last spring, a 12-foot rider. I think it is one of the best tools I have. I went over 40 acres of wheat, and I am convinced that it increased the yield from three to five bushels per acre. I am well pleased with it. I let one of my neighbors have it to use on his corn, and he likes it very much indeed; thought he would buy one for himself next season. Kindly send me some circulars, and I will see what I can do.  
Yours truly,  
L. H. WATERMAN.  
Comments: Cultivated 40 acres of wheat. Increased the yield three bushels per acre at the least; this would be 120 bushels. Even at 50 cents a bushel, the weeder made for him \$60 the first season—more than twice the price of it.

Deloraine, Manitoba, July 15, 1899.  
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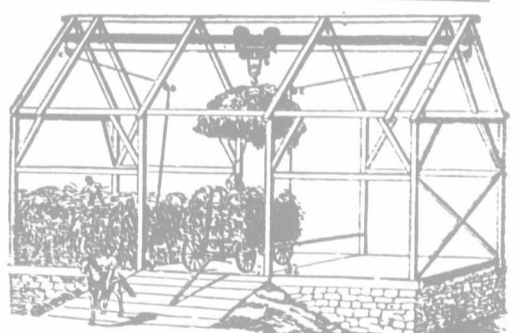
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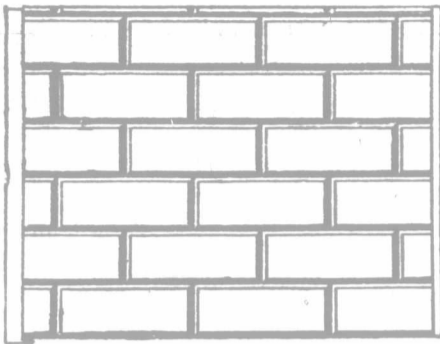
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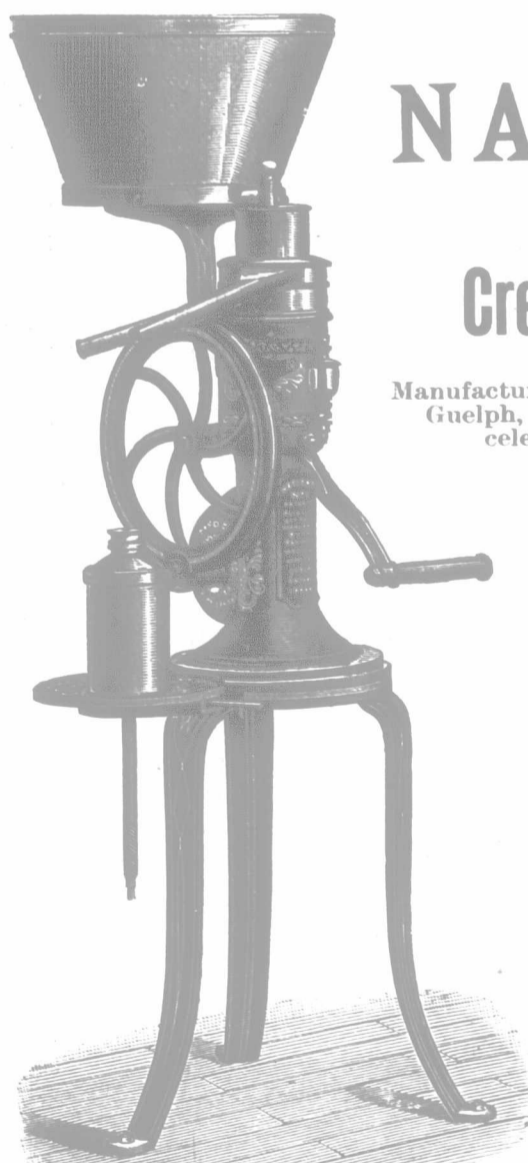
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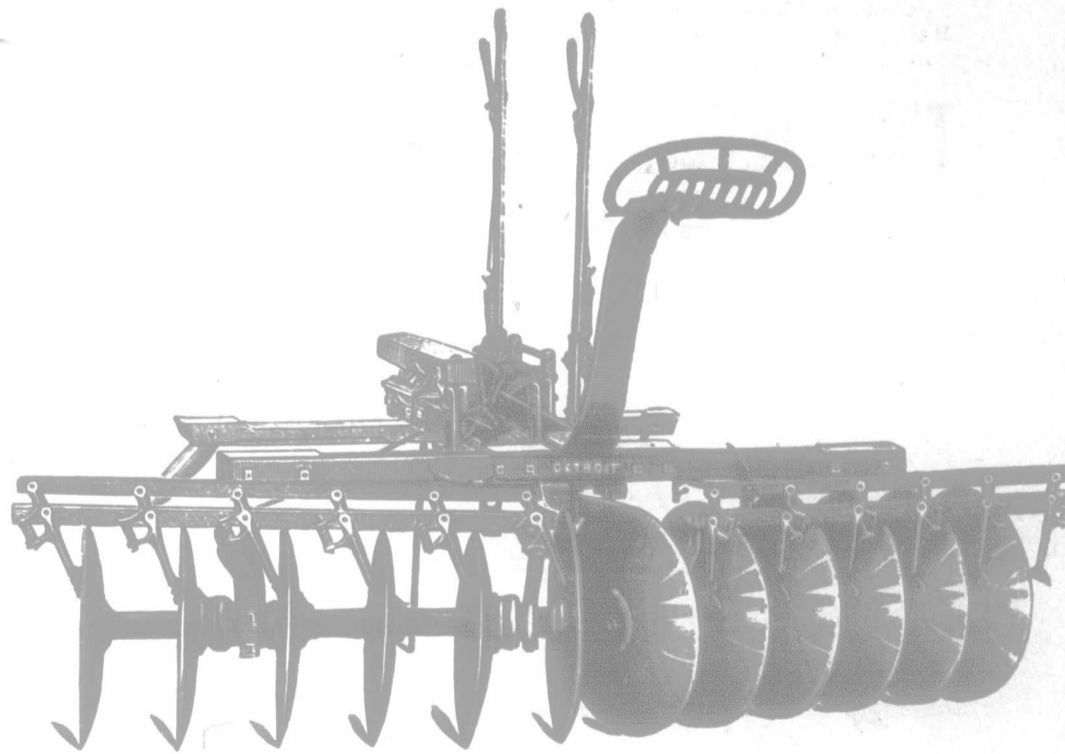
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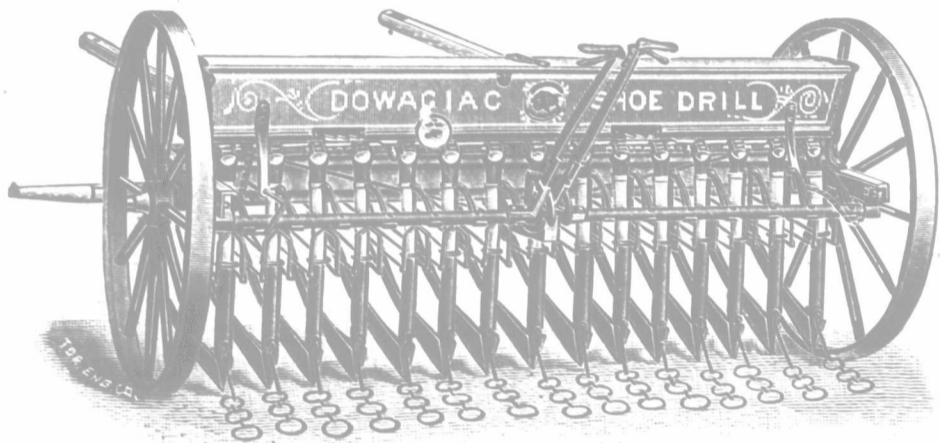
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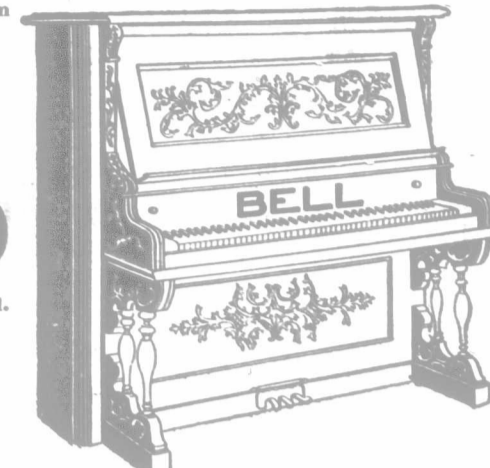
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