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# THE FARMER'S ADVOCATE

AND HOME MAGAZINE

PERSEVERE AND SUCCEED

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

J. H. Grisdale  
Exp. Farm. Dec 15, 00

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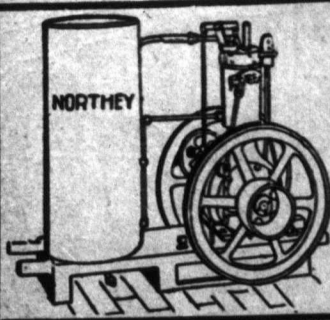


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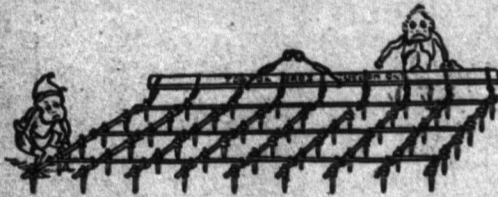


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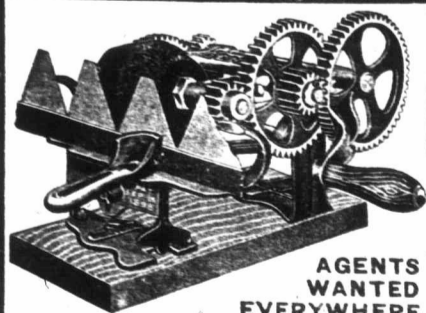
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VOL. XXXV.

LONDON, ONT., AND WINNIPEG, MAN., MARCH 1, 1900.

No. 497

## EDITORIAL.

### 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 tuberculine 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, one 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.

### "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.

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.

THE LEADING AGRICULTURAL JOURNAL IN  
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### Township Fairs.

The discussion of this subject, amongst others, at the annual meeting of the South Brant Agricultural Society, in which Hon. John Dryden, Minister of Agriculture, took a leading part, has brought again before the public a question which has for years been seeking a solution. In the Province of Ontario, under the present law, every Electoral District and every Township in each district which has organized an Agricultural Society is entitled, on compliance with certain easy conditions, to a share of the Government grant to agriculture, amounting last year to \$76,000, for the assistance of the societies in holding fairs and the payment of prizes. It has been urged in some quarters that under these conditions the fair business is overdone; that too many are crowded into the only two months in the year in which it is practicable to hold them; that too much of the time of too many people is taken up with fairs, to the neglect of other important work; and that many of the smaller shows, both District and Township, are badly managed, weak, and unsuccessful. While the latter statement is undoubtedly true, we are not sure that the other counts in the indictment are regarded by the majority of the people as well founded. If they are, and a reduction of the number of fairs is considered necessary, the next question which arises is whether it would be better to drop the Township fairs, or whether the District shows should go and the local organizations be strengthened? We confess to a feeling of sympathy with the Township fair. Many of these are well managed, and are quite as successful as most of the District shows. They have, where well managed, exerted a helpful influence in stimulating the farmers to improve their stock and other products of the farm, and afforded a pleasant holiday to many who do not enjoy the larger exhibitions. If the idea of the union of smaller shows could be expanded, and the number reduced in this way, it would doubtless be an improvement. This has been successfully accomplished in some

counties, the added financial strength enabling their promoters to erect substantial permanent buildings and beautify and improve their grounds. The Minister of Agriculture is reported to have expressed the opinion at the Brantford meeting that the people would finally be educated to the fact that it was to their interest to concentrate and combine in one big county fair, but in the meantime it is evidently too much to expect that in many cases the people of the townships would consent to giving up their local shows. The question has been raised whether it would be an improvement if the competition for prizes at Township fairs were limited to residents of the municipality. This might have the effect of inducing a larger number of farmers to improve their stock and enter the competition for prizes, a result which, if realized, would be an improvement; but, on the other hand, the falling off in the quality of exhibits at the beginning might in many cases affect the attendance to such an extent as to lead to financial failure. This might be modified to some extent by leaving the show open for a time to outsiders, but restricting them to one entry in each section in the prize list, and offering three or more prizes. A satisfactory solution of the difficulty is necessarily difficult where so many interests are liable to conflict. In the meantime we are not aware that any interest is suffering materially under existing conditions, and time may open up the way for improvements that will be generally satisfactory.

### STOCK.

#### 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 Country discussions, Mr. Alexander Wilson, Langfauld's, Duntocher, 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 fallen 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, Chapelton, 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 an 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."

### 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.





**Gleanings from Farmers' Institutes.**

BY G. C. CREELMAN, SUPT.  
IN NORTH YORK.

"It seems like old times," said Mr. Wm. Rennie, Sr., as he, in company with the Superintendent of Farmers' Institutes, boarded a Metropolitan street car one day last week. They were going to a Farmers' Institute meeting at Aurora, where Mr. Rennie had been invited to speak by the farmers of North York. Passing his old farm, he said: "That was a rough old place when I first moved from the old homestead to occupy it, and many a hard day's work I put on it before I got it in shape to suit me. I finally got it into such a state of cultivation that the Commissioners appointed to judge prize farms in Ontario awarded me 1st silver medal, the gold medal going to the old homestead on which I was born and reared." Continuing, Mr. Rennie said that if farmers knew how much the planting of trees and ornamenting the grounds around a home added to its value they would do very much more in this direction. Said he, "My land was no richer than many of my neighbors', but by removing fences and planting trees I had made the place so attractive that before long I was offered a cash price for it much greater than I could have hoped to get had I done less in the way of ornamentation."

At Aurora there was a splendid gathering of general farmers and stockmen to hear the discussions of the delegates to Farmers' Institutes. At the morning session Mr. Echlin, of Carleton Place, a cheese and butter maker, gave a talk on "Milk Testing, or the Paying for Milk According to the Amount of Butter-fat it Contains." This elicited quite a discussion. Some declared that they could very materially increase the percentage of butter-fat in a particular cow's milk by feeding. One man stated that the man in charge of the creamery to which he sent his milk found a difference of 2% of fat in his milk in different months. The consensus of opinion, however, seemed to be that the percentage of fat in a cow's milk could not be increased or diminished to any appreciable extent.

**GROWING TOMATOES.**

Major Jas. Sheppard, of Queenston, was asked to speak on "Tomatoes for the Home Market." Mr. Sheppard had introduced this subject at Aurora three years ago, and so many had profited by the instruction then given that they were anxious to hear again one who had been so successful a grower of tomatoes in his own district. Mr. Sheppard said: "Harden your tomato plants by exposure before you finally place them in the field, and in transplanting leave a good ball of dirt about the roots, also water well before transplanting, but not afterwards, and plant in the heat of the day rather than in the morning or evening. If these conditions are followed, your tomatoes will show no appreciable check in their growth. After this, the whole key to success is constant surface cultivation in the middle of the day. Two things in particular are accomplished in this way: 1st, the moisture is conserved in the soil by the constant breaking of the capillary tubes, which thus prevents evaporation; 2nd, the turning under of the hot-surface soil prevents the chilling of the soil about the roots of the plants during the cool nights."

**SOIL CULTIVATION.**

In the afternoon Mr. Wm. Rennie addressed a well-filled house on the subject of "Soil Cultivation." Probably no man in Canada is better able to speak on this subject, for the phenomenal success which has followed Mr. Rennie's methods of cultivation, first on his own farm and afterwards for six years on the Experimental Farm at the Ontario Agricultural College, is known to all those who follow advanced methods of farming in Ontario. Mr. Rennie advocates a four years' rotation—2 years hay or pasture, third year roots, and fourth year grain. Said Mr. Rennie: "The whole subject narrows down after all to one thing, namely, how to procure and maintain decayed vegetable matter on the surface of our soils. This can be done most economically by growing clover or grass sod, turning it under and allowing it to rot, being always careful not to turn this vegetable matter under so deep that it will be mixed with the subsoil." Mr. Rennie does not say that we should not cultivate deep, but he does say most emphatically that stirring soil deep and plowing deep are entirely two different things. When asked the question, what he would do with his rotation if he failed to get a catch of clover, he replied that such a thing would be impossible, and that where the surface soil was prepared in the manner he described, a catch of clover would always result. Mr. Rennie answered many questions in reference to the killing of weeds, the amount and kind of grass seed to sow, the different kinds of implements to use, etc., all of which brought out many practical ideas that were eagerly listened to by the farmers present. "Let the Canada thistle grow to 3 or 4 inches high," said Mr. Rennie; "then cut it off and you will get two thistles where there was one before. Let these grow awhile, cut them off as before, and the root or underground stem, having exhausted itself, will at best throw out a thin, sickly shoot without vitality enough to bear seed."

**IN MUSKOKA.**

At Bracebridge, Mr. Robt. Thompson, of St. Catharines, gave some practical talks on "Fruit-growing." "I find," said Mr. Thompson, "that much more fruit is being grown in Muskoka than formerly. Three years ago we shipped a great many varieties of fruit from St. Catharines to

Huntsville, but since the Farmers' Institutes have started and the delegates have instructed the farmers in reference to fruit-growing, we find a difference. Last year we shipped only red and black currants to this district. The last time I was in Bracebridge," said Mr. Thompson, "I spoke on 'Strawberries,' and now I find several good patches in the vicinity. One gentleman sold \$300 worth off his place during the past season. There is still room for a great deal more fruit, however," said Mr. Thompson, "in the Muskoka region. Around the lakes, where thousands of visitors frequent each year, fruit has to be supplied from the Niagara district, and I find that even the butter, eggs, poultry and pork is shipped in not only to feed the tourists, but in many instances to supply the tables of the farmers themselves." Said Mr. J. J. Beaumont: "Too many of our farmers are hauling loads of hay to town and bringing back loads of pork. If they would feed this hay to stock on the place and raise pork and other animal products for sale, it would be not only more profitable, but would aid very much in maintaining and increasing the fertility of their farms."

**CLOVER AGAIN.**

Mr. W. S. Fraser, of Bradford, introduced the subject of "Growing and Curing of Clover," and a very healthy discussion followed. "Cut your clover before it gets too ripe," said Mr. Fraser. "In my own mow I like to see the pink blossoms when I come to feed. When cut green it must be well packed. Some use a horse to tramp it. In the center of the mow it is usually much darker in color and often packed very closely together, but so long as there is no mustiness it has lost none of its feeding value. You people have fed timothy so long that you think there is nothing else, but in Simcoe County we could not get along now without clover. It is almost a balanced ration in itself." Mr. Fraser found a peculiar condition of things existing in Muskoka. A great many of the farmers were formerly Old Country men, and they are making a good living on Muskoka farms. "They have," said Mr. Fraser, "the advantage of having learned farming under other conditions, and their constant comparisons and appreciation of our good



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

methods make them very successful farmers. More cutting boxes are needed in this country," said Mr. Fraser. "You have plenty of fodder, but do not get the most out of it. With the nutritious grasses and other forage plants that grow in such luxuriance in this country, you ought to have the very best stock in the Province."

Mr. Hollingworth, of Beatrice, introduced the subject of "Dairying." "The day is past," said Mr. Hollingworth, "when a farmer can hope to produce milk profitably in winter without the aid of roots or ensilage. Besides good succulent food, warm stables and careful handling are necessary for the best results from the dairy cow. It does not do to turn your cows out in the cold and let them get chilled," said Mr. Hollingworth. "You check the flow of milk, and the food that should have gone to produce milk will be used up in the production of animal heat."

In summing up the impressions of Muskoka, both delegates seemed to think that this country had a bright future. In most places it is very rough, but where you find a soil of any depth it grows luxuriant crops, and all kinds of food products find a good market right at home.

**"CORN GROWING AND THE SILO."**

At Burlington, on February 2nd, a most interesting Farmers' Institute meeting was held. Mr. Andrew Elliott, Galt, addressed the Institute on the subject of "Corn Growing and the Silo." Many prominent men present declared that it was the best address of its kind they had ever listened to. "I do not know," said Mr. Elliott, "how we managed to get along without ensilage as long as we did. Ensilage is not sufficient in itself, but it supplies succulent material during the time of year when animals can get no green stuff whatever, and when mixed with a small quantity of grain it makes a balanced ration." The question was asked what was the smallest silo in which ensilage would keep properly? To this Mr. Elliott replied that a neighbor of his had a silo 12 feet in diameter and that the ensilage came out just as sweet as in larger ones. "We find trouble with mould at the top of our silo and we usually lose the last two or three loads," said someone in the audience. "Our remedy

for that," said Mr. Elliott, "is, after we have filled our silo, we spread over the top about a foot of wheat or barley chaff. This we soak thoroughly with water and sow on the top of it a quart of oats. These soon spring up, and the chaff having settled to about six inches, we have a mat composed of chaff in which the roots of the oats have interlaced, forming a complete covering over the silo. On removing this covering in the winter we find the ensilage good right from the surface."

Mr. John McMillan, M. P., Seaforth, in speaking of ensilage said: "I have been travelling through the counties of Oxford, Elgin, Kent, Essex, and Middlesex, and have talked silo everywhere I have gone. Some of the old men still hold that they can do just as well without the silo, but I converted a few of them. Some contended that ensilage was all right for dairy cattle, but was not a proper food for beef animals." Replying to this, Mr. McMillan said: "A few years ago I took 70 head of fat steers to Liverpool. We landed on Friday, and an Edinburgh butcher came down to look over our lot, as well as those of other men who had taken over cattle on the same boat. He took ten of mine and killed and dressed them the next day. They seemed to satisfy him, for he came back on Monday and took the other 60 animals. This butcher said he had been buying cattle from Canadians, including my own sons, for years, but that this was the best lot he had ever received. These cattle were fed right through on ensilage. Do not tell me," said Mr. McMillan, "that ensilage is not good for beef cattle, for I have tried it, and it is not only good, but it is the very best and most economical food we can give to fattening cattle."

**SELLING STOCKERS AS FINISHED BEEF CATTLE.**

Mr. D. Drummond, Myrtle, who has been in Prescott, Stormont, Dundas, Glengarry, Russell and Renfrew Counties, says that those who have silos are very much pleased with them. "This is a great dairy country," said Mr. Drummond, "and the farmers, both French and English, are willing to listen to a speaker for any length of time who is well up in dairy farming. A very funny thing struck me in Renfrew County. Here the drovers come in the fall and buy up the young cattle, then pay the farmers \$3.00 a head for keeping these same cattle all winter until pature is ready in the spring. The summer food costs the drovers very little, and in the fall they finish them for the butchers. It can easily be seen," said Mr. Drummond, "who is the loser in every case of this kind. The cattle are allowed to run around the stacks, tramping and destroying the grain; the manure is of very little value, and the drover walks off with the profit. While we are the banner Province in stock matters, we are very much behind the Americans in one respect—we do not properly finish our beef cattle. The Americans buy our young stock, take them home, finish them, and when we see them in Montreal they are so much superior to our own cattle going on the same boat to the Old Country that they demand from 4 to 1c. more per pound. This means," said Mr. Drummond, "that a 1,400-pound steer properly finished is worth from \$7.00 to \$14.00 more than the unfinished one. There is not much profit in raising an animal to 18 months and then selling it, but, nevertheless, Buffalo and other American frontier cities are getting carload after carload of just such animals from Ontario every week. Until we learn that the profit is in the finishing, and that we can do it just as cheaply here as anywhere else in the world, we shall continue to lose that profit," was Mr. Drummond's concluding remark.

Burlington being a fruit section, much interest was taken in the address of Mr. C. W. Nash on

**"COMMON-SENSE SPRAYING."**

"All insects," said Mr. Nash, "can be divided into two classes: 1st, those that have jaws and eat the foliage; 2nd, those that have beaks and suck the nourishment from the plant. This is the key to their destruction. If the insect eats, then you have to put poison on its food. To this class belong the grasshopper, beetle and caterpillar. If you see the leaves are drying up, and discover that some insect is sucking the life blood out of the plant, then you must treat it differently. Poison is no good, for the insects pierce the skin of the plant and get below the surface. You must then apply something that will strike the body of the insect and thus destroy them by actual contact. Insects breathe," said Mr. Nash, "through holes along their sides, and we find that any kind of oil coming in contact with these breathing holes stops them up and the insect suffocates in a short time. Kerosene and soap solutions are the very best remedies of this kind. In my own garden," said Mr. Nash, "I could not get along without English soft soap. I buy it at the druggists' and use one pound to two gallons of water. With this I thoroughly saturate the trunk and limbs of all my trees, and I am never troubled with lice or scale insects of any kind. The potash in the soap suds running down to the base of the tree and coming into contact with the roots seems also to stimulate the plant's growth, and you know," said Mr. Nash, "that a strong, vigorous tree will repel the attack of insects much better than a weaker one."

**The question of**

**APPLE PACKING FOR THE BRITISH MARKET** was also discussed. Said Mr. Springer: "We must send only the best if we are to build up the best kind of trade with the mother country. One

thing, however," said Mr. Springer, "we do need, and that is better conditions during transportation. What we want for apples is that the temperature inside the hold of the ship should be kept about the same temperature as the water outside. Where our apples get heated up on board and sweat, they come out shrunken and have lost that fresh, rosy appearance which catches the eye of the buyer. The English market seems to demand that the three qualifications in our apples should be: 1st, good size; 2nd, good color; 3rd, that they have good keeping qualities. The matter of quality as decided by taste seems to be a fourth-rate condition and one that is entirely overshadowed by the other three mentioned qualifications."

The Superintendent of Farmers' Institutes has just returned from

A TRIP THROUGH NORTHERN ONTARIO.

Very successful meetings were held during January in Muskoka, Parry Sound, Algoma, St. Joseph Island and Manitoulin Island. At Huntsville the farmers are planting orchards and small fruits, and where three or four years ago they imported from the Niagara Peninsula all kinds of fruit, during the past season only currants were required. At Bracebridge one farmer sold \$300.00 worth of strawberries last July.

The speakers who attended meetings in Algoma, state that the farmers are most comfortable, the land unusually fertile, and that the home market is sufficient to take all of their products. The activity in mining matters, the great timber interests and the numerous pulp mills that are being built will employ a lot of labor. The food supply of this rapidly-increasing population can be most economically raised right in Algoma, and the farmers are already putting into practice the ideas they have received through the Farmers' Institutes. Some are going into dairying too, and frequently you find a separator and a revolving churn, each telling of advanced methods. Most of those engaged in farming seem to be Old Country people and others that have gone back into this northern country where land was cheap and where a home could be established and supported with a small capital. Yet they were good judges of land, for most of the good land is now taken up and under cultivation in Muskoka, Parry Sound, and Algoma. Wheat, oats, barley, peas and clover are the principal crops, and the Institute workers notice a greater improvement in this region from year to year than in any other part of Ontario.

Wisconsin Agriculture.

BY THE STATE SUPT. OF FARMERS' INSTITUTES.

This comparatively new State is developing rapidly along agricultural lines. The forests which originally covered its surface have or are rapidly disappearing before the woodman's axe, and well-cultivated farms and comfortable farm homes take their places; cheese factories and creameries are springing up everywhere. New York alone among the sister States leads Wisconsin in cheese production, and our western neighbor, Iowa, leads but slightly in butter. Adding the large amount of milk furnished to Milwaukee, Chicago, and other cities from this State to the amount used in the manufacture of cheese and butter, it is doubtful if any State produces more dairy goods of all classes. The dairy-men of Wisconsin are as a class prosperous and progressive. Other lines of live-stock husbandry have a good footing, and it can be safely said no State in the Union with a good tillable soil comes nearer to feeding out all the grains and coarse feeds grown upon the farms than does Wisconsin. This condition is constantly improving the condition of the farms in the older sections, and retaining the original fertility in the new lands of the central and northern sections of the State. This State, in its location, climate, water, soil, and general characteristics, is very much like Ontario. Many Canadians have settled in Wisconsin, and as a rule are such good citizens that we would be much pleased to see many more come among us. The FARMER'S ADVOCATE proves a valuable paper to Wisconsin readers, because most of its matter is just as pertinent to Wisconsin conditions as to Ontario conditions.

Sussex, Wis.

GEO. MCKERROW.

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 Epworth Era.

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

Camby Charlton's Stock Barn.

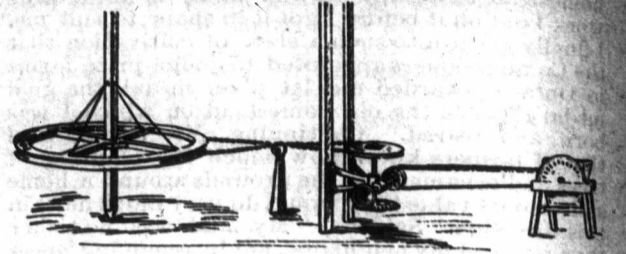
To the Editor FARMER'S ADVOCATE:

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 windmill which stands at the north-west corner of barn.

ary; to the north is a granary 12 by 12; to south a 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. 15th, 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, 15 1/2 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 2 1/2 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 to the barn floor is clear for driving in with loads.

Elgin Co., Ont. CAMBY CHARLTON.

Fertilizers and Climate.

(CONTRIBUTED.)

There are so many forces at work in crop making that it seems simply impossible to give any hard and fast rules, that the successful farmer must begin young and must "hold the plow or drive." For instance, it may seem strange that fertilizers, regarded solely as plant food, are appreciably influenced in their effects by differences in climate, but such is undoubtedly the case.

This point is illustrated by the action of fertilizers in Canada as compared with the Middle States of the United States. In Canada the winters are usually marked by long periods of continued cold weather, while in the Middle States of the Union winters are more or less a close succession of freezing and thawing temperatures. Geologists tell us that the breaking up of rocks is largely due to this freezing and thawing; the larger rocks are first split into smaller fragments, then into soil particles, and these latter, in turn, are thoroughly disintegrated. In this way soil is made.

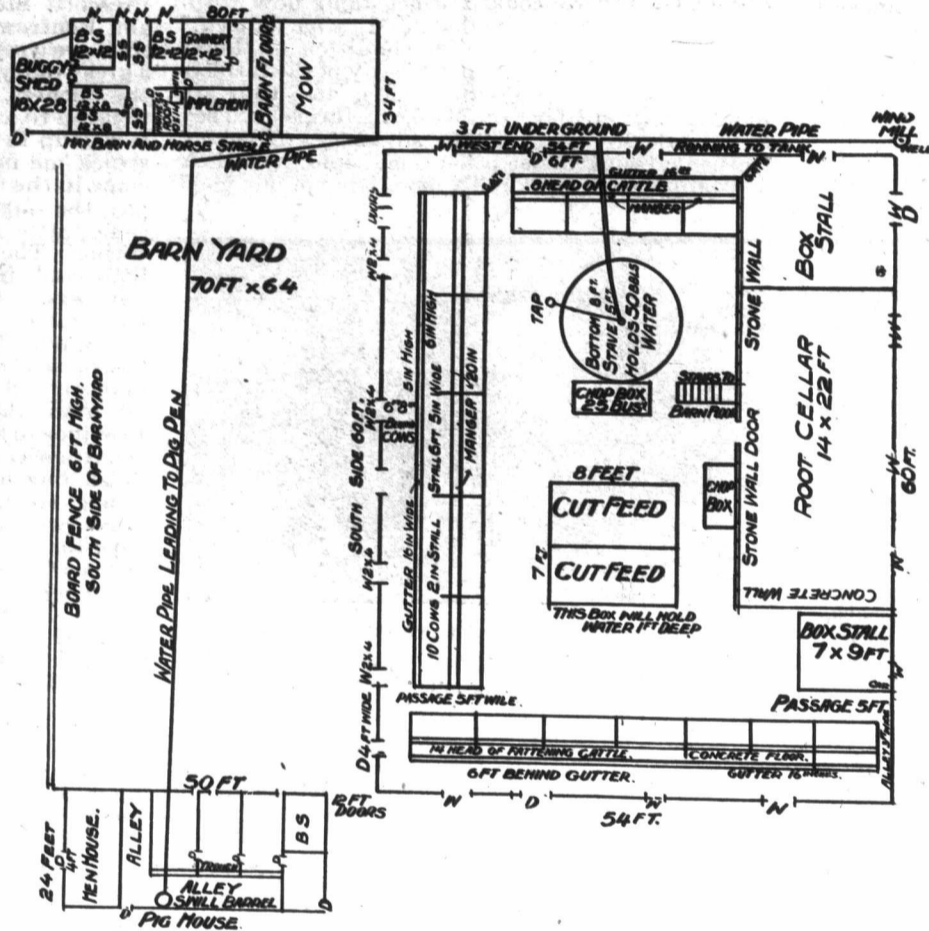
Now, these rocks contain relatively large amounts of potash and phosphates, which are liberated by this freezing and thawing process—that is, by the disintegration of rock particles.

It follows, as a matter of course, that where such disintegration is carried on most rapidly, the imprisoned plant food is more freely liberated, and growing crops are directly benefited thereby. As we go further south, where freezing rarely occurs, there is perhaps less plant food supplied in this manner than in the north.

In a practical way, attention was first called to this point by the observation of wheat-growers in New Jersey. It was noticed that after long, hard winters, or unusually mild winters with an open spring, wheat failed not only in quantity, but also failed to "weigh up." Lodging of grain, both wheat and oats, was also found prevalent under such conditions. The remedy was found in liberal manuring with mineral fertilizers rich in potash and phosphates, and this agrees with the theory of the matter, as scientific agriculturists have determined that the plumpness and full weight of wheat, or other cereals, is largely a matter of liberal potash and phosphatic plant food, also that lodging is a mark of insufficient potassic plant food.

Science is a very good thing, if applied intelligently; that is, if it is applied to practical matters. Manufacturers do not hesitate to employ scientific men, and spend thousands of dollars making scientific experiments. The results of such experiments are commonly responsible for the large profits of ordinary manufacturing. On the farm the same conditions apply, except that the farmer must himself do the experimenting. A great many farmers get scared at the word "scientific," thinking it necessary to have a college education to apply scientific principles. This is entirely a mistaken idea.

For example, in this illustration of the influence



BASEMENT PLAN OF CAMBY CHARLTON'S STOCK BARN, 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 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 day-light. 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-



of climate on the supply of available plant food, we need go no further than the simple facts involved, that under conditions of long, cold winters, potash and phosphate plant foods are too slowly liberated from the soil particles to supply the proper needs of growing crops. The remedy is to supplement the action of nature—supply the needed plant food. The form of such plant food is not greatly material, except that it should be in available form, and available in this sense means solubility in water. If the winter has been particularly severe, or marked by few "breaking" periods, the prudent farmer will make a spring application, broadcast, of potash, salts and phosphate.

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 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.

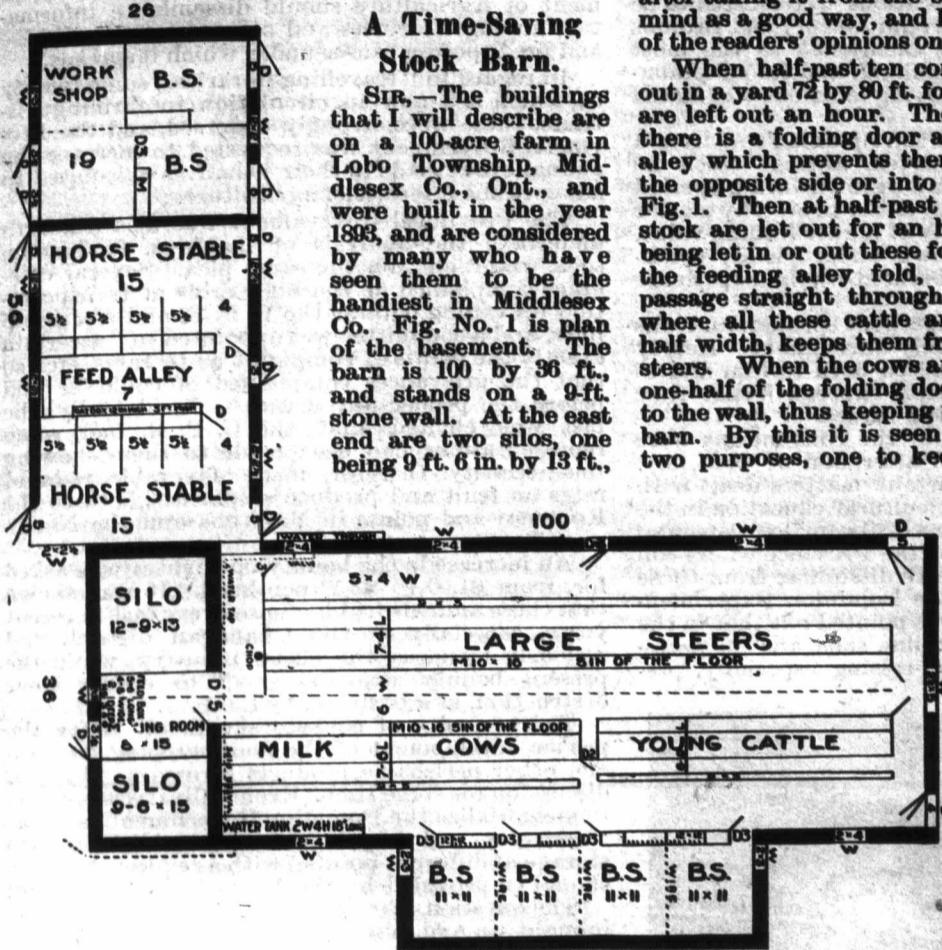
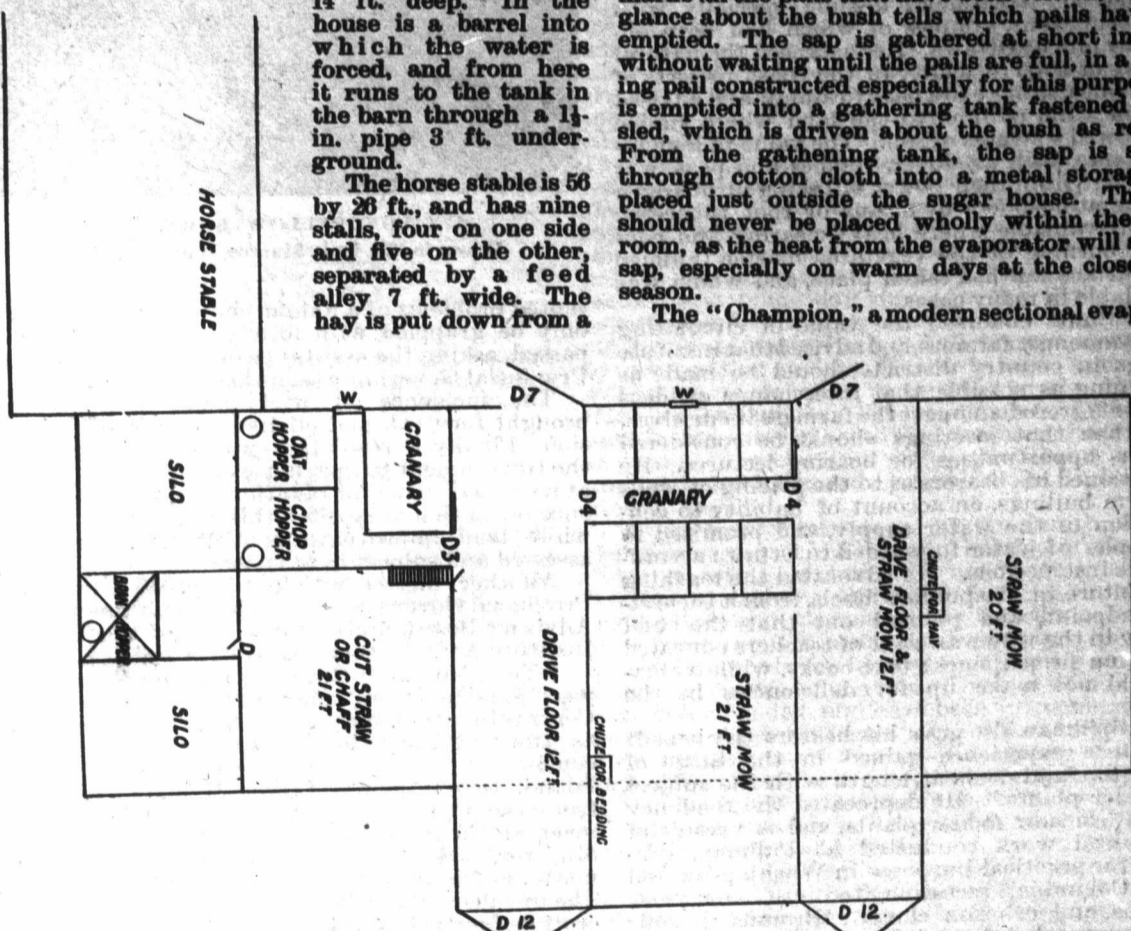


FIG. I.—BASEMENT PLAN OF D. A. GRAHAM'S STOCK BARN, IN MIDDLESEX CO., ONT.

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. 10 in. This is a very important point to observe in laying out a basement for animals of different age. The mangers in every stall are raised 5 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 9 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 rounding, 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



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

is used for boiling the sap. The storage tank is connected with the automatic regulator by one-inch rubber hose. The regulator is so adjusted that the sap will cover the corrugations about one quarter inch, which will carry the sap about three quarters of an inch deep in the finishing pans. The sap is transferred from pan to pan by siphons and is clarified in its course, as the scum and sediment is left behind. The syrup will appear in the last pan near the chimney. A thermometer is kept in this pan, and as soon as it reaches 220 degrees, which is the point at which syrup of standard density boils, the syrup is drawn off. It will then weigh 13

The Sugar Bush.

HOW CAPTAIN LEE MAKES IT THE MOST PROFITABLE PART OF HIS FARM.

Mr. Lee says, in speaking of it: "I find that one acre of good bush will bring in more clear profit than any other two acres on the farm. I have kept accounts of every sugar season since I started, and can show the books now."

Mr. Lee's bush is located a few miles back from Stony Creek, on the ridge forming the watershed between Lakes Erie and Ontario, known locally as the mountain. To secure these results he uses the most improved appliances. The trees are tapped with metal spouts, and tin pails are hung upon the spouts by means of a hole punched just under the wire sufficiently large to slip over the spout. This permits the emptying of the pail by turning it either to the right or left, without removing it from the spout. Covers are used, which are reversible, and are painted red on one side and blue on the other. The person gathering the sap reverses the covers as he empties the pails, and this marks all the pails that have been visited, so that a glance about the bush tells which pails have been emptied. The sap is gathered at short intervals, without waiting until the pails are full, in a gathering pail constructed especially for this purpose, and is emptied into a gathering tank fastened upon a sled, which is driven about the bush as required. From the gathering tank, the sap is strained through cotton cloth into a metal storage tank placed just outside the sugar house. This tank should never be placed wholly within the boiling room, as the heat from the evaporator will sour the sap, especially on warm days at the close of the season.

The "Champion," a modern sectional evaporator,

pounds to the Imperial gallon, and when sealed will keep and retain its flavor. It is important to make the syrup of exactly this weight, because if it is thinner it will sour, and if thicker it will crystallize at the bottom of the cans. For this reason, Mr. Lee, although an experienced sugarmaker, does not consider it safe to depend on the old test of allowing the syrup to "apron," from the edge of a scoop or dipper, but with a well-tested thermometer secures absolute accuracy.

As the syrup leaves the evaporator it is strained through a piece of felt in the shape of a bag. This straining removes every particle of lime, and the syrup is left perfectly clear. It is then ready to be canned, and is placed in neat one-gallon cans, which are immediately sealed; care being taken to exclude every particle of air. These cans are neatly labelled, and the syrup is sold at from \$1.20 to \$1.35 per gallon without the can; that is, the cans are charged for if not returned. The variation in prices is according to the quantity and quality taken by one person. In spite of all care used, the last runs of sap produce a slightly darker and stronger syrup than the first runs. These prices are not exceptional, as other sugarmakers who have adopted improved methods and sell direct to the consumers can testify.

Montreal.

W. H. BARBER.

#### British Columbia Central Farmers' Institute.

The second annual convention of the B. C. Central Farmers' Institute was held at the rooms of the Department of Agriculture, in Victoria, commencing at 11 a. m., on the 15th January. Morning, afternoon and evening sessions were held, closing on the 17th January. The Central Institute is composed of one member from each of the local Institutes throughout the Province, and as there was a full attendance, the convention was thoroughly representative. Besides the delegates, the officers of the Dept. of Agriculture, Messrs. J. R. Anderson, Supt. of Institutes; R. M. Palmer, Inspector of Fruit Pests; and J. C. Gibbins, Inspector of Animals, were in attendance throughout, and took part in the discussions.

Prof. F. T. Shutt, Chemist of the Dominion Exp. Farms, and Prof. Spillman, of Pullman Agr. College, Washington, were also present during part of the proceedings, and at the evening sessions of the first and second days, respectively, delivered instructive addresses, and on these occasions many of the members of the Provincial Legislature, then in session, and farmers of the district, attended by invitation.

Prof. Shutt gave a number of valuable suggestions as to the carrying on of Institute work, founded on experience gained in New Brunswick and Ontario, and spoke at considerable length on soils and soil treatment, dealing specially with those formations, samples of which had been analyzed by him at Ottawa. He instanced the natural tendency of soils to acidity in the coast districts of the Province, subject to a heavy rainfall, and advised the application of lime to the land where simple tests showed sourness of soil. The value of leguminous plants, such as clover, vetches and peas, was pointed out, from their power of taking up nitrogen from the atmosphere by means of root tubercles, especially valuable where heavy clearing and consequent burning of the vegetable matter (humus) of the surface soil had taken place, and which was unavoidable in many cases.

Prof. Shutt endorsed the value of circulating libraries amongst farmers, and advised that Institute meetings in country districts should be made as entertaining as possible, that interchange of ideas should be fostered amongst the farmers themselves, rather than that meetings should be considered chiefly as opportunities for hearing lectures. He also cautioned his hearers as to the placing of wells near farm buildings, on account of liability to contamination of the water supply, and promised to test samples of water forwarded to Ottawa according to his instructions. He advocated the teaching of agriculture in the public schools, from a theoretical standpoint, and pointed out that the chief difficulty in the way was want of teachers educated to teach on proper lines; text-books, while valuable, could not make up for deficiencies in the teachers.

Prof. Spillman also gave his hearers the benefit of Institute experience gained in the State of Washington, and dealt at length with the subject of "Fodder plants." He deprecated the tendency to "fads" in new fodder plants, and as a result of experimental work conducted at Pullman, condemned for practical purposes in Washington and British Columbia, sacaline, teosinte, cow peas, soja beans, and crimson clover. *Bromus inermis* was recommended for trial on good land, in districts where drought interfered with the growing of better-known grasses, but had not proved of value on poor, light soils near the coast. In a country corresponding to the Spallumacheen Valley in British Columbia it had been a great success, and had come to stay. Reed canarygrass (*Phalaris arundinacea*), a native grass, was highly spoken of, and the collection of seed for planting advised. Both feeding and analytical tests showed this grass to have a high nutritive value, and it was a strong grower, yielding heavy crops on suitable soil. The growing of timothy for anything but market purposes was condemned, and Italian rye grass or orchard grass, and clover, red or alsike, recommended for consumption on the farm for western portions of the Pacific Coast country generally.

Vetches—"vicia sativa" for moist soils, and "vicia villosa" for drier and poorer land—were recommended, mixed with wheat or rye, for feeding green. Dwarf Essex rape was endorsed as a valuable soiling crop for fall and spring feeding, or as sheep pasture, due care being exercised in not feeding too heavily at first, to avoid bloating of the stock.

Alfalfa had proved a great success on light, deep soils in Eastern Washington, yielding three or four cuttings a season. Many thousands of acres were grown, and where it succeeded, nothing else would be planted to any extent. For soils and conditions similar to the Yakima Valley in Washington, it was therefore strongly recommended. Other grasses of value for dry locations were stated to be Tall Meadow Oat grass (*Avena elatior*) and *Bromus Hookerianus*. Corn was mentioned as the most valuable crop for silage making, and its adaptability by selection to suit varying locations was stated to be remarkable.

At the conclusion of Prof. Spillman's address a very lively discussion ensued, during which he mentioned the fact that plants grown during a period of full sunshine were much richer in starchy matter and gum, and consequently of higher feeding value, than similar plants grown under cloudy conditions, and this was corroborated by the experience of farmers present.

Prof. Spillman is an excellent speaker, and was listened to very attentively throughout. Hearty votes of thanks were tendered both to him and to Prof. Shutt, and the hope expressed that they would be seen oftener in the future.

The business sessions of the conventions were held in the morning and afternoon of each day. Amongst the more important matters dealt with were the questions of agricultural education in the public schools, and the necessity for experimental stations in the districts of the Province where soil and climatic conditions were dissimilar from those found at Agassiz, where the Dominion Experimental Farm is located. It was pointed out that in the valleys of the interior, alkaline soils, and the necessity of irrigation in crop-raising especially, pre-



LONGFELLOW CORN.

Grown in 1898, by D. Munroe, Winnipeg, Man.

sented problems of a unique character, which could only be grappled with locally. A resolution was passed, asking the assistance of both Dominion and Provincial Governments in this connection.

The incidence of wild lands taxation was brought forward, and elicited a very warm discussion. Finally a resolution was passed requesting the Government to instruct assessors to value land at its actual value for taxation purposes, the inference being that very often this had not been done, while land improvements, buildings, etc., were assessed and subject to taxation.

Another matter which was pressed upon the Provincial Government was the appointment of an Advisory Board, under clause 22 A of the Farmers' Institute Act. This clause reads as follows:

"The Lieutenant-Governor in Council may each year appoint, from among the delegates to the Central Institute, members of a Board to be known as the 'Advisory Board.' The said Board shall consist of six members, two from Vancouver Island, two from the Lower Mainland and two from the Upper Mainland. The said Board shall meet at the times and places designated by the Minister, and shall advise the Minister upon all matters of interest to the agricultural community. The members of the Board shall receive no remuneration for their services, but shall be paid their actual travelling expenses." 1899, c. 2, s. 8.

The problem of fruit marketing was discussed at length, and finally referred to a committee, who brought in a report which is practically embodied in the following resolutions, which carried unanimously: 1. "Whereas, in the opinion of the Central Farmers' Institute, the future of the fruit-growing industry of British Columbia depends upon the profitable marketing of surplus fruit, we therefore respectfully request that a commissioner be appointed by the Dominion Government, whose duties will be particularly directed to the marketing and commercial side of the fruit-growing industry." 2. "That we respectfully request the Provincial Government to increase the grants made to the Board of Horticulture and to the British Columbia Fruit Growers' Association, that

the useful work which these bodies inaugurated last year in connection with the packing and shipping of fruit may be continued on a larger scale."

The Contagious Diseases of Animals Act, under which the tuberculin test has been used to a considerable extent, came in for some unfavorable criticism, chiefly on account of the fact that the expenses in connection with the test fall partly upon the owners of tested animals. A committee appointed to consider the whole question, recommended that the Inspector of Animal Diseases should be empowered to carry out the tuberculin test for tuberculosis when he considered it necessary, and that the expenses thereof should be borne by the Government; and, further, that the Department of Agriculture should disseminate information amongst farmers and others as to the disease and predisposing causes under which it spreads.

In regard to "travelling libraries," some twenty of which are now in circulation in farming districts, these were strongly endorsed, and the Provincial Government was requested to increase the annual grant made in their behalf as calculated to advance the interests of agriculture.

The Provincial Government was also asked to undertake the analysis of manures, food-stuffs, soils, water, etc., on the same plea. Several delegates complained of the high rates of transportation prevailing both on the C. P. R. and steamship lines, and a committee was appointed to "ascertain exactly the points of complaint as to rates, etc., so that the grievances complained of could be laid before the proper authorities." Incidentally, the fact was elicited that the C. P. R. had, when representations had been made to them showing the necessity therefor, made favorable reduced rates on fruit and produce shipments, both to the Kootenay and points in Manitoba and the Northwest Territories.

An increase in the bounty on coyotes was asked for, from \$1.00 to \$2.50 per head. It was shown that these animals had increased very fast in recent years, especially in the Okanagan district, and seriously menaced the sheep industry, while the present bounty was too small to ensure their destruction, as a business, by hunters.

The necessity of cold-storage facilities for the proper development of the fruit-shipping business and other perishable products formed a subject of discussion for some time. Eventually it was resolved to memorialize the Dominion Government as to the "necessity and importance of establishing cold storage at different points," with a request that such should be provided by the Dominion Government.

The question of co-operative fire insurance was brought up and discussed, but no definite action taken, except that a committee was appointed to report in connection with the subject at the next annual convention.

In connection with the distribution of agricultural reports amongst the members of Farmers' Institutes, their value was generally admitted, particularly in the case of the Report of the Ontario Farmers' Institutes for 1898, which received many encomiums, and a resolution was passed asking that copies of the Ontario Report for 1899 should be procured or printed for general distribution.

In conclusion, it may be stated that the Farmers' Institutes in British Columbia are now on a well-established basis, much good has already resulted through their means, while the difficulties incident to the work are being grappled with in a determined spirit. The convention dealt with may fairly be regarded as the most important gathering representing agricultural interests yet held in the Province. Much of the success of the convention must be credited to the able manner in which the chairman, Mr. W. H. Hayward, conducted the sessions so that no time was frittered away, and to the assistance rendered by the officials of the Department of Agriculture. The Provincial Government, through the Minister of Agriculture, Hon. F. Carter Cotton, has also promised to further the requests of the delegates in every possible way.

A list of the delegates who attended is as follows: E. L. Gill, Alberni; J. J. Miller, Comox; Major J. M. Mutter, Cowichan; J. Stewart, Nanaimo; J. Shopland, Victoria; W. H. Hayward, Metchosin; J. T. Collins, Salt Spring, I.; W. H. Ladner, Delta; C. D. Moggridge, Surrey; R. Balfour, Langley; H. Webb, Chilliwack; H. Beebe, Kent; J. C. Metcalf, Hammond; S. R. Authier, Matsqui; D. Graham, Spallumacheen; J. T. Davis, Kelowna; A. J. Palmer, Salmon Arm.

#### Good Varieties of Oats.

Referring to the article by R. T. Wood, York County, Ont., on spring grain, page 92, he says: "The Siberian is no use here; too weak in straw and too light in grain." That is the very reverse of my experience. I got 54 pounds from Wm. Rennie four years ago, and raised 90 bushels 13 pounds when cleaned up for seed, going 37½ pounds to the bushel; and every year they go over weight. I find the straw stands up as well as any oats I ever raised. I understand there are two kinds of Siberian oats: the Poland, or side head, and the spangled head. Mine is the latter. If they did not suit me I would not have raised them right along for four years. I also have another oat, Ligowo (portrayed on page 107 of your February 15th issue). Seedsmen have agreed for all I have to spare beyond my seed. I also got 8 pounds from Ottawa, last spring, of Bavarian oats, from which I raised 8 bushels by ordinary cultivation. OXFORD CO., ONT. JOSHUA BOBIER.

DAIRY.

Cost of Butter Factory and Plant.

A subscriber from Albert Co., New Brunswick, writes us: "As some dairymen in this district are thinking of starting a butter factory, we are trying to get a little information, and take this opportunity of asking through the ADVOCATE, first, the probable cost; second, about how many cows should be kept to insure success, about what is the average price paid for the milk, and to about what distance is the milk ever collected? In fact, any information concerning best power used, cost of running, etc., will be welcome."

The cost of a butter factory and plant depends somewhat upon the amount of business to be done, but more upon the character of the building and plant. I would hesitate in starting a creamery in any locality where I could not get at least the support of 400 to 500 cows, and a building of a substantial character for that number of cows would cost in Ontario (including cold storage) from \$1,200 to \$1,400, and the plant from \$1,000 to \$1,200, or possibly more, according to what the contract would call for. The latter price would include a 3,000-lb. separator, 10-h.p. engine and a 15-h.p. boiler, with all other necessary appliances.

It is not a usual thing to buy milk for the manufacture of butter, on account of the uncertainty of the price which can be realized for the butter; so the usual custom is for the proprietor or company, as the case may be, to charge a certain price for the hauling of the milk and manufacture of the butter, and the patrons to receive the skim milk and all that the butter realizes after the expenses are deducted. The usual charge for making the butter and hauling the milk is 4 1/2 cents per pound of butter, and this includes all expenses connected with the butter until it leaves the factory. The distance which milk can be successfully hauled depends a great deal upon the roads over which it has to be taken. If the country is level and the roads good, it may be hauled 7 or 8 miles, but I would much prefer 6 miles as the limit, if a reasonable amount of milk could be secured within that radius, for I find that where milk is hauled much beyond the 6 miles limit it is very liable to arrive at the factory in poor condition during the hot weather, and the skim milk still worse when it gets back to the farm. Aside from that, the cost of hauling is too great where 6 or 7 miles is exceeded. Where enough milk can be secured within 6 or 7 miles the cost of hauling will be from 8 to 11 cents per 100 pounds, which means about 2 1/2 cents per pound of butter, so that fully one half the expense of running a butter factory is incurred in drawing the milk, and the other half of the expense includes wages, fuel, butter boxes, salt, oil, etc. The most satisfactory power to use is steam, for there is always a certain amount of steam and hot water required in any case; but if water power was convenient and could be relied upon at all seasons of the year, there would be no objection to its use if there was no other machinery run in connection with it, and in that case a small boiler would be sufficient for steam and hot water; but whatever power is used to run a separator, it must be steady to give good results.

It should be the aim of the promoters of any butter factory to have it run the year round, for if it has to be closed 4 or 5 months in the year, the amount of milk likely to be received during the summer months will not be sufficient to make it a paying investment. Any butter factory to be satisfactory should make at least 60,000 pounds from the 1st of May to the 31st of December. It is a common practice in this part of the Province to engage milk drawers from, say the 1st of April, and in many cases the first of May, to the 1st of November, and then the farmers arrange to haul the milk themselves, and thus save the expense of hauling. In some neighborhoods a few farmers agree to haul week about and take all the milk in their ring; thus, if there were 5 in their ring, each farmer would haul one week in 5.

A building large enough to do the amount of business which I have outlined should be about 30 x 50 feet, with boiler house attached, say 15 x 20 feet. The main building would include a refrigerator room, say 12 x 15 feet, with ice house alongside, both of which would need to be well insulated by about 6 coatings of 1-inch lumber and building paper, with two dead-air spaces on walls and ceilings. The ice in this part would be solely for the refrigerator, and would be packed without sawdust or other covering and made as near air-tight as possible. A supplementary ice house outside would be required sufficient to hold at least 1,000 blocks of the ordinary size to use for cooling the cream.

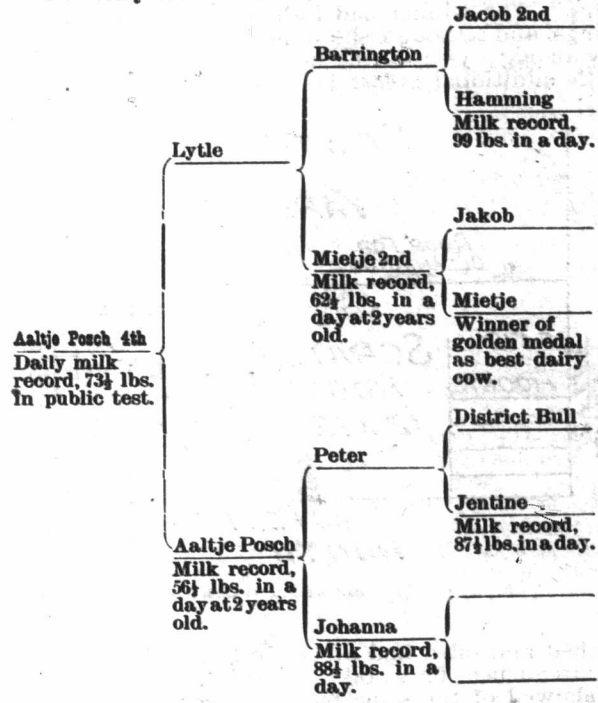
When letting the contract for the plant, the specifications should include everything that is required in a first-class creamery, and it is always advisable to get a list of those from an expert buttermaker who knows just what is required.

J. STONEHOUSE, Dairy School, Guelph.

Now is the time to make calculations for providing green fodder to be fed to the cows next summer in the stable during the dry, hot days when flies torment. Make calculations not only for this, but for an extra supply of corn ensilage this year, and an extra silo so you can carry over enough ensilage to fill this want the following year.

Observations on Breeding of Dairy Cattle.

The articles of the Messrs. F. S. Peer and G. W. Clemons in your issue of Feb. 15th deserve more than a passing notice. They contain many important facts for the thoughtful breeder 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.

Home Dairy Buttermaking.

USES GASOLINE POWER.

Some years ago I decided to keep more stock. At that time I did not intend to go into dairying very strongly, but as I found it paid to make butter, we kept increasing our herd, and for the past few years we have kept 25 cows. The cows are grade Short-horns, fed on native hay, straw and oat sheaves. The stabling is not what I should like, but at the time of building it was the best we could do. The walls are one ply of lumber, seven feet high, with sod roof. The milking is done in the stable summer and winter. The milk is strained into cheese factory cans as fast as milked, and hauled to the house on a cart made for the purpose, with a low-down platform. Separating is done with a No. 7 Alexan-platform, run by a 2 h.p. gasoline engine. Just here I will say I think this is the best power. When I wrote you last I had not used the engine long and had not run the separator with it, but it has been in use since last spring, and is giving good satisfaction. I was a little afraid the motion would not be steady enough, but it is all right. Then I was afraid about the getting up of speed. I read of several plans, but mostly too expensive for me; so I tried the plan of starting with a loose belt, so it would slip on the small pulley on line shaft. I made a tightener, so the belt can be gradually tightened. This plan works all right, and is the cheapest I know of. I think the gasoline engine is far ahead of steam power, as it does not need any attention before the time of starting. The cost of running is very little to do light work, such as separating, churning, washing, etc. The skim milk is run from the separator outside to a barrel on the cart. This barrel has a cock at the bottom, and, when separating is done, one man can run it to calves and pigs. The cream is ripened in vats made at home on

much the same plan as the factory vats, so the cream can be surrounded with cold or warm water. Churning is done in a No. 5 barrel churn, run with engine. The butter is salted in the churn, 1/2 of an ounce to the pound for bricks, and 1 ounce for boxes. The butter that is put up in bricks is wrapped in parchment paper printed with name and address, then put in folding paper boxes. These are printed with name and address. When packed, we use the square box in preference to the tub. The box is lined with paper and stamped with name and address.

Now we come to the most perplexing part of the whole business. Grenfell, our nearest town, takes only a part of our make, as so many of the town people have friends making butter. However, we have averaged 20 cents for the last few years, and will this year, except for some we shipped to a commission house, for which we have not had a return at present. I think the best plan is to sell all that can be sold locally for a good price and hold the balance, packed in boxes, till October or November, when a good price can be obtained, if butter is good.

I think the man that is trying to run a dairy without labor-saving machinery is as foolish as the man that would try to run a wheat farm without a drill and binder. Just think of the overworked wives, nothing to save labor but a sewing machine, and in many cases the farmer has all the machines he needs to do the work, and in some cases money in the bank. And then think of the amount of labor that could be saved in the house, if the price of one binder was put into a small power and a few things for the wife to work with. I was pleased to see in your valuable paper that a man east of Winnipeg had a washing machine run by power. He is using a tread power run by the bull. I used a tread power for several years, but like the engine much better. Think what it means to a farmer's wife to have the load of washing day lifted from her shoulders, and then have the work done well. We use the Manitoba washer, and it gives entire satisfaction. Then the churning, think of churning day. The engine is started, and the wife goes on with other work while the butter is being churned. I am sure many farmers pay enough for hired help in a couple of years to put in help that would be a great deal more satisfactory—always at home, and you never get any back chat; and worse still, many times the help is done without because it cannot be got. And now, I wish you a prosperous year and the success your paper merits. A. N. LECRAIN, Eastern Assiniboia.

The Western Dairy School.

This excellent institution, situated in the pretty and prosperous town of Strathroy, has made gratifying progress since the advent of the new superintendent, Mr. Arch. Smith, who has displayed much energy, tact and business ability in working the school up to a higher degree of efficiency, having made considerable alterations for the better in the division of rooms and placing of the machinery and appliances, by which means space has been economized and the work in all departments facilitated. The school is a model of order and cleanliness, and reflects great credit upon the Superintendent and also upon Mr. G. R. Johnston and Miss Miller, the capable, tactful and efficient instructors. The course of instruction embraces a thorough training in both cheese and butter making as adapted to both factory and home dairying. In the home dairy department cream separation is carried on in the old-fashioned way, of using shallow pans, as well as by deep-setting and by the centrifugal separator, so that the instruction is suitable to the circumstances of all pupils. The attendance of students has also increased in gratifying measure, there being at present 24 in training, with a probability of the number being increased by a half dozen during the present month.

A new feature introduced by Mr. Smith during the present winter has been the holding of monthly public meetings for the discussion of questions relating to dairying and dairy farming, to which the patrons and farmers of the district generally have been invited, competent practical speakers from a distance being secured to introduce subjects of interest in this connection. These meetings have been well attended, and have been instrumental in creating a greater interest in the school on the part of the farmers, many of whom have taken an active part in the after discussions, thereby not only imparting useful information as the result of successful experience, but also bringing out helpful hints from the speakers and others.

The February meeting was held on the fourteenth of that month, Mr. James Ferguson being called to the chair, and Mr. John Buttery appointed secretary. There were between 100 and 150 persons present, including about a score of ladies, who were evidently keenly interested in the discussions.

Prof. G. E. Day, of the Ontario Agricultural College, spoke on the bacon hog and the market for hogs. He showed that the best market for pork products open to Canadian farmers was the British market for Wiltshire sides, made from hogs weighing from 160 to 200 lbs., lengthy and showing a large proportion of lean meat when finished. If we produce thick fat hogs, we have to compete in the English market with American corn-fed hogs that have followed cattle fed for beef and have fattened mainly upon the corn found in the droppings of the cattle. Such pork is so cheaply produced that United States feeders can undersell and swamp us in the market for that kind. Canadian pork-producers have, therefore, no option but to raise the

bacon type of hogs as uniformly as possible, and should study the best methods of breeding, feeding and finishing them to produce the quality suited to the market, as inferior shipments injure the general reputation of our product and depreciate the prices. The best treatment is liberal feeding with whey, milk, shorts and mixed grains, with abundant room for exercise during the formative period (the first four or five months) to secure muscle and strength of frame, and heavier feeding of mixed grain during the finishing period. Corn as the principal grain feed produces too much fat, but a limited proportion may be profitably fed in conjunction with other grains.

Mr. J. C. Snell, of the FARMER'S ADVOCATE, London, spoke on the feeding of cows with a view to economy of production of a maximum quantity of milk and the importance of keeping up a full flow of milk at all seasons of the year. The need of providing some extra food for the cows during the hot summer months, when pastures fail and flies torment, was emphasized. The silo was considered the best solution of this problem, as corn ensilage is the cheapest succulent food that can be produced, and if a sufficient quantity is stored to allow of a portion being carried over to the summer, it affords a convenient supply, and one which is relished as much in summer as in winter. In the absence of the silo, the best substitutes are lucerne, clover, mixed grains and corn in turn, to be cut and carried to the stables.

Mr. Geo. E. Goodhand, of Milverton, spoke mainly on the care of milk, urging especially clean and well-ventilated stables, cleanliness on the part of the milkers, the immediate removal of the milk from the stable, and careful aeration during the cooling process to effect the removal of the animal odor and objectionable flavor. For milk being sent to the factory, he recommended that the evening's milk be kept in pails hung from a pole and poured slowly from one pail to another, in order to have it thoroughly aired. Supt. Smith said he believed that, generally speaking, the farmers have better cows than they think they have, and if they would only feed and care for them better and test them occasionally, weeding out the unprofitable ones, they would soon secure more satisfactory returns. He instanced the case of a farmer in the neighborhood who sold for a small price a cow which he considered only an ordinary milker, but which, falling into the hands of a liberal feeder, developed into the great Aaltje Posch 4th, the sweepstakes cow in the Canadian Dairy Show, giving over 70 lbs. of milk daily, testing over 4½ per cent. butter-fat, and beating the world's record in a public official test.

## POULTRY.

### Industries and "Government" Aid.

BY JOHN B. PETTIT, WENTWORTH CO., ONT.

In the report of the proceedings at the Ontario Poultry Show, held in Peterboro in the early part of January, we read of a meeting of some of the poultrymen who were in attendance at the show, at which the subject of "Government" assistance was discussed, and at that meeting the following resolution was carried:

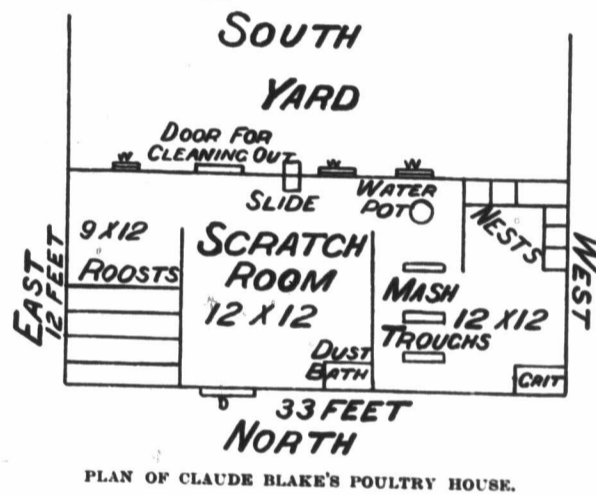
"That, in the opinion of the breeders of poultry assembled at Peterboro on the occasion of the twenty-sixth annual exhibition of the Ontario Poultry Association, it would be advisable to appoint delegates to ask the Government of the Province of Ontario for grants to the local associations—not more than one to each county."

There is no person in the Province of Ontario that is more pleased at the prospect of any material advancement of any of our industries than I am, and believing that such advancement is beneficial to the country as a whole, I think that our Government should do anything reasonable in its power to assist the same. For example, we are much pleased at the way the Government took hold of the butter and cheese question, the result of which has been of such benefit to the Ontario farmer. It is also gratifying to view the efforts of the Ontario Government in educating the orchardist how to secure a perfect specimen of fruit by resorting to the simple operation of spraying, and of the way the Dominion Government is trying to secure sales for that fruit in distant lands. Coming to the poultry industry, an industry that, in spite of its great neglect in the past and at the present time, has grown to such magnitude, we are willing that the Government should spend our money in educating us as to how to fatten, dress and pack our poultry that it may favorably compete in the greatest markets in the world; but when it comes to asking "Government" assistance for every local poultry association, it is time to call a halt and see where we are at, and ascertain if money so granted will be spent in a manner to be of practical benefit to those where such benefit should go—the farmer and the practical poultryman.

In the first place, do these local poultry associations tend to advance the poultry business as an industry, and thereby benefit farmers and practical poultrymen, or do they simply afford an opportunity for a few "fanciers" to meet and put into competition a few samples of the different breeds, the rearing of which has produced hours of pleasant pastime to their owners? For some years past the Government has given an annual grant of \$300 to the Ontario Poultry Association. The prime object of such an act was that the farmers and practical poultrymen of the Province might be benefited

thereby in being shown how to breed the best kind of poultry for home markets and export trade, and for the production of the greatest number of eggs, and also have the opportunity of entering what are termed "utility" fowls in this competition. But what has been the result? Instead of these exhibitions being so conducted as to be of greatest benefit to those they should benefit, and the bulk of the prize money being awarded to "utility" breeds, it is hung up to be competed for by 20-oz. bantams, long-whiskered Houdans, football-haired Polish, and pet pigeons and rabbits, the majority of which would be a curse to any farmer or practical poultryman. Such breeds are all right for the fancier to spend his time on, but as money-producers, either as egg-layers or roasters, we want nothing to do with them.

Such breeds as the Brahma, Plymouth Rock, Cochon and Wyandotte are termed "utility" fowl, as certain strains have the quality of prolific laying as well as being good market fowl combined. These are the breeds for the farmer and "practical" poultryman. But you say there is competition in these classes. There certainly is, but what kind of competition is it, be it ever so keen? It is simply a competition of feathers. The man who has made but a very short study of poultry can tell in nearly every instance whether a hen will be a good layer by her build and her eye. The laying strain of hens has its distinguishing mark just as clearly defined as the milking strain of cows. A farmer has a handsome, well-matured Barred Plymouth Rock pullet carrying these distinguishing points. She has, to prove her quality, begun to lay early. He is proud of her, and enters her at the nearest poultry show. He takes her to the show and she is cooped alongside the "fanciers" exhibit having a poor shape, long neck, and very delicate-looking face. He thinks he has a snap, and when he "goes in" next day to see his red tickets he is dumbfounded that all those puny, sickly birds have the cards, and his pullet is hardly noticed. Of course her "feathers" were too dark and didn't show the "wing bars." The winner had light bars to the tip of its wings, and although she didn't look as if she would lay an egg a year during her life, or cook without a little additional grease being added, she had been



washed and oiled and all the rest of it, and was, as a consequence, fit to take the prize. The cockerel he showed of the same breed was a noble, strong, healthy-looking bird, but his feathers were "too light;" he wasn't "barred down." And so it goes, and thus we see that feathers count, and feathers only.

Now, is granting money to an association that does no more to educate and benefit the people of the Province than do these local poultry associations a thing that should be done more extensively than it has been in the past? Not until there is some different method of judging that will prevent two or three "fancy" breeders taking all, or nearly all, the prize money, and this not on birds that are of real practical use to farmers and practical poultrymen, but on birds that win simply because their feathers are of a certain shade, the eye of a certain color, or there is a certain number of notches in the comb. In fact, it is time the annual grant of \$300 to the Ontario Poultry Association was withdrawn until some change is made that will induce farmers to attend these shows and profit therefrom. The promoters of these shows try to make us believe that they are doing all possible to forward the utility poultry interests among farmers in the Province, while, in fact, they are but applying for an additional sum of money to be divided amongst a few of themselves.

February 15th, 1900.

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.

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.

### 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.

### 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.

### 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 hardest, 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 do so results, it may be well to ascertain to avoid it another time.—Homestead.

GARDEN AND ORCHARD.

Varieties in Orchard Culture.

BY G. C. CASTON.

One very common cause of unprofitable orchards is a poor selection of varieties. Planters should study well the choice of what they are planting. In these days, when so much is said and written on this subject, backed up by years of experience in the growing and marketing of fruit, no one need go astray in their selection of varieties. Of course, nurserymen and agents are often to blame, in that people do not always get what they order, and do not discover the deception until trees come into bearing. Deception of this kind should be punished, when possible, even to the full extent of the law. Intending planters should watch the market, note the varieties most in demand, and the prices paid for these, compared with others, and consider how to grow them successfully.

Too many orchards are overstocked with fall varieties and summer apples, for which they fail to find a market, and a large part of them go to waste. Nothing is more likely to disgust a man with fruit-growing than to have the product go to waste for want of a market. Yet many of these early varieties would give good returns if a market were found for them. I have made more profit out of Duchess of Oldenberg than any winter apple, even though sold at a much lower price. But no one should plant largely of these early kinds, unless absolutely sure of a market for them. Probably the time will come when an ample market will be found for all we can grow of these. It is a question of freight rates, and quick transport, cold storage, etc., and is still in the future, and may be said to be as yet only in the experimental stage. From what has already been done, we may hope for good results in the future. However, in the meantime we should aim to grow the varieties that are in demand—the long-keeping varieties suitable either for export or home market. It we select the best of these, the list would not be a long one, and a short list is best for profit. If selecting five, I would take King, Baldwin, Spy, Ben Davis, Greening, and if six, I would add the Mann, and I would top-graft all of them on some good hardy, thrifty, free-growing variety such as Tallman Sweet. There are a few of what might be called Christmas or early winter varieties that do well for the home market, such as Fameuse or Snow, Baxter, Ribston and Blenheim Pippins. But the choice should be confined to few, and these of the best.

Anyone who watches the account sales of fruit in the British market, and especially this year, will have noticed that with respect to Canadian fruit many of the cargoes consisted of a hopeless mixture of varieties. Sometimes a lot of 40 or 50 bbls. would be composed of a dozen different varieties, many of them that should never have been sent there, and the result is disastrous. Perhaps I should have mentioned in the list the Golden Russet. It is a better export apple than many of the others, but is not a favorite in the home market. The red-skinned varieties are usually preferred, but few apples are better flavored when well grown and matured, and I often wonder why it is not more appreciated in our own country than it is. It is only a moderate bearer, however, but yet I think the list is hardly complete without it. A sufficient quantity of each of the varieties should be planted, but not each kind all in one block, but in alternate rows. Better fertilizing of the blossoms will be secured in this way. Such an orchard, well cared for, when it comes to bearing age, laden with fine fruit, will not need to go begging for a market. If the owner is not in a position to barrel and ship the product himself, buyers will compete eagerly for it, and he will be able to get the very top price.

There is another very important question—one that has as yet received little attention, and that undoubtedly has more to do with unfruitfulness in our orchards than most people are aware of—and that is propagating from unfruitful stock. There is heredity in trees as well as in animals. This has been strongly endorsed by such high authority as Prof. Bailey and others. Mr. G. T. Powell, at the annual meeting of Ontario Fruit Growers, very strongly endorsed this view, and stated that he had proved it by his own experience at his home in York State. There is no doubt but that we could improve our orchards by selection, as well as our live stock. It will often be noticed that, given a row of trees of the same variety, receiving the same treatment and on the same soil, some of these are more productive than others. In many cases this difference is very pronounced. These are the trees to select scions from for top-grafting (or root-grafting if propagating young trees), and they should be selected while the trees are in early bearing and the growths from which the scions are cut strong and thrifty. There is also the question of early bearing, to be improved by selection in the same way. Nurserymen pay no attention to this matter of selection, but cut their scions indiscriminately, and mostly all from young nursery trees.

This is a strong argument in favor of top-grafting, which I have advocated in the press and elsewhere for many years. A man has in his own hands the means, other things being equal, of producing a fruitful orchard by a careful selection of scions from the earliest bearing and most fruitful trees. And this principle will apply to all kinds of orchard fruits, and our small fruits could be improved greatly by selection and propagating from the most

fruitful plants. The point I would most like to emphasize in this chapter is careful selection of varieties. Confine the choice to a few varieties, and these of the best—that will sell the best. The advantages of top-grafting most all of our best varieties on thrifty, free-growing, hardy stock: It is easily done; grafted while young, 3 or 4 grafts is sufficient to form the new top. We get earlier bearing in such slow bearers as the Spy, we improve the productiveness of such shy bearers as the King. We get better crops all round, finer specimens of fruit, and succeed in growing many varieties in this way in localities where, owing to climate conditions, we could not otherwise grow them. The importance of selecting the scions for top-working from the most prolific trees and thus recognizing the quality of heredity. The advantage and satisfaction of knowing exactly what varieties your orchard will bear, which you are sure of when you graft it yourself. These are questions well worthy the attention of all growers and intending planters. Putting these things into practice will mean, as Mark Twain says, that there's money in it.

Experience in Fruit Spraying.

1. We have sprayed about 10 years, apples and plums.

2. Bordeaux mixture once before the blossoms appear; after they fall the same mixture, add 4 oz. of Paris green, about a quart of kerosene, some soap, sometimes tobacco. We generally spray 6 or 8 times during the season. I could not give you any dates, as the seasons vary from 1 to 2 weeks. We often have very wet weather at that season of the year; we could not spray in wet weather. When it looked like fine weather we would spray; when it rained we would, as soon as it got fine, spray again. A person has to use his judgment.

3. You want to be sure that the Paris green is pure. You want a good spraying machine with nozzles, and a good agitator, and an extension rod, in length according to the size of your trees.

4. (a) I do not think Bordeaux mixture or Paris green is any benefit to the trunks or the branches, but I think lye soap or kerosene is. It loosens the old rough bark, and makes the tree look healthier, and lets the sun dry it up quicker after a rain, and when the trunk is clean there is no place for insects to deposit their eggs. The Bordeaux mixture makes the foliage large, dark and green, at least I do not see many orchards that look as well as ours. (b) Scab or spot is the only fungous disease that affects the apple in this section. I haven't observed much benefit from spraying for scab or spot, it seems to be caused by the season; in a wet season it is very bad, and there is no use in spraying, because it just washes off. Four years ago it was very dry, there was a good crop of apples, with scarcely a spot on them; the next year was very wet, and I never saw them so scabby. Last year in some orchards that were sprayed the fruit was very scabby; in some that was not sprayed it was free from scab or spot. I know of one orchard from which two years ago the crop was sold for \$1,025; it was very fine fruit. Last year they could scarcely sell it at all, it was so scabby, and they have sprayed for a number of years. The owner of the orchard I am pruning now told me he was not going to spray with Bordeaux mixture any more, as he believed it made the apples scabby; he has sprayed for a number of years. I have packed apples three years and bought two seasons. I follow pruning and grafting, and sell the Spramotor made in London. (c) The tent caterpillar is very bad in this section of country; they are the insects that sell the sprayers. There were orchards that were completely stripped of foliage, not a leaf left on them in June. We commenced to gather the eggs in the spring. As soon as those left had hatched we sprayed. I think we killed about half of them the first application. It was fine weather for five or six days after we sprayed, then it rained every day or two for about a month; spraying was no good when it was wet, then we killed them by hand. I do not know anything about bud moth. I think spraying with Paris green will kill a large number of codling moth. I was into 70 or 80 orchards last year, and there were only about 3 that had codling moth to any extent. I suppose that about quarter of the orchards were sprayed. Some seasons nearly every orchard will have a lot of worm-eaten apples. The lot I live on now I bought about 14 months ago. The summer before last it was unoccupied. There are about 20 trees on it; the windfalls were left on the ground. My apples last summer were about two-thirds wormy. I think if all wormy apples were picked up or hogs or sheep let run in the orchard, they would do as much as spraying to destroy codling moth. For curculio in plums most people spread a sheet under the trees, and jar the tree and destroy them that way.

5. As to size of fruit, I think scab on apples stunts the growth; the size of the apple depends on several things. Young trees generally grow larger apples if they are well pruned, cultivated and manured. I think spraying as much benefit as any one thing of the above; but it requires them all, to grow good apples, for a number of years.

6. We never made any tests, but have for several years sprayed all the orchard. We used to watch our neighbors' orchards; sometimes they would have finer apples than we had, but we always had a good crop, with the exception of one year, when the blossoms were killed by frost. We had larger crops, take one year with another, than our neighbors, but we spent as much again money as they in scrap-

ing, pruning, manuring, cultivation, etc. No one in our neighborhood sprayed until last year, then they had to, in order to kill the tent caterpillar.

7. We have never had any unsatisfactory results from spraying. We always thought it did some good.

Grey Co., Ont.

DANIEL BALLARD.

Spraying an Apple Orchard.

I sprayed my apple orchard for the first time last season. I used Bordeaux mixture (i. e., four ounces Paris green, four pounds stone lime, and four ounces copper sulphate, or bluestone) for the first two sprayings. For the last spraying I used one-half pound Paris green to the mixture, and believe I could have used more with success. Can not say that the first two sprayings showed any good results, but I attribute failures to the first having been done too early, as it was done before the foliage was out at all, and the second was after the caterpillars had got too much the start; still, the spraying undoubtedly did good, as numbers of the caterpillars were killed. Third spraying had the best results. It was done after the blossom fell, but I believe the good results of last spraying was due to having put more Paris green in the Bordeaux mixture.

Regarding the preparation of mixture, first-class stone lime should be procured (four pounds), which must be melted in boiling water. After the lime is thoroughly melted, stir the mixture thoroughly for fifteen or twenty minutes until it becomes a sticky substance so as to adhere to the tree, then strain through a fine sieve; add to the mixture one-half pound Paris green. Dissolve four pounds copper sulphate in boiling water and dump all together in a forty-gallon barrel of water and the mixture is ready for use. I claim half pound Paris green, while some only use four ounces. A dry day should be chosen, when there is as little wind as possible, for the spraying. I believe we should spray at least four times; i. e., first while the leaves and caterpillars are small, second before the blossom opens, third after the blossom falls, and fourth about a week later.

I have watched particularly, and find that the results of spraying are always noticeably good in the healthy look of trees, in trunk, limbs, foliage, etc.

I have seen several comparative tests as between spraying and not spraying, all of which have shown excellent results in favor of spraying. I visited the Cameron orchard at Williamstown, Ont., while a gentleman from the Experimental Farm was spraying, and the results were good. I also visited the MacDonald farm, north of Alexandria, while Mr. MacPherson, of Guelph, was spraying. He was spraying for the third time, I think, at the time I was there. He sprayed the trees in sections. Trees that were sprayed remained in beautiful condition, foliage and apples good. On those that were left unsprayed the foliage was eaten up by caterpillars. I also visited the garden of Mr. Levi Sellick, druggist, Morrisburg, where a very successful test had been made. Two Mackintosh apple trees were properly sprayed four times; one was not sprayed. The two that were sprayed were loaded with as fine apples as I ever saw, while there were miserable apples, scabbed and worthless, upon the tree that was not sprayed. Also two Barlett pear trees were sprayed, and with good results. Mr. Sellick told me that before he began spraying he had been troubled with poor apples, and had never any fruit from the pear trees whatever, until the spraying did its work. Each season I visit the Model Farm, Ottawa, several times, and I find that we must spray. In conclusion, allow me to say that another season I will be more particular regarding tests, dates, and different mixtures, and will forward you more accurate information regarding same, as for the past fifteen years I have made orchard growing and grafting a practical study.

GEORGE H. McMILLAN.

"Orchard Side Farm," Dundas Co., Ont.

The Result of One Year's Trial.

1. I have only sprayed for one season, and on pears, plums, and a few peach trees.

2. I used Bordeaux mixture with Paris green, and only once, about the end of May, when the blossoms were about to fall.

3. The chief points to be observed in preparing the mixture are to stir it well together and have a dasher on your pump to do it while you are spraying, so that you can evenly distribute the mixture on the trees, especially on the leaves and branches.

4. In 1898 my trees looked very bad, not having been well attended to before, hardly any pruning being done. The fruit was scabby and marked with the insects, and the leaves turned brown about the beginning of August and soon fell off; while last year the fruit was about medium or fair, and not so badly marked with the insects; the leaves kept green until very late in the season, when the frost came.

5. I cannot speak definitely as to benefits, as the trees are only just starting to bear; but from what I have heard it is from one-eighth to one-half more profitable when sprayed.

6. I have not made any test in the difference between sprayed and unsprayed, but I have seen sprayed trees that are at least a third better than the unsprayed.

7. I have had no unsatisfactory results as far as I know.

Lincoln Co., Ont.

SYDNEY AYLEN.

**Reduction in Time and Cost of Spraying.**

To the Editor FARMER'S ADVOCATE:

SIR,—I was much pleased and benefited by the different reports of spraying in the ADVOCATE. They are very reasonable and instructive to all who own orchards, as no one can read them without being convinced of the advisability of spraying. However, with the exception of your editorial remarks, no one mentioned the amount used, or the time it took to apply. I have sprayed about 175 trees (apples) for two years, and my results of cost differ widely from those of one of your editors. My trees are mostly of medium size, some very large and a few small, and I have found that two men can apply and mix one barrel or 45 gallons of Bordeaux mixture in one hour, provided they have a good pump, drawn by a steady horse. At this rate two men should put on the amount used in 18 hours instead of three days.

I was also struck with the amount of spray used (1 bbl. to 20 trees). I have found that one barrel does from 50 to 60 trees, and I always spray as one of your correspondents, Mr. A. E. Sherrington, does—"until all the tree is wet, but not so wet as to cause it to drip on the ground." If the amount I use is sufficient, it would reduce the cost very materially, so I would like to hear from others as to what is the proper amount to use.

J. N. KERNIGHAN.  
Huron Co., Ont.

**Why Our Apples Do Not Give Satisfaction.**

To the Editor FARMER'S ADVOCATE:

SIR,—A great deal is said and written about the failure of our apples to give satisfaction in England. Now, I think the fault does not lie in the quality of our fruit, as we captured some of the first prizes at the World's Fair, and when the Ontario Fruit Growers' Association met in Orillia a few years ago, they said they had never had an exhibition of fruit like it at any previous meeting of the Association; but the fruit shipped from here last fall could not possibly go anywhere in good condition, as it was too late of gathering. A great many of the trees were left till they had neither apples or foliage left on them. The fruit lay on the ground for many weeks, and after being gathered was left in the orchards for a long time. We would not expect our home apples to keep a month if treated in the same way.

We have kept our 1898 Christmas number of the ADVOCATE, and while we give away all our other copies to friends, we prize this last one as much as a good book. The pictures of beautiful stock in it are tending to make us feed better this winter than ever.

R. A.  
Simcoe Co., Ont.

**APIARY.**

**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

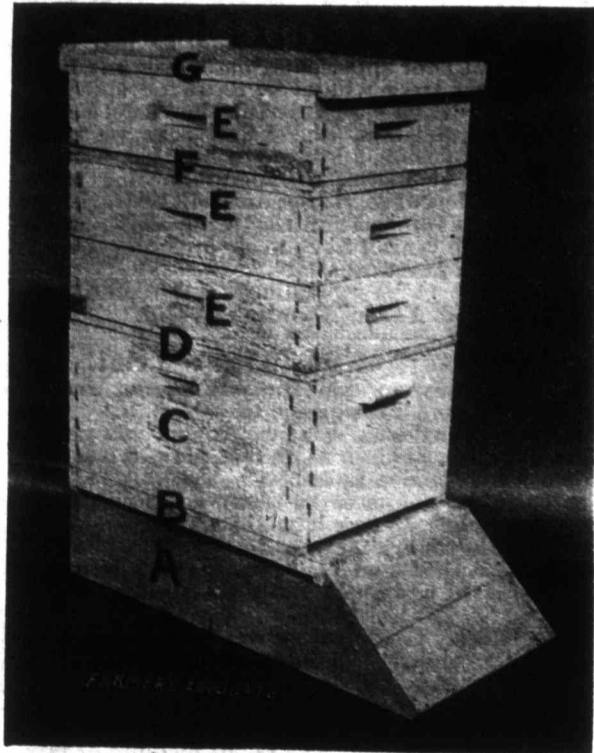


FIG. 1.

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

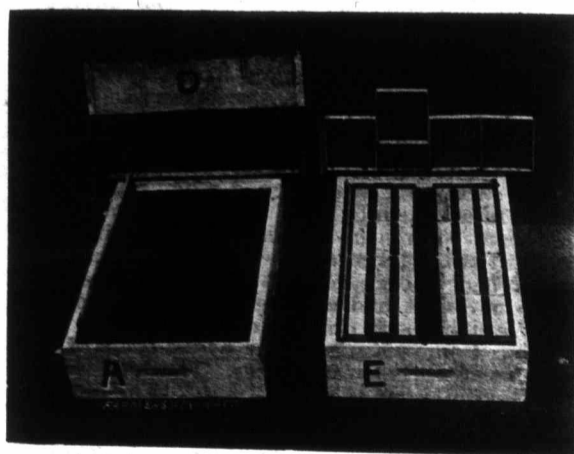


FIG. 3.

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

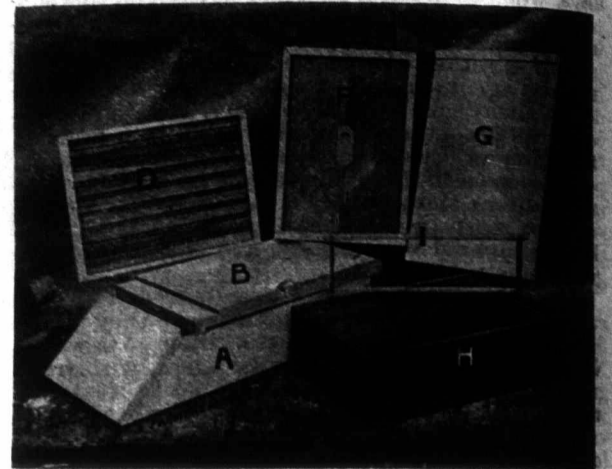


FIG. 4.

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 1/2 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 1/2 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 1/2 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 4x4x1 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.

**Brood and Breeding.**

BY MORLEY PETTIT.

In the Christmas number of the FARMER'S ADVOCATE we discussed the Natural History of the Honeybee. To-day we have a closely related subject—Brood and Breeding.

The larva, a small white grub which hatches from the oval-shaped, bluish-white egg of the queen, is fed with a jelly secreted by the nurse bees. As it grows it becomes too large for the cell bottom, curls up, as Swammerdam says, like a dog, then stretches out on its back the full length of the cell. By this time its food has been changed to a mixture of honey and pollen, whose yellow color can be seen through the skin.

"The larva, or grub, grows apace, but not without experiencing a difficulty to which the human family is, in some sort, subject in the period of youth. Its coat is inelastic, and does not grow with the wearer, so that it soon, fitting badly, has to be thrown off; but, happily, in the case of the larva, a

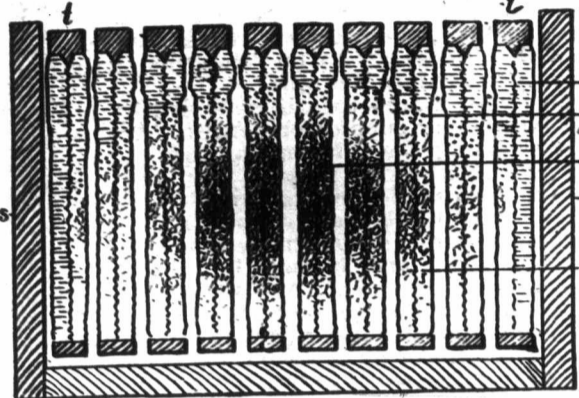


Fig. 1.—Cross Section of Brood Apartment. S, s, side of hive; t, t, top bars of frames; h, p, l, sb, combs containing (h) honey, (p) pollen, (l) larva and eggs, and (sb) sealed brood. Frank Benton, M. S., in "The Honeybee."

new and larger one has already been formed beneath it, and the discarded garment, more delicate than gossamer, is pushed to the bottom of the cell."—*Cheshire*

It is then by the nursing bees "sealed in its cell with a porous cap of beeswax mixed with pollen." It requires only slight experience to distinguish sealed brood from capped honey, as the one has a waxy, uneven appearance quite different from the dull, brownish surface of regular domes presented by the other. As soon as the larva is enclosed it spins a cocoon, which, however, does not incase it, but merely lines the capping and extends a short distance down the sides of the cell.

"When it has undergone this change it has usually borne the name of *nymph* or *pupa*. It has now attained its full growth, and the large amount of nutriment which it has taken serves as a store for developing the perfect insect."—*Bevan*.

One of the duties of the newly-hatched worker is caring for the unsealed larvæ. In its head is situated a pair of glands which are large and dilated while it is engaged in nursing brood, but slim and shrunken when there is no brood in the hive, and which become withered and seemingly dried in old bees that no longer nurse brood. Besides, these glands are absent in drones and queens; hence it is thought they produce the milky jelly fed to the young larvæ. This is fed for the first three days, then "honey is added in the case of the worker larvæ, and honey and pollen in the case of the drone larvæ. As this weaning proceeds both worker and drone larvæ receive pollen, and in constantly increasing proportions, in place of the secretion. But this rich albuminous substance is continued to the queen larvæ throughout their whole period of feeding."—*Frank Benton*.

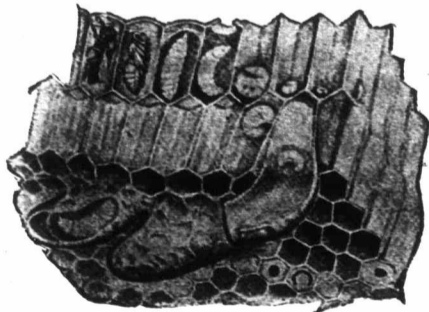


Fig. 2.—Queen Cells and Worker Brood in various stages. Frank Benton, M. S., in "The Honeybee."

When the queen commences laying in spring the first eggs are deposited in the center of the cluster, where the temperature is highest. The circle of brood is gradually enlarged and extended to other combs, until, where conditions are favorable, nearly the whole hive is filled. (Fig. 1.) To assist the queen in filling the hive with brood, and thus gain a powerful colony for the approaching honey season, it is sometimes advisable at queen-clipping time to "spread the brood" by moving an empty comb from the side of the hive into the middle. In doing this, of course, care must be taken that there are enough bees to cover the brood after it is spread. Breeding continues as long as the bees are able to bring any sweet into the hive, and a colony may be excited to breed at any time by feeding or otherwise

exciting them. For this reason, then, if for nothing else, it is desirable to avoid exposing bits of honey or other sweets to the bees after the honey season has closed, as a breeding colony consumes stores very rapidly.

Queens are reared only under certain conditions, when the queen is lost, or is to be superseded, or at swarming time. When the bees get the "swarming fever" a number of cells are started shortly before they swarm. Now, if a valuable colony has swarmed, all these cells but one may be removed and used to replace poor queens in other hives. Without waiting for the colony to swarm, cells may be obtained by removing the queen at a time when there are eggs and young larvæ in the combs. Realizing their loss, the bees immediately build several "emergency cells," by enlarging worker cells which contain larvæ. (See Fig. 2.)

Much depends on mating a queen with good stock. This can in a measure be controlled by closing, with perforated metal which excludes drones but not workers, the entrance of undesirable hives when it is known that a valuable queen is about to take her mating flight.

For best results it is well to secure an occasional queen from another apiary, to select queens from the best stock in your own, and as far as possible to control their mating.

**VETERINARY.**

**Gastroenteritis or the White Scour in Calves.**

BY DR. WM. MOLE, M. R. C. V. S., TORONTO.

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 here say 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 faeces 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 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 injudiciously, will aggravate the disease they are given to cure. Prepared chalk, 1 ounce; powdered catechu, 1 ounce; powdered ginger, 1 ounce; peppermint water, 1 pint. Give two to four teaspoonfuls night and morning. Fresh burnt and powdered 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.

**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 transmittible 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.—Most of the points raised by our correspondent were covered in our issue of Feb. 15th, on page 96, where the nature of actinomycosis was discussed. We have, however, 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 veterinaries 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 veterinaries, I venture to say that in 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 veterinaries 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 Pictou 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.

## ENTOMOLOGY.

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 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, Claparide, 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.



FIG. 1a.

## Winter Work Against Orchard Insects.

BY C. J. S. BETHUNE.

The time is now close at hand when the milder weather of March will lead the farmer and fruit-grower to inspect his orchard and set about any pruning of his trees that seems to be advisable. While performing this necessary work, the opportunity should be taken of looking out for destructive insects at the same time. As mentioned in a previous article, the egg-bracelets of the Tent Caterpillars should be especially sought for; they are usually to be found on twigs near the outer extremities of the boughs, and with a little practice the eye will soon detect the extra thickness of the twig caused by the egg mass. Wherever found, they should be cut off and burnt; a whole colony will thus be destroyed at once, and much future injury and annoyance be prevented.

Here and there on the trees a dead leaf will often be seen. Why has it not fallen to the ground, or been blown away by the wintry gales? What makes it hold on when the rest of the tree is bare? Upon examination it will generally be found that the leaf has been fastened to the twig by silken threads, the work of some insect. There are several destructive kinds that pass the winter on the trees with a crumpled leaf for protection; sometimes two or three leaves are fastened together in a bunch, sometimes one hangs loosely or is adhering closely to the branch. When two or three leaves are tied together, the "Rascal leaf-crumpler" may be looked for. This little insect passes the winter in the caterpillar state, and for its protection makes a curious little case of silk mingled with its dried excrement; the twisted horn-shaped case is securely fastened to the twig and sheltered by the bunch of leaves. When the buds open in spring the caterpillar awakens from his long sleep and proceeds to feed upon the tender contents of the bud, devouring oftentimes at once not only leaves but future blossoms as well.

When a single leaf, blackened and crumpled, dangles from the twig in the wind, the presence may be suspected of the "Eye-spotted Bud-moth." This tiny insect forms a rough silk-lined case within the folds of the leaf, and, like the preceding species, comes out in early spring to devour the opening buds with their contents. A leaf fastened down to the branch usually covers an egg-mass or cocoon of the "Tussock Moth," though these are quite as often to be found attached to the trunk or boughs of the tree without any leafy protection. In all these cases the fruit-grower should remove the dead leaves and crush or burn them with their contents; when doing so, it will be well to look closely and see that nothing is left adhering to the bark, for the leaf alone might be removed and the insect remain in its case. It must not be supposed that every dead leaf contains a noxious insect in its winter quarters; many will be found empty, birds perhaps having devoured the inmate, or some spider or predaceous insect having made a meal of it in the fall. But still, it is quite worth while taking the trouble to destroy all these suspicious haunts of noxious insects, as the inhabitants, when there are any, begin their work of depredation so early in the season and destroy so much at a single meal. The rough cocoons and egg-clusters of the "Tussock Moth," the latter covered with a white froth-like substance, are easily seen upon the trunk or limbs of the tree, and should be pulled or scraped off and then burnt.

Another class of insects that should be looked for when pruning the trees is the large family of scale insects. Every fruit-grower is no doubt on the alert regarding the pernicious San José Scale, and if he is in an infested neighborhood, should closely examine his orchard and garden; but in every part of the country there are other scale insects that are not so seriously destructive, but yet do an immense deal of injury if left alone. The common "Oyster-shell bark-louse" is an example; neglected trees may sometimes be found covered from top to bottom with the scales. They are very small, less than a quarter of an inch in length, rounded at one end and tapering with a curve to the other, resembling somewhat an oyster shell in shape, from which they get their name. Other scales of different shapes may be found, but the same treatment will do for all. If a tree is infested, set to work at once and scrape the bark till all that can be seen are removed; this should be done now, and if thoroughly done will clear the tree almost entirely. Still, some scales will escape, and it will be advisable later on to spray the tree with whale-oil soap, in order to finish the operation. In the case of a sickly tree, it will be quite worth while to try the experiment of painting it with crude petroleum and see what the effects will be. As stated a few months ago regarding the San José Scale, this remedy has been found most successful, and saved trees that seemed doomed to destruction.

Occasionally there may be found a large silken cocoon, three or four inches long, and fastened very tightly to the twig. This is the winter quarters of the large Cecropia Emperor Moth. If the twig with the cocoon is cut off and brought into the house, later on there will emerge a magnificent moth, which will astonish and delight the beholders. The cocoon should not be exposed to the sun nor kept in too dry a place.

If any insects are found at any time about which information is desired, the writer will be glad to do all in his power to afford it. No entomologist pretends to know all about every insect, but he can generally tell whether a specimen is likely to be in-

jurious or not, and what had better be done regarding it. The really destructive kinds are familiar enough to those who have studied the subject. Specimens may be sent to the office of the FARMER'S ADVOCATE, from where they will be forwarded to the writer.

## QUESTIONS AND ANSWERS.

[In order to make this department as useful as possible, parties enclosing stamped envelopes will receive answers by mail, in cases where early replies appear to us advisable; all enquiries, when of general interest, will be published in next succeeding issue, if received at this office in sufficient time. Enquirers must in all cases attach their name and address in full, though not necessarily for publication.]

## Veterinary.

## UNTHRIFTY MARE.

SUBSCRIBER, Ontario Co., Ont.:—"Will you please give me, through your valuable ADVOCATE, a recipe for a mare that is run down. She is only coming four, but has worked very hard and been fed well, but is in poor condition. I have never known her to roll. When she makes water it is thick and creamy looking, then turns a reddish color. She feels well, but does not lay on fat, although she has done very little since last fall?"

[Have your mare's mouth examined by a competent veterinary surgeon or dentist. At this age she is shedding the third molar and getting the sixth permanent molar in each row, and in some cases the crowns of the temporary teeth are not shed and have to be removed with a forceps, and when this condition exists mastication is materially interfered with, and it may be that the other molars require dressing. A sufficient amount of attention is not given to the teeth of horses. Even quite young horses often suffer from irregular or unshed molars, and no medicines will correct this. After having the teeth examined and dressed, or extracted, if necessary, give the following powders: Nitrate of potash, four ounces; bicarbonate of soda, eight ounces; pulverized sulphate of iron, three ounces; pulverized gentian, three ounces; pulverized ginger, three ounces; pulverized nux vomica, three ounces. Mix well and give a dessert-spoonful (level) twice daily, in soft food, as boiled oats or scalded chopped stuff. J. H. REED, V. S. O. A. C., Guelph.]

## BLOODY MILK.

GEORGE FOWLE, JR., Northumberland Co., N. B.:—"Have a cow that I expect to calve in a few days. Find nothing but blood in the teats. She is in good order, has been fed on turnips, smashed oats, hay and straw. She does not appear to be in pain when milked; has a very large udder; has been dry for about two months. Please let me know what to do?"

[The cause of your cow giving bloody milk is a congenital weakness of the capillaries (the small blood vessels) of the udder. Feed lightly on food of a dry nature that is not calculated to increase the secretion of milk, and give two ounces of the tincture of iron twice daily, shaken up with a pint of water and given as a drench. If she becomes constipated give about a pound of Epsom salts dissolved in warm water and given as a drench. It is good practice (if your stable is quite warm) to bathe the udder with cold water, but unless your stable is warm and you can exclude all drafts, it is better to not do so in cold weather. Unless the udder become very full and there is danger of inflammation of it, do not milk until after calving, but, if necessary, drain a little from the teats, but do not milk dry. If you can avoid milking until after calving, and adopt the above treatment, it is probable she will be all right by that time. O. A. C., Guelph. J. H. REED, V. S.]

## CHRONIC INDIGESTION IN CALF.

J. I. W., Perth Co., Ont.:—"I have a young Shorthorn bull, three months old, which sucks the mother three times a day. He looks dry in the hair, is scoured once in awhile, and smells badly. Will not eat chop or pulped roots, and very little hay for a calf that age. The mother is fed on hay, pulped roots and chop, but also looks dry in the hair. Will you kindly let me know through your paper what to do with him?"

[In this case no doubt the cow is also to blame for the indigestion in the calf. Give the cow a dose of purgative medicine, one pound of Epsom salts and one quart of molasses; this will remove the cause of bowel trouble. For the calf give a wine-glassful of castor oil every day until the bowels are freely moved, and feed on pulped roots, with a little dry meal, until recovery takes place. Wm. MOLE, M. R. C. V. S., Toronto.]

## COW FAILING TO BREED—TUBERCULOSIS IN SOW.

L. E., Cardwell Co., Ont.:—"I have a valuable Shorthorn cow which I have tried to get with calf. She comes in season regularly every three weeks. I find that the neck of the calf bed is closed up. Please let me know what I can do for her? I have also a brood sow that got sick about a month ago. She is breathing so loud that you can hear her fifty yards from the pen. She eats well and also drinks, but is failing away rapidly?"

[I would advise you to destroy the sow at once, as she is no doubt suffering from tuberculosis of the lungs and will die very shortly. With regard to cow, I would advise that you obtain from the druggist extract of belladonna, one ounce; Venice turpentine, one ounce; to be well mixed and a small quantity to be applied to the neck of the womb three successive days previous to being sent for service. W. MOLE, M. R. C. V. S.]



MARCH 1, 1900

**CRIPPLED PIGS.**

**SWINE BREEDER, Middlesex Co., Ont.:**—"I have a pair of pigs five months old that have been fed on ground oats and pulped mangels. They have a comfortable pen, but no outdoor exercise. Lately a number of them have been very stiff and lame, and seem to suffer considerable pain. What is the cause and what treatment would you suggest to restore them to health?"

[At this time of year we hear very frequent complaints about pigs not thriving, and showing signs of lameness, whereas during the summer season when pigs are outdoors running around there is very little, if any, trouble from this cause. We may take it, then, that the feed and environment has something to do with the pigs' health. A rational remedy is to subject the pigs, as far as possible, to summer conditions, both in roomy quarters and easily-digested food. Of all the food that pigs get, probably oat chop is the most difficult to digest on account of the hulls, which are tough and fibrous. When it seems necessary to feed oat chop to pigs, the hulls should be sifted out and can then be given to horses or other stock that can masticate them. When an animal's digestive organs are put wrong it is the commencement of very many troubles, and of which rheumatism and founder are the most frequent. Such a condition is usually associated with a dry, scurfy skin and generally unthrifty appearance. It goes without saying that the pigs should have a dry, comfortable bed, and away from drafts. We would advise "Swine Breeder" to feed soaked, warmed mixed chop without the hulls of the oats, adding fine shorts to the ration. Reduce the quantity of mangels as the pigs need building up. Give them about a quart of raw linseed oil for four pigs in feed once a day for a week. Throw into the pen soil from the root cellar, also liberal quantities of charcoal. Keep their beds comfortable and dry, and get them into the sunshine as much as possible.]

**DISEASED LIVER.**

**W. & McE., Wetaskiwin, Alberta:**—"Steer two years old, apparently in good health, although not fat. After running at straw stack several days, is found dead. Showed no signs of sickness when last seen, about twelve or fourteen hours before. When opened, paunch and stomach were found to be full of straw and small seeds, mostly pigweed. Liver had eight ulcers, each containing a lump of hard yellow matter about the size of a marble. Gall bladder empty. Liver had a very offensive smell. Know of no way that he could have been injured, as our cattle are all dehorned. What was the cause of death?"

[You have given no ante-mortem symptoms, and your description of post-mortem appearances is not sufficiently extensive to warrant giving a decided opinion as to the immediate cause of death. The liver was evidently diseased and the secretion of bile arrested. If the disease of the liver was so far advanced as to permanently destroy its functions, death would inevitably be the result. The small abscesses containing inspissated or semi-dried pus would indicate that the disease was not of an acute nature, but had existed for some length of time. Not infrequently cattle, which from external appearances are in prime condition, when slaughtered for beef their livers are found to be more or less diseased, sometimes containing several abscesses such as you have mentioned.]

**W. A. DUNBAR, V. S., Winnipeg.]**

**CRACKED HEELS.**

**W. J. C., Simcoe Co., Ont.:**—"I have a horse that after being driven swells around the fetlocks in a day or so. It will then go down considerably, but not go clear away until driven again, after which it will swell again as usual. Can you tell me the cause and remedy, if any? The horse has scratches on both heels above the fetlock. He had been worked hard all fall and summer, but has not done anything this winter."

[The swelling of the horse's fetlocks is doubtless due to the irritation of the parts consequent upon the skin disease, which is due to an impure condition of the blood and system generally. I would advise the following treatment: Give the horse nothing to eat in the evening but about a gallon of bran. In the morning, give a purgative ball composed of one ounce Barbadoes aloes and two drams of ginger, thoroughly pulverized; to which is added sufficient soft soap or treacle to make it plastic. Make into an oblong shape, cover with tissue paper and administer. If not accustomed to administering balls, the aloes and ginger can be shaken up in about a pint of cold water and given out of a bottle as a drench. Feed nothing but bran until purgation commences. If given as a drench, you must allow for some waste—might take about ten drams of aloes. When purgation commences, feed hay again, and after the bowels have again assumed their normal condition, give the following: nitrate of potash, 3 ounces; pulverized licorice root, 6 ounces; arsenious acid, 4 drams. Make into 24 powders and give one night and morning in damp food. In the meantime, apply to the cracks twice daily the following ointment: boracic acid, 4 drams; carbolic acid, 20 drops; vaseline, 2 ounces. Mix. It would be better to allow him to rest for about 2 weeks, if possible. After that, if the parts still swell, repeat the powders, and if the cracks are healed, apply bandages to the joints when in the stable. If the cracks are not healed, continue the ointment.]

**J. H. REED, V. S.**

Vet. Department, O. A. College.]

**Miscellaneous.**

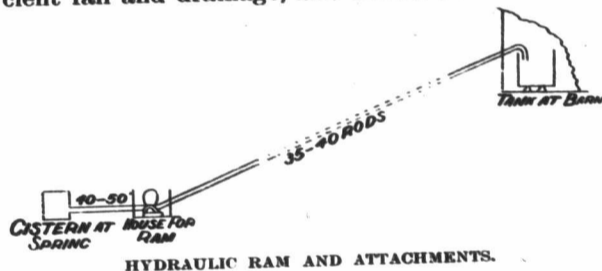
**HYDRAULIC RAM FOR FORCING WATER.**

**W. R., Hastings Co., Ont.:**—"Please give your opinion of hydraulic ram in the ADVOCATE, and where to purchase the best. We have a never-failing spring, which will fill a pail in about three minutes, distant 35 or 40 rods from house and barn, with a fall about two feet for 50 and then a rise of about 20 feet to get to barn. Would you use ram to bring water to buildings, or dig a well? Would it work to put ram eight or ten feet in the ground, to give more fall from spring? Barn is about ten feet higher than house. Would you run water direct to barn? It would then flow to house, or would you put it in pipes for house and barn?"

[In the case in question there are three difficulties in the way of a successful working of the hydraulic ram. These difficulties may or may not be surmountable, according to circumstances that are left unexplained in the description. In the first place, the description states that the lowest ground is about 50 feet away from the spring, and is only 2 feet below the level of the ground at the spring. If from this "lowest ground" there is no drainage for the waste water from the ram, then the ram is impracticable. Wherever the ram is placed, there must, of course, be drainage from it sufficient to carry away nine-tenths of the amount of water supplied by the spring, since the ram lifts only about one-tenth of the water supplied.]

Secondly, if drainage can be provided, the ram should be sunk so as to give a fall from the spring to the ram of 4 or 5 feet at least. Manufacturers of these machines claim that the rams will operate successfully with a fall of 18 inches, but admit that a greater fall is to be preferred. In this case, with the small supply of water furnished by the spring, it seems to me that a fall of 4 to 5 feet should be given.]

Thirdly, the amount of water supplied by the spring is very small—about a gallon a minute. One manufacturing firm states that the minimum quantity of water required to operate the smallest ram is 2 gallons per minute. Another firm puts the amount required for the same size at 2 quarts to 2 gallons per minute. I should not advise the correspondent to try a ram in this case, unless the firm that supplies the ram will guarantee success with a gallon of water a minute to feed the machine. If the correspondent finds that he can provide sufficient fall and drainage, and thinks that the water



supply is abundant to run a small ram, then he will require the following outfit: A small cistern at the spring to hold a steady supply of water; a No. 2 ram; a small house for the ram, built of wood, brick, or stone, and sunk 4 or 5 feet in the ground if possible. About four feet square will give sufficient space. This house should be not less than 30 feet from the spring, and may be more. Inch pipe laid from the cistern at the spring to the ram, to furnish the supply of water. This pipe should be laid underground out of the reach of frost. Half-inch pipe for the discharge, also laid underground, leading to the barn or the house, wherever it is desired to store it. I would recommend storing in a tank at the barn, if the tank can be made frost-proof. That arrangement will supply water for the barn and house without requiring a great elevation of the tank above the ground. The elevation of the tank, however, will depend upon the elevation of the highest point at which it is desired to furnish water.

**Amount of Water Furnished by the Ram.**—It is likely that the total rise from the ram to the top of the tank in the barn will be, in this case, 30 feet. If the fall from the spring or from the level of the water in the cistern to the ram is 4 or 5 feet, then the ram will raise from 125 to 150 gallons of water in 24 hours.

**Cost of the Outfit.**—No. 2 ram, \$7.55; 50 feet of inch pipe, \$3.13; 800 feet of half-inch pipe, \$32; total, about \$43.

This estimate, of course, does not include the cost of the cistern, tank or house, or the value of the labor required in laying the pipe. The piping estimated above is black iron pipe, not galvanized. The galvanized pipe would be much superior for the purpose, on account of its greater durability. The cost of the galvanized is a little less than double that of the ordinary iron. A first-class hydraulic ram is made and sold by American Well Works, Chicago. J. B. REYNOLDS, Professor, Department of Physics, O. A. College.]

**MAMMOTH CHEESE MADE IN LANARK CO., ONT.—PLANTAIN IN CLOVER.**

**SUBSCRIBER, Lanark Co., Ont.:**—"In your issue of Nov. 15th, 1899, on page 634, I see where you made a mistake, as that big World's Fair cheese was made in Perth, Lanark Co., not Oxford. I sowed some red clover seed last spring, and find that there has been a lot of English plantain in it. What had I best do—plow up this spring or will

seed form in first crop of hay? Is it a bad weed? Will cattle eat it?"

[While one very much dislikes to plow up a good catch of seeds, to do so in this case would seem the lesser of the two evils. Plantain has become quite troublesome in many sections, inasmuch as it spreads rapidly, taking the place of useful crops. Sheep will pasture on it, but there are many other plants that answer a better purpose in that regard. Cattle will eat it, but prefer grass to it. It comes into blossom in June and ripens seed towards the end of that month, and in all succeeding months till cold weather arrives. When cut off before being ripe it throws up fresh seed spikes to re-seed the ground. The plant is a perennial, living from year to year. One cannot be too careful, especially since weeds have become so prevalent, in selecting seed. The use of a hand magnifying glass is of valuable service in selecting grass and clover seed.]

**GRASS PEAS.**

**D. B., Hastings Co., Ont.:**—"What are Grass peas like? What climate and soil suits them best? How do they yield? Are they subject to attacks of pea bugs, and where can the seed be obtained?"

[The Grass pea is an annual legume which has been grown to a limited extent in Ontario for several years. The stems of the plants are flat, and the whole crop is greatly relished by animals when used as a green fodder. It produces a moderate amount of grain, which is angular in form and very hard. One marked advantage of the grain of the Grass pea is that it is entirely proof against the ravages of the pea bug (*Bruchus pisi*). The Grass pea will usually thrive well in those climates and on those soils best suited to the cultivation of our common varieties of peas. We have grown the Grass pea for several years at the College, both as a grain and as a fodder crop. In the average results of four years' experiments, the Grass pea has produced 8.9 tons of green fodder per acre. This is more than double the yield produced by the Horse beans when both crops have been grown under exactly similar conditions. It is also a little over 2 tons per acre more than the green crop produced by the Prussian Blue variety of peas when both were grown side by side in each of the years. As a producer of grain, it has given a yield of 17½ bushels per acre in the average tests for four years. The Grass pea has been sent out over Ontario in connection with the co-operative experiments for three years in succession, and has been very popular among the experimenters as a producer of green fodder. We believe that in those districts of Ontario where the pea bug (*Bruchus pisi*) is doing so much havoc with the common varieties of peas, the Grass pea can be used to good advantage, and the crop can be utilized either as a green fodder or for hay, or can be allowed to mature and the grain and the straw both used for feeding to the live stock in the winter. I notice that the seed of the Grass pea is advertised by John A. Bruce, Seedsman, Hamilton, Ontario, and by Wm. Rennie's Sons, Seedsman, Toronto, and no doubt it could be obtained from other leading seedsmen in Ontario. I have also received a sample of Grass peas from J. F. Laughlin, Lieury, who informs me that he grew a fairly large quantity of this variety last year, and that he was pleased with the success of the crop. I think perhaps there are a number of farmers in Ontario who have seed of the Grass peas for sale, and it might be of advantage to themselves and to the farmers generally if those having good seed of this variety would advertise the same in the columns of the FARMER'S ADVOCATE and in those of other agricultural papers. C. A. ZAVITZ, Experimenter, Guelph Experimental Farm.]

**MATERIAL FOR WATER TANK.**

**T. L. D., Oxford Co., Ont.:**—"We would like to get some help in your Questions and Answers column re the best material, etc., to use for building a large water tank, to hold say 200 barrels, and to be filled by windmill power. Do you think concrete would be satisfactory and as cheap as wood? Please give size, mode of construction, etc. Any information from yourself or subscribers will be appreciated."

[The only cement water tank above ground we have carefully examined was referred to in the description of Mr. Augustus Yorke's barn in our Feb. 1st, 1900, issue. The sides of that tank are five inches thick all round, and yet the water oozed through in several places. It was carefully made of Portland cement, and cost much more than a wooden trough would have done. For a tank of 200 barrels capacity to stand above ground we would recommend pine plank, made like a tub, well hooped. It should be larger at the bottom than at the top, so that the bands can be tightened by driving down if necessary. Two-inch plank should answer for the sides, but the bottom should be considerably heavier, unless well supported from below. A tank 10 feet in diameter half way up from the bottom and 10 feet high will hold 230 barrels of water; 9 feet in diameter and 11 feet high, about 210 barrels; and 8 feet in diameter by 12 feet high, about 200 barrels. We consider it would be necessary to engage an experienced woodworking mechanic to construct such a tank. Will some of our subscribers favor us with advice upon this subject?]

**CHART FOR CUTTING BEEF.**

**H. A. F., Hamiota:**—"Kindly publish chart for cutting beef into roasts and boiling pieces. It would be much appreciated."







## 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  
Lottier 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, 'tisn'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 "hissed" 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 \$450,000 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 attractive 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 he sure we made the most of

it, for since we became "globe trotters" we've thoroughly learnt what "Maltum 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."



**Important to Breeders and Horsemen.**  
Eureka **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.**

**Imported Shire Stallion**  
FOR SALE.

A winner at two Toronto Spring Horse Shows; big ringer, good looser; good action, clean, flat bone; active, sure foot-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.

**EDWARD R. HOGATE COMPANY**

IMPORTERS OF  
Shire, Clydesdale, Hackney and Coach Stallions.  
We have them on hand from 3 to 5 years old, Shires and Clydesdales, weighing from 1,800 pounds upwards, and Hackneys and English Coach horses from 16 to 17 hands high, full of life and superb action. Write now for particulars and where you can buy the cheapest. Our last importation from England arrived February 1st, 1900. Terms to our customers.

ADDRESS:  
**EDWARD R. HOGATE,**  
264 Arthur St., TORONTO, CAN.  
Barns: 84 and 86 George Streets.

**Shire Stallion (Imported)**  
FOR SALE.

Bay, one hind foot white; weighs over 1,900 lbs.  
Address,  
**JOHN WILSON, Leamington, Ont.**



**Clydesdales**  
FOR SALE.

The largest stud of superior imported Clydesdales in Canada; 15 stallions of different ages, warranted sure, 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 Barnley cross. He is closely related to winners and champions. Early buyers will find prices right.

**JOHN CAMPBELL,**  
FAIRVIEW FARM, -om WOODVILLE, ONT.

BEEDERS AND IMPORTERS OF  
**ROBT. NESS & SONS, HOWICK, QUE.**

**Clydesdale Horses & Ayrshire Cattle**  
Also the leading breeders of fowls for the farmers.

**DALGETY BROS.,**

463 King St., London, Ont.



Largest importers in Canada. Third consignment this season of Clydesdales all sold. Fourth consignment will arrive first week in March. Fifth consignment will arrive second week in March. Have sold more Clydes than all importers combined. A specially good lot of stallions and mares soon to arrive. No exorbitant prices asked. -om

**SMALL PROFITS AND QUICK RETURNS.**

**SPECIAL OFFER** for February and March Orders.

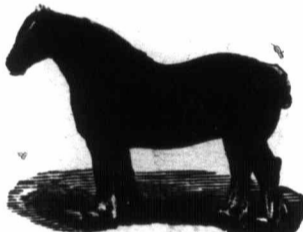
On any and all orders we receive from Breeders and Farmers during February and March we will allow 5 per cent. discount from our regular price, or in place thereof, pay the freight to your nearest railroad station. We will also accept bankable notes to run 2, 4, 6 or 8 months, in payment for Cookers, 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; scalds hogs in 20 minutes; will heat 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 Catalogue and introduction price. The Ripley Company proved its claims to superiority by taking first premiums 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. -om

**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."



**Stallions, Mares, Colts and Fillies**  
Of all ages, from the best blood in Scotland and Canada.

Now is the time to purchase a young colt and raise him yourself. We have on hand weanlings weighing over 900 lbs., also year-olds, 2-year-olds and 3-year-olds, colts and fillies. Ayrshire bulls and heifers from imported stock. Best milking strains, with good teats. Terms reasonable. A visit to Thorncliffe will well repay you.

**ROBT. DAVIES,**  
-om Thorncliffe Stock Farm, TORONTO.

**ROSDALE 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.**

**DAVID A. MACFARLANE, KELSO, P. O.**  
BREEDER OF  
**Ayrshire Cattle.**

The blood of Nellie Osborne is largely represented in my herd, and combine style, quality and production. A few choice things for sale.

A Few **Durham Heifers** In  
Choice -om Calif.

Two bulls; two bull calves; all of choice breeding. Berkshire boars; brood sows and sow pigs. Prices right.

**A. J. C. SHAW & SONS,**  
-om THAMESVILLE, ONT.

**SCOTCH SHORTHORN BULLS AND HEIFERS**  
HERD ESTABLISHED IN 1872.

Such sires as imported Royal George and imported Wartare have put us where we are. Imported Blue Ribbon now heads herd.

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

**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, Brigden, Ont.**

**ARTHUR JOHNSTON**

Greenwood P. O. and Telegraph Office,



INDIAN GRIEF (5745)  
OFFERS FOR SALE, AT MODERATE PRICES,  
**13 IMPORTED AND SHORTHORN BULLS**  
**HOME-BRED**  
**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.

**SPRINGFIELD FARM**

HERD OF  
**Shorthorns, Oxfords,**  
**AND Berkshires.**  
Young bulls and heifers on hand. Also a few choice Berkshires.  
**CHAS. RANKIN,**  
Wyebridge, Ont.  
SIMCOE CO.

**JOHN DRYDEN.**

BROOKLIN, ONTARIO,

BREEDER OF  
**Scotch Shorthorns,**  
**Choice Shropshire Sheep.**

**Shorthorns and Leicesters.**

Herd Established 1855.  
A number of young bulls, cows and heifers for sale. Herd headed by imported Christopher 28859, and Duncan Stanley = 16364 =. Grand milking cows in herd. Also a number of Leicesters of both sexes, from imported foundation.

**JAMES DOUGLAS,**  
-om CALEDONIA, ONT.

**SHORTHORNS AND BERKSHIRES.**

Duke of Richmond No. = 26079 = at head of herd. Four young bulls for sale—good ones, and a few cows and heifers. Young bulls and sows of the very best breeding always on hand.

**J. W. Hartman**  
-om & SONS,  
Elmhedge P. O., Ont.

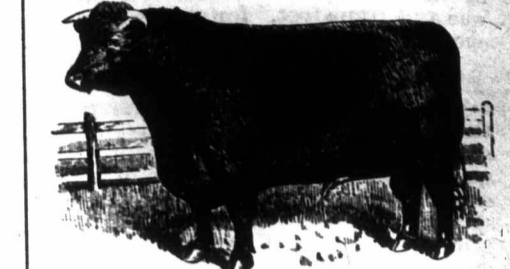
**1865 FOR SALE: 1900**  
**Scotch Shorthorn Bulls**

Sired by Prime Minister (Imp.) and Guardsman (Imp.), out of dams tracing direct to the best Scotch herds. Also a few females.

**JOHN GARDHOUSE,**  
Highfield, Ont.  
Weston Stn. C. P. R. and G. T. R.

**W. D. FLATT,**

Hamilton, Ontario, Can.,  
Importer and breeder of  
**Shorthorn Cattle.**



GOLDEN FAME (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.**

SIREN 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., F. Q.

1833 **WM. LINTON** 1900

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

**F. BONNYCASTLE & SONS**

CAMPBELLFORD P. O., ONT.,

BREEDERS OF  
**Shorthorns, Cotswolds,**  
**and Berkshires.**

Have for sale cows, heifers, and heifer calves; a choice lot of ram lambs, ewe lambs, and breeding ewes; 40 Large English Berkshires, of the long bacon type, from six weeks to nine months old. -om

**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,**  
-om DENFIELD, ONT.

**Shorthorns and Shropshires.**

I have a few promising young bulls on hand, and am booking orders for Shrop. ram lambs for fall delivery; well covered.

**GEORGE RAIKES, - BARRIE, ONT.**

**SHORTHORN BULLS AND HEIFERS**

FOR SALE.

Cruickshank and other Scotch sort, headed by (Imp.) Knuckle Duster. Herd has furnished the Fat Stock Show champion three out of the last five years. Correspondence invited.

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

THE FARMER'S ADVOCATE

MARCH 1, 1900

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.

Our "National strain" Barred Plymouth Rocks have proved themselves the equal of anything that grows in this winter they never 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, 1st and 3rd on hens; at Galt, 3rd on cock, 3rd Toronto, 1st on pullet; at Galt, 3rd on cock, 3rd on hen, 1st on pullet, and tied with four others on 2nd; at Brantford pullet, won 2nd and 3rd on 2nd; tied for 1st on we won 2nd and 3rd, scored 94 and 93. 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.

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 bred 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 Sittytown, 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 also two 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 Vensgarth." These are all under 2 1/2 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 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.

NOTICE. Seed Grain.—See Jas. Bowman's offerings of early oats and first-class barley in this issue.

Find Your Level. Are you wanting your time in a lowly position when you are tied occupy a higher one? If you are tired of menial work you can fit yourself for a better position without loss of present salary. Change Your Occupation. Thorough courses in Mechanical or Architectural Drafting, Electrical, Mechanical, Steam or Civil Engineering, etc., by mail. Write for circular. The International Correspondence Schools, Box 900, Scranton, Pa.

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) - 20633 - 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), shank bull, bred by Mr. John I. Hobson, Mosboro, are good milkers, from good milking strain, and have calves. 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 for cash. Teams will meet trains at Acton, G. T. R., on morning of sale. Catalogues will be sent on application to THOS. INGRAM, AUCTIONEER, ACTON P. O., ONT.

IMPORTANT AUCTION SALE OF Scotch-bred Shorthorn Cattle BELONGING 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 Hobson 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, Myias, Beauties, Lady Mays, Lustras, etc. The home-bred herd contains Indian Statesman - 22004 -, and 15 young bulls from 6 to 18 months old, and 50 cows and heifers of all ages Registered Shorthorns, 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. W. G. PETTIT & SON, BURLINGTON JUNCTION STATION AND TELEGRAPH OFFICE, G. T. R., within half a mile of farm. 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.

4-SHORTHORN BULLS-4 Maple Lodge Stock Farm ESTABLISHED 1854.

From 5 to 15 months. A few young cows or heifers; color red; good pedigrees. JAMES BROWN, Thorold, Ont. HAWTHORN HERD OF DEEP-MILKING SHORTHORNS. We are offering 5 young bulls for sale, of first-class quality, and AI breeding. Wm. Grainger & Son, - Londesboro, Ont.

SPRING GROVE STOCK FARM

Shorthorn Cattle and Lincoln Sheep. Herd prize and sweepstakes at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by Topsman - 17847 -, champion at Winnipeg, Toronto, London and Ottawa, 1899. High-class Shorthorns of all ages for sale. Also prize-winning 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.

I am prepared to offer at reasonable prices, for a short time, a few very choice young registered Shorthorn Bulls and Heifers. in good health and fine growing condition. Simcoe Co., Coldwater Station. SAMUEL DUNLOP, Eady, Ont.

SHORTHORNS

Two choice young bulls, 17 months old; also a number of young cows and heifers. A. F. ALTON & SON, Burlington Jct. Station, Appleby P. O., 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, STOUFFVILLE STATION, G. T. R. BETHESDA, ONT.

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 Shorthorns

A number of choice young bulls, heifers and cows, excellent milking strains. Correspondence invited. R. O'RILEY, Belgrave P. O., Ont., and G. T. R.; Wingham, C. P. R.

SHORTHORNS

Choice bulls ready for service, by Scottish Chief - 27241 -, by Scottish Pride (imp.) Dam Fanny's Gem, by Quarismann (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.

Shorthorns.

At easy prices, 10 good young bulls, from 3 to 15 months old. Also 10 heifers and young cows with calf at foot or served by Imp. Prince William, now at head of herd. R. MITCHELL & SON, Burlington Jct. Station, Nelson, Ont. Thorough-bred Hereford Bulls for sale - 1 and 2 years old. W. R. COLEMAN, "Oakdale Farm," Cookstown P. O., Ont.



**KENDALL'S SPAVIN CURE**

**WORTH \$50 A BOTTLE To This Man**

*It may be worth a like sum or even more to you.....*

Engel, Barnes Co., N. D., March 19, 1898.

Dear Sirs:—I have used your Kendall's Spavin Cure and think it a good medicine. 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 container.

Truly yours,  
FRANK SMITH,  
Hartington, F. O., Ontario, Mar. 6, '98.

Dr. R. 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 treatment for same or best in the market. Please send me the book as you advertise in your bottle, for horses.

It is an absolutely reliable remedy for Spavins, Splints, Curbs, Ringbones, etc. Removes the bunch and leaves no scar. Price, \$1; six for \$5. As a liniment for family use it has no equal. For your receipt for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," the book free, or address

**DR. R. J. KENDALL CO., ENOSBURG FALLS, VT.**

**GOSSIP.**

Horsemen looking for a draft stallion for the coming season should look up the advertisement of John Semple's offering of his imported Shire in this issue.

Mr. Alex. Love, Eagle, Ont., offers in this issue two young bulls descended from the noted imported Guardsman; also Berkshire pigs to suit all in age, breeding and type.

Attention is called to the advertisement in this issue of the dispersion sale of Shorthorn cattle by Mr. Michael Lamb, at Acton, Ont., near Guelph, on March 13th. Mr. Lamb has sold his farm and will sell his entire herd, consisting of nineteen head—eleven females and eight bulls—including a three-year-old Cruickshank bull, sired by War Eagle, a sweepstakes winner at Toronto Exhibition. The females are said to be mostly in calf to this bull or have calves at foot, and are of good milking strains. The date is arranged so that purchasers can take in the Birrell sale at Mosboro the following day, as the two farms are in the same neighborhood.

**RICHARD BROWN'S SHORTHORNS.**

The activity in demand for Shorthorns, which has spread to all parts of Canada, has aroused general interest. The herd of registered Shorthorns owned and advertised elsewhere in this paper by Richard Brown, of Orono, in Durham Co., Ont., has been known to the writer for upwards of fifteen years, and during that time steady progress has been made in its improvement. The foundation stock was carefully selected, with due regard to general usefulness and their milking qualities carefully guarded and nursed, and to-day in the herd may be found some fifteen smooth, useful animals. The Luan tribe, predominating in numbers, are a smooth, lusty, useful lot, noted for their prolific qualities. Trixie 27436 is also a useful type of cow of fine Shorthorn character, and has done her share to build up and maintain a name for the race from which she came. Much careful attention has been given to judicious mating, and at present Mr. Brown employs the bull, Milbrook Minister, a son of the noted imp. Prime Minister, whose progeny has demonstrated beyond doubt their ability to command the attention of the largest and most influential herd-owners in the Province. Milbrook Minister is an animal full of beefing conformation and quality of the early-maturing sort, and parties desiring young females will do well to note Mr. Brown's ad. and act quickly, as they are the sort that will not remain long when exposed for sale.

**F. A. GARDNER'S SHORTHORNS.**

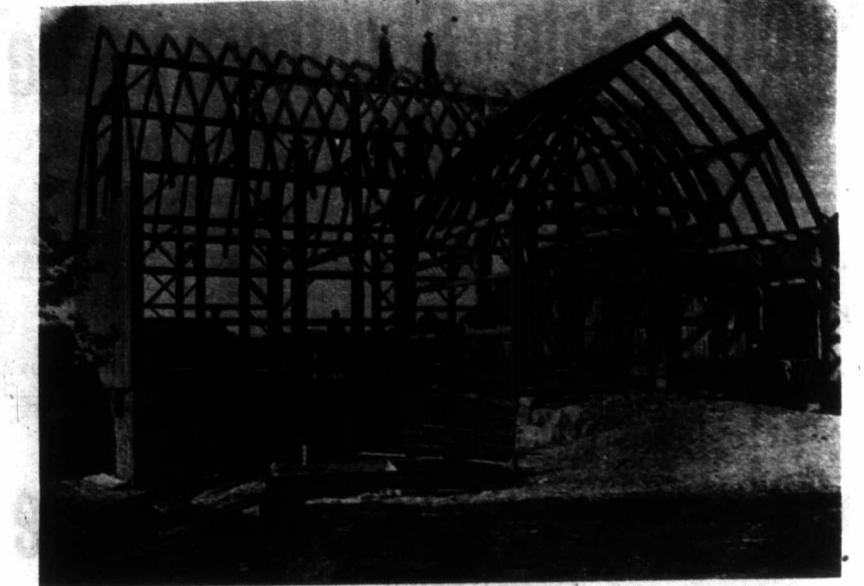
A very useful herd of Shorthorn cattle is that of Mr. F. A. Gardner, of Britannia, Ont., near Brampton, on G. T. R., and Streetsville and Cooksville, on C. P. R. The herd is headed by the blocky, thick-fleshed, red 3-year-old imported Scotch-bred bull, Scotland's Fame, by Golden Ray, bred by Mr. Duthie, and sired by the Cruickshank bull, Scottish Archer, purchased when a yearling by Mr. Deane Willis for 300 guineas. Prominent among the females is the excellent imported 2-year-old roan, Empress, of the Kinellar Rosebud family, purchased at the W. D. Platt sale in December last. She is richly bred, her pedigree showing strong crosses of the best Cruickshank and Kinellar bulls. A fine red Mysic cow, bred from the Cruickshank family of that name, has a promising daughter, sired by Imp. Bold Britain—30387—by Imp. Golden Crown, and of the Kinellar Mina family. Rose of Saxon, a roan 7-year-old cow, of deep-milking tribe, has an excellent 4-year-old daughter by Bold Britain, and due to calve this month to Scotland's Fame. Marchioness 9th, a large red 4-year-old cow, by Scotsman, is also of a noted milking family, her dam having been selected to represent the Shorthorns in the dairy test at the World's Fair. She has a red yearling daughter by Bold Britain, and a roan heifer calf by the Missie bull, White Oak. There is also a nice roan yearling heifer of the Marr Missie family, sister of one of the same family sold by Mr. Gardner last year for \$350 to go to Oregon. A very good red 17-months bull sired by the prize bull, Indian Brave, by imported Indian Chief, and a red-and-white bull calf by Scotland's Fame, out of a Mysic cow, are held for sale. See Mr. Gardner's advertisement in this number.

**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, 4 inches thick; floor in root cellar, 30 x 32 feet, 2 inches thick.



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

HYDE PARK, ONT., DEC. 3, 1899.

TO THE ESTATE OF JOHN BATTLE, Mfrs. of Thorold Cement, Thorold, Ont.

Dear Sirs,—Having built a barn 42 x 62, with root cellar in connection 30 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 traveller, Marcus Ware, who laid my floors. He is a first-class workman.

Yours truly,  
G. W. KEAYS.

**Estate of John Battle, Thorold, Ontario.**

**The "DAISY" BARREL CHURN**



**SPECIAL FEATURES FOR SEASON OF 1900:**

- Angle Steel Stand with extra patented Center Brace.
- Patent Double Lever or Bow.
- Wheels on the Feet.
- Hardened and polished steel Ball Bearings.
- Patent Cover and Drip Tube.
- Sizes No. 0, 1, 2, 3, 4, and 5.
- The barrels are made of the best imported white oak staves, and will last many years.

Manufactured only by  
**THE WORTMAN & WARD MFG. CO. (LIMITED)**  
HEAD OFFICE: LONDON, ONT.  
EASTERN BRANCH:  
60 McGill Street, Montreal.

**FOR SALE—3 Shorthorn Bulls**  
and a few females by Indian Brave, Bold Britain, and Scotland's Fame, out of straight Scotch females.  
F. A. GARDNER, BRITANNIA, ONT.

**FOR SALE:**  
SHORTHORN COWS, HEIFERS, and YOUNG BULLS, descended through imported Prime Minister, on Scotch-bred cows of high dairy quality.  
**RICHARD BROWN, ORONO, ONT.**

**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.

**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.  
om G. & W. GIER, Grand Valley, Ont.

**Shorthorn Bulls and Heifers.**  
Strongly tainted with the blood of the Crimson Flowers and Nonpareils, upon which have been employed such sires as Indian Duke, Crimson Prince, etc. Write John E. Harvie, Orillia, Ont.

**A. D. M'GUGAN,**  
RODNEY, ONTARIO.  
**Shorthorn Cattle and Lincoln Sheep**

The noted sire, Abbottsford, stands at the head of our herd. We have a few choice red bulls to offer; also ram and ewe lambs from imported stock.

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

**40 HEREFORDS**  
Bulls, Cows, and Heifers,  
for immediate sale.  
**Alfred Stone,**  
om 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 (74930)**  
This herd is rich in the blood of "Corcoran," "Ancient Briton" and "Rupert," on an "Auxiliary" foundation. Send for illustrated catalogue.  
**TAMWORTH SWINE**  
Bacon type, high quality, low price.  
**H. D. SMITH,** om COMPTON, QUE.

**F. W. STONE ESTATE,**  
GUELPH, ONTARIO.  
The first Hereford herd established in Canada by importations in 1859 of the best prize-winners 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.

**GUERNSEYS.**  
This is the dairy breed for ordinary farmers. Large, vigorous, and hardy, giving plenty of rich milk. Several fine young bulls for sale at very reasonable prices. A few heifers can be spared.  
Address—**SYDNEY FISHER,**  
17-y-o ALVA FARM, KNOWLTON, P. O.

**Aberdeen - Angus.**  
Five bulls, 9 to 19 months, registered in American H. B. Descended from "Legie the Laird," 3rd champion of both Highland and Royal Northern Shows, Scotland. Kyma (Imp.), by O. A. C. first-prize at Royal Northern, Aberdeen. Emylna (Imp.), and Jun (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.

**Aberdeen-Angus Cattle** of any age or sex, of sheep, write us or come and see them. Look to the prize lists of the large shows to prove the quality.  
**JAMES BOWMAN,** Elm Park, GUELPH.

**Meadowbrook Jersey Herd** For sale, a splendid bull calf, reg. A. J. C. C., six months old, at your own price. Thirty splendid White Wyandotte hens and a few cockerels.  
**EDGAR SILCOX,** o SHEDDEN, ONT.

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

**\$200 Do you want a Snap? \$200**  
Now is your Chance. 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 (in calf to Handsome Krioter, one of Mrs. E. M. Jones' best bulls). All for the low price of \$200 (if taken before cows drop their calves), f. o. b. cars at Chatham, or will sell singly. Also young Jersey bulls, and a few choice Jersey grade heifers at reasonable prices.  
om W. W. EVERITT, Chatham, Ont.

**Deschenes Jersey Herd.**  
HEADED BY IDA'S ROTTER OF ST. LAMBERT #7570.  
4 young bulls fit for service—registered. Also Tamworth swine from diploma herd, Canada Central Fair, Ottawa, 1898.  
**R. & W. CONROY,**  
DESCHENES MILLS, QUEBEC.

**BARRED PLYMOUTH ROCKS.**  
\$50 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.**  
PLEASE MENTION FARMER'S ADVOCATE.





**Kicking Gows.**

Stop your cows kicking, increase the flow of milk by the use of **SORE TEAT SALVE.**

Positively prevents chapped teats, warts, and caked bag or udder. Price, 25c., 50c., and \$1. per tin.

**WM. MOLE, Veterinary Surgeon,**  
443 Bathurst St., TORONTO.

**FOR SALE.**

1 Three-year-old Ayrshire Bull; 4 Ayrshire Bulls, one year old; 3 Ayrshire Bulls, 8 months old; Bull and Heifers under two months, and Cows of all ages; 8 Shropshire Ram Lambs, also Ewes; 1 Berkshire Boar, 1 year old; 2 Boars under one year, also Sows, pairs not akin. Plymouth Rock Hens and Chickens; a few fine Cockerels left.

**J. YULL & SONS, Props., Carleton Place.**

**1 YEARLING AYRSHIRE BULL** For sale. Also 4 Bull Calves (spring, 1899, sired by Douglas of Loudon, and out of dams descended from imported Red Rose.

**F. W. TAYLOR,**  
Wellman's Corners, Ont.

**For Sale:** Six Ayrshire bulls, ranging from 6 months to 1 year past. Also a few cows and heifers, thoroughbred fowls, and Scotch collie dogs.

**WM. STEWART & SON, MENIE, ONT.**

**For Sale: 4 Ayrshire Bulls**

Descended through White Prince, Orphan Boy, and Jack the Lad of Maple Grove 1833; females, upon Princess of Menie 537 and Jess 2465 foundation. Straight, strong, typical animals. Oxford sheep, Berkshire pigs, and Black Java fowls.

**H. J. WHITTAKER & SONS,**  
Dundas Co. - North Williamsburg, Ont.

**4 AYRSHIRE BULLS 4**

Sired by Beauty Style of Auchenbrain (imp.), whose dam gave 72 lbs. milk in one day, and out of high-producing dams.

**R. S. BROOKS,** Brantford, Ont.  
Formerly T. Brooks & Son.

**Choice Ayrshires, Barred Rocks and Eggs.**

4 FINE BULLS & 4 for service. Bull calves, and heifers. A few Barred Rock cockerels. Eggs for hatching from choice matings in Barred Rocks, at \$3 per 15; incubator eggs, \$4 per 100; Cuckoo duck eggs, \$1 per 11.



**JAS. McCORMACK & SON,**  
ROCKTON, ONTARIO.

**5 Ayrshire Bulls 5**

Fit for service this spring, by Victor of Maple Hill, and out of Snowball, Strawberry, and other noted dams, tracing through Tom Brown and such sires.

**DONALD CUMMINGS, LANCASTER, ONT.**

**Shropshire Rams and Ewes**

Newly imported from the greatest English breeders. Home-bred rams and ewes of best quality. Scotch Shorthorns and Clydesdale horses for sale at moderate prices, and in large numbers, by

**ROBERT MILLER,**  
STOUFFVILLE, ONT.

**SHROPSHIRE**

Shall have a fine lot of choice early lambs for the fall trade. We import and breed only the best.

**J. P. PHIN, Hespeler, Ont.**

**Oxford Down Sheep**

Flock Established 19 Years. Have a few ewes of different ages for sale, in lamb to imported ram.

**HENRY ARKELL,**  
ARKELL P. O., ONT.  
Guelph: Telegraph and Telephone.

EUROPEAN ADVERTISEMENTS.

**J. E. CASSWELL,** Loughton, Folkingham, Lincolnshire.

breeder of Lincoln Long-wooled Sheep, Flock No. 46. The flock was in the possession of the present owner's great-grandfather in 1785, and has descended direct from father to son without a single dispersion sale. J. E. Casswell made the highest average for 20 rams, at the "Annual Lincoln Ram Sale," 1895 and 1897. The 1896 rams were all sold for exportation. Rams and ewe hoggs and shearings for sale, also Shire horses, Shorthorns, and Dark Dorking fowls. Telegrams: "Casswell, Folkingham, Eng." Station: Billingboro, G. N. R.

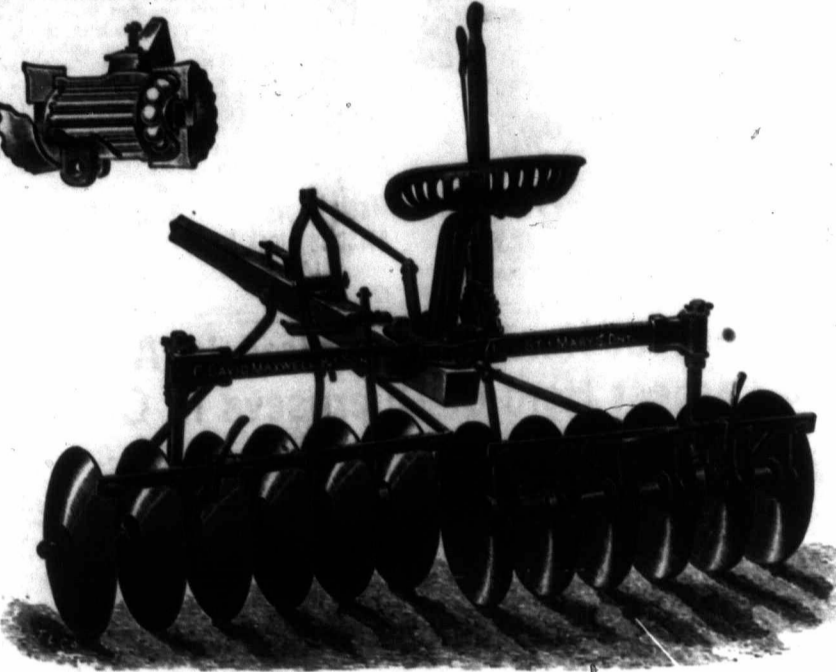
FAMOUS ALL OVER THE WORLD.

**ALFRED MANSELL & CO.,**

LIVESTOCK AGENTS AND EXPORTERS, SHREWSBURY.

BRITISH STOCK selected and shipped to all parts of the world. Write for prices to ALFRED MANSELL & CO., Secretaries of the Shropshire Sheep-Breeders' Association, Shrewsbury, England.

**Maxwell Disc Harrow**



The "BEST," not the "cheapest." The only harrow with Combined Ball and Roller Bearings. The only harrow with Patent Adjustable Cleaner. No expense has been spared on the cost of manufacturing, and the Maxwell Disc is what we claim—the best produced.

**DAVID MAXWELL & SONS.,**

St. Mary's, Ontario.

**Queenston Cement**

FOR WALLS AND FLOORS.



WRITE us before designing and laying out farm buildings. State number and kind of stock to be kept, and give size of stables. We will send sketch of basement floor, showing how to use to advantage the room at your disposal. Our system of ventilation is being adopted by the leading stockmen. Fully covered by Letters Patent, but to our patrons we make no charge.

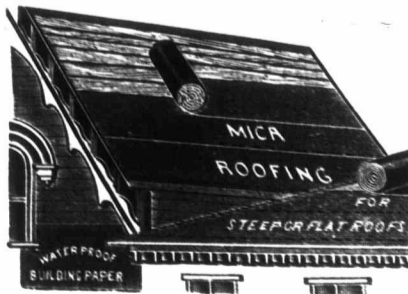
**Isaac Usher & Son, QUEENSTON, ONT.**

**MICA ROOFING**

USE MICA ROOFING on all your Buildings.

IT IS CHEAPER THAN SHINGLES.

WATERPROOF. FIREPROOF.



USE MICA PAINT to Repair Leaky Roofs.

Shingle, Iron or Tin Roofs painted with it will last twice as long.

RAPIDLY TAKING THE PLACE OF SHINGLES.

Is put up in rolls of one square each, 40 feet long by 32 inches wide, and costs only \$2.25, including nails, thus affording a light, durable and inexpensive roofing, suitable for buildings of every description—especially flat roofs—and can be laid by any person of ordinary intelligence.

**HAMILTON MICA ROOFING CO.,** OFFICE: 101 REBECCA ST., HAMILTON, ONT.

PLEASE MENTION FARMER'S ADVOCATE.

EUROPEAN ADVERTISEMENTS.

**HAMPSHIRE DOWN SHEEP.**

GREAT ENGLISH

**Pedigree Sales**

July, August, and September, 1900.

**WATERS & RAWLENCE, Salisbury, Eng.**

Will sell by auction during the season upwards of

**50,000 PURE-BRED EWES, LAMBS and RAMS,**

Including both rams and ewes from the best registered prize-winning flocks in the country. Commissions carefully executed. Address:

**Waters & Rawlence**  
SALISBURY, ENGLAND.

HAMPSHIRE DOWN

**SHEEP.**

SPLENDID MUTTON, GOOD WOOL, GREAT WEIGHT.

THIS HIGHLY VALUABLE

**English Breed of Sheep**

Is unrivalled in its rapid and wonderfully early maturity, possessing, too, a hardness of constitution adapted to all climates, whilst in quality of mutton and large proportion of lean meat it is unsurpassed. Full information of

**JAMES E. RAWLENCE,**

SECRETARY HAMPSHIRE DOWS SHEEP BREEDERS' ASSOCIATION,

SALISBURY, ENGLAND.

**W. W. Chapman,**

Secretary of the National Sheep Breeders' Association, Secretary of the Kent or Romney Marsh Sheep Breeders' Association, and late Secretary of the Southdown Sheep Society.

Pedigree Live Stock Agent, Exporter and Shipper. All kinds of registered stock personally selected and exported on commission; quotations given, and all enquiries answered.

Address: FITZALAN HOUSE, ARUNDEL ST., STRAND, LONDON W. W. Cables—Sheepcote, London.

**The Danesfield Pedigree Stock**

IMPORTERS desirous of securing selections of either Shire horses, Aberdeen-Angus cattle or Hampshire Down sheep should inspect the stud, herd and flock, property of Mr. R. W. Hudson, which are kept in the highest degree of purity and care and selection can produce at Danesfield, Marlow, Bucks, England. Specimens of horses, cattle and sheep have been largely exhibited at the principal English shows during 1899 with very prominent success. For full information, etc., apply to

**MR. COLIN CAMPBELL,**

ESTATE OFFICE,

DANESFIELD, MARLOW, BUCKS. who will be happy to make arrangements for inspection, or to quote prices.

**HENRY DUDDING, RIBY GROVE, STALLINGBOROUGH, LINCOLN, ENGLAND.**

Breeder of Lincoln Longwood Sheep and Shorthorn cattle. The Riby Flock of upwards of 1,400 Ewes holds an unequalled record for true type, merit, and quality. Its produce and their descendants have won the highest honors at all the principal exhibitions and shows throughout the world; its wool exhibits being unbeaten. Established upwards of 140 years, its produce leads the way from the fact that satisfaction is given. The Riby Shorthorn Herd of upwards of 300 selected specimens of Booth, Bates, Cruickshank, and Scotch strains, is one of the largest Herds in Great Britain. Its principal Stud Bulls are: "Pride of Fortune" 73210, s. "Pride of Morning" 145064, d. "Flora 2nd," by "William of Orange" 50094; "Golden Robin" 68718 (rich roan), s. "Roan Robin" 57992, d. "Golden Sunshine," by "Royal James" 54972; "Prompter" (Vol. XLV.), by "Prefect" 68255, d. "Risington Lass," by "Empire 13th," 1st s. "Wiltshire Count" 68824, out of "Rose Blossom" (G. Harrison). This bull, his sire and dam, won 84 prizes, including first and champions. Annual Home Sale, Tuesday, July 24th, 1900. Telegrams: "Dudding, Keelby." Rail Stations: Stallingborough, 3 miles; Great Grimsby, 7 miles.

**Large English Berkshires.**

HERD headed by two imported first-prize hogs. Young boars and sows from imp. prize-winning sires and dams. Write for prices.

**H. BENNETT & SON, St. Williams, Ont.**

MARCH 1, 1900

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

SNELGROVE BERKSHIRES AND COTSWOLDS. We can supply singly, in pairs, or trios, not akin, or in larger numbers, registered Berkshire pigs and Cotswold sheep of the highest class. Young boars fit for service, sows old enough to breed. Young pigs 6 to 8 weeks old. Ram lambs and ewe lambs. Write for prices and particulars. SNELL & LYONS, SNELGROVE, ONT.

Berkshires and Tamworths were founded upon Snell, Teasdale, Coxworth and Dorrence selections, with Varna Duke and Manor Lad, the second-prize boar at Toronto last fall, standing at the head of my herd. My Berkshires have the blood of imported Nimrod, Middleton Mimmulus, O. A. C. 110, the silver medal sow at London in '98. Her son, Parkhill Prince, with imported Nimrod, heading the herd. Write for what you want. W. I. TUMELTY, Madoc, Ont.

ENGLISH BERKSHIRES. FOR SALE: Two 3-year-old boars, both first-class stock-getters; one yearling boar by (imp.) British Flag, and a few choice Shorthorn heifer calves. Orders booked for spring pigs. JOHN RACEY, JR., Lennoxville, Que.

Maple Grove Yorkshires, Tamworths The home of the winners. Pigs of all ages, of the large bacon type. Sired by such hogs as O. G. Commodore 4th (the unbeaten Yorkshire), and Rob Roy (1st prize Tamworth at Toronto). Dams sired by imported boars. Write for particulars. T. J. COLE, BOWMANVILLE, ONT.

We lead, others follow. Oak Lodge Yorkshires have a special type of their own, and are acknowledged to be the highest class of bacon hogs. Grand sweepstakes over all other breeds on foot and for dressed carcasses at Provincial Winter Show. Won all herd prizes offered at the largest Canadian exhibitions. Improve the quality of your pigs by securing some of Oak Lodge blood. Quality! quality! our motto. All stock fully guaranteed. Brethour & Saunders, Burford, Ont., Can.

WOODSTOCK Yorkshires, Berkshires, Shorthorns 40 head of improved White Yorkshires. Boars and sows from 2 mos. to 9 mos. Sows in pig to imported boar. 20 head of choice Berkshires, same age. Six Shorthorn bulls from good milking strains. Address: H. J. DAVIS, BOX 290, WOODSTOCK, ONT.

NORTH BRUCE HERD Improved Large Yorkshires. Boars fit for service, sows ready to breed, and young stock ready to ship, for sale. Orders booked for spring pigs. Write for prices. WM. HOWE, Pt. Elgin St., G. T. R., NORTH BRUCE.

Yorkshire Boars WEIGHING 200 LBS. AT \$10.00. We have a few of those 200-pound boars which we are offering for \$10 each. Also brood sows and younger stock. A choice A. J. C. C. Jersey cow, due to calve in April, for \$50.

W. R. BOWMAN, MT. FOREST.

THE GLOBE FURNITURE COMPANY, LIMITED. WALKERVILLE, ONTARIO. CHURCH PENS, PULPITS, ALIADA, BARRA, SCHOOL DESKS, ETC. WRITE FOR PRICES

Berkshires. St. Williams, Ont.

GOSSIP. The advertisement of Aberdeen-Angus bulls from the good herd of Mr. Jas. Sharp, Rockside, Ont., should interest many beef-growers who favor this grand Scotch beef breed of cattle. See the advertisement regarding breeding and winnings of the herd. D. W. McKenzie, Nerepis Station, N. B., reports Holsteins booming in the Maritime Provinces, letters being received every week enquiring for stock. He has recently purchased for use in his herd the 3-year-old bull, Cornelia Tenson's Netherland 1183, C. H. H. B., son of imported Cornelia Tenson 22, one of the best and most typical Holstein cows that has ever figured in Canada, winner of first prize and sweepstakes at Toronto Industrial Exhibition in 1891 and 1892, and having a record of 81 lbs. milk daily, 14,184 lbs. in ten months, and 19 lbs. butter in a week. This bull has been siring some extra good stock in New Brunswick, and should do good work wherever he goes.

RESULTS OF ADVERTISING. Mrs. J. F. McKay, Parkhill, Ont., writes: "As I have sold all my turkeys and Brahmas, I now see that to advertise is necessary if one wishes to dispose of stock of any kind for breeding purposes. I had only one advertisement this fall and have sold a flock of over 20 birds, and could have sold more if I had them heavy enough. That is an important feature; everyone wants good weight."

AYRSHIRES AT SOUTH BRANT STOCK FARM. Since last references were made in our columns to Mr. R. S. Brooks' Ayrshires at South Brant Stock Farm, near Brantford, Ont., the herd has been materially strengthened. Since the commencement of Mr. Brooks' experience with the breed, his aim has been to produce animals of true bred type, strong constitution, and having a maximum capacity for work. The present head of the herd is Beauty's Style of Auchenbrain (Imp.)—1129—(2758). His dam, Old Beauty's Last of Auchenbrain (6894), having a record on grass alone of 72 pounds of milk in one day. This bull is a long, stylish, clean-out animal, with a beautiful, velvety skin, and a vigorous constitution. Among the cows are the following famous animals: Daisy Bell (2490), by Jock Meadowside (713), a big producer of rich milk; Bell of Rosmond (2837), by Mack (1476), a typical show cow; Lady Brant (2906), also by Mack (1476), a grand cow, for which has been refused big prices; Lady of the Lake (2855), by Tam Glen 2nd (1310), a prize-winner at the World's Columbian; Lady of Ontario (2856), by Defender (1312), a second-prize winner at the Defender (1312); White Bloss of South Brant Columbian; White Bloss of Elmshade (2245), a (10096), by Dainty Lad of Elmshade; and many others of similar breeding and type. Among Mr. Brooks' present offerings are four promising young bulls, ranging from 6 to 18 months old, that are bred right, and possessed of fine dairy form. Mr. Brooks is particularly proud of his half-dozen heifer calves, from 1 to 12 months old, from the present stock bull and such matrons as we have mentioned. See Mr. Brooks' offerings elsewhere in this issue.

YORKSHIRES AND HOLSTEINS: Boars and sows, not kin, from 2 to 6 months, from prizewinners at Toronto and local shows. A 3-year-old bull, of the Tiranias family; and young stock at reasonable prices. R. HONEY, Warkworth, Ont.

Yorkshires, Berkshires, and Shorthorns. Yorkshire boars fit for service. Sows ready to breed, and sows safe in pig, of bacon type. Berkshire boars fit for service. Sows safe in pig, smooth type. 1 bull calf, 9 months; 1 heifer calf, 10 months. Write for prices. JAS. A. RUSSELL, Precious Corners, Ont.

Springridge Poland-Chinas Now offering the 2-year-old sire, Blackmoor, and a few of his young females, and booking orders for young stock from the royally-bred Goldbug, lately added to the herd. WM. J. DUCK, MORPETH, ONT.

OXFORD HERD OF POLAND-CHINAS The home winners of the sweepstakes at Toronto, London, Ottawa, and Provincial Fat Stock Show, we are offering again young boars and sows of superior quality; bred along the same lines as our winners. W. & H. JONES, OXFORD CO., MT. ELGIN, ONT.

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REGISTERED CHESTER WHITE PIGS, Eight weeks old, at \$5.00 each. Prizewinning Shorthorn and Jersey bull calves. Prices reasonable. F. BIRDSALL & SON, BIRDSALL, ONT.

COLDSRING HERD TAMWORTHS. Sweepstakes herd at Toronto and sweepstakes sow at O. F. S. Show in 1898, were bred at Coldspring Farm. One April boar, and Sept., Oct. and Nov. pigs. The right kind at the right price. Pairs not akin. Call and inspect or write to NORMAN M. BLAIN, Coldspring Farm, St. George, Ont.

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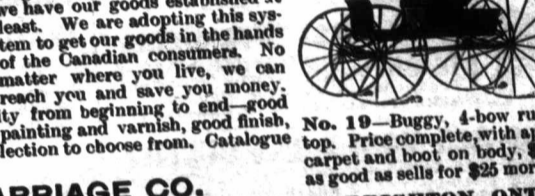


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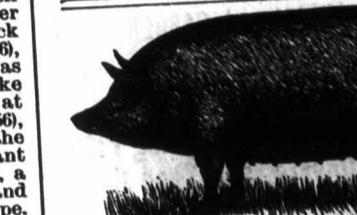


No. 30—Canopy-Top Surrey, double fenders. Price complete, with curtains all around, storm apron, lamps, pole or shafts, \$87—as good as sells for \$40 more. We can assure you of good quality from beginning to end—good woodwork, good steel and iron, good painting and varnish, good finish, good trimming, fine style, and good selection to choose from. Catalogue free. Address: INTERNATIONAL CARRIAGE CO., CANADIAN BRANCH, BRIGHTON, ONT.

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One hundred Tamworth and Improved Chester White Spring Pigs of a true bacon type, our herd having won the best prizes offered at the leading exhibitions throughout Ontario and Quebec for the past ten years. Stock for exhibition purposes a specialty. We pay express charges between stations, and guarantee safe arrival of all stock shipped. Pairs furnished not akin. Write for prices. H. GEORGE & SONS, Crampton P. O., Ont.

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Tams for Sale. Aged boar, Spruce Grove Model 707; one March boar; one last fall; also some very choice ones 4 months old; a choice sow 4 months old. All stock registered. We guarantee safe delivery. Write us for prices and particulars. COLWILL BROS., Newcastle, Ont.

Must Reduce our Stock of Tamworths and Yorkshires. 30 young Yorkshire pigs, both sex, 2 to 3 months old, very cheap. Tamworth boar that won 1st prize under 6 months at Toronto last fall; also some very choice ones 4 months old; a choice sow 4 months old. All stock registered. We guarantee safe delivery. Write us for prices and particulars. COLWILL BROS., Newcastle, Ont.

TAMWORTHS Of the Most Approved Type. WE have a dozen vigorous sows to farrow this spring to O. A. C. 419, and can book orders for right good stock. Our stock was not only represented at the Illinois State Fair, but won the best prizes offered in '98. We also have a choice imported Berkshire sow three years old, and a twenty-months boar for sale. P. R. HOOVER & SONS, GREEN RIVER, ONT.

Chatham HERD OF Tamworths 1 two-year-old boar, and some splendid pigs 3 months old, by White-acre Lad (imp.), and by the old show boar, Sambo; also some good pigs, fit to wean. These are extra choice ones. For full particulars write: J. H. SIMONTON, Box 304, CHATHAM, ONT.

TAMWORTHS AND COTSWOLDS. I have a few very choice things to offer this season, fit to show, by Spruce Grove Model and Dorchester Hero, both Toronto winners, and out of my winners, and out of my sweepstakes sow. Also a choice bunch of splendid, strong, well-covered Cotswold Lambs. R. O. MORROW, Hilton, Ont.

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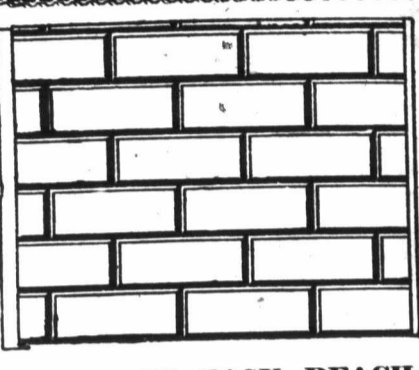
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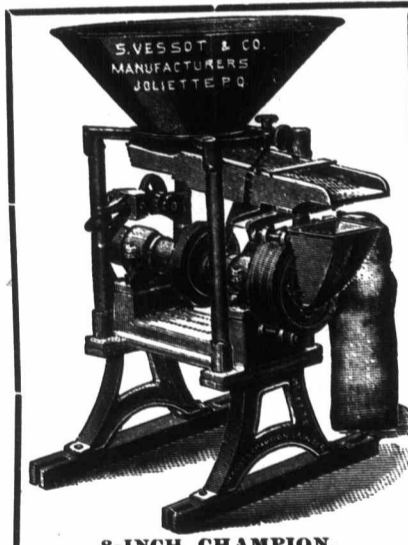
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MARCH 1, 1900

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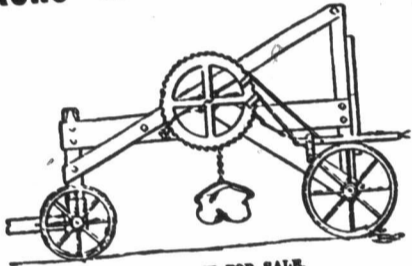
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## Persiac Sheep Dip and Animal Wash.

A NON-POISONOUS LIQUID "DIP."

Kills Ticks. Kills Red Lice. Heals Wounds.

Greatly Improves quality of WOOL.

For Horses, Cattle, and Pigs.

Removes all insects. Thoroughly cleanses the skin.

Leading "STOCKMEN" endorse it as the CHEAPEST and most EFFECTIVE "Dip" on the market.

SOLD BY ALL DRUGGISTS, 50 cents PER QT. CAN. Special rates in larger quantities.

MADE ONLY BY  
**The Pickhardt Renfrew Co.**  
LIMITED,  
STOUFFVILLE, ONT.

**A MACHINE**  
to weave fence of coiled hard steel spring wire at half price of factory fence. \$25 buys wire for 100 Rod Fence. Catalogue Free. Address, Carter Wire Fence Mach. Co. Box 12, Ridgeway, Ont.

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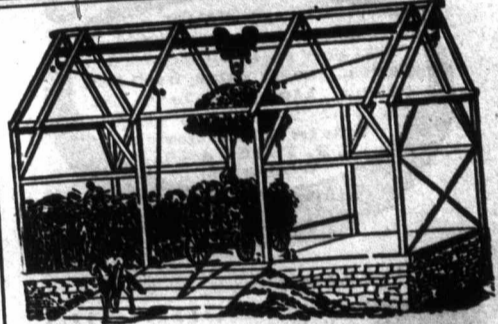
We guarantee every machine to do good work. Agents wanted. Write for particulars. PRICE, \$5.00.

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Used by all Live Stock Record Associations.  
Sheep size, per 100..... \$1.50  
Hog size, per 100..... 1.50  
Cattle size, per 100..... 2.00  
Punch and Pliers for attaching labels to ear, each \$1.00.  
Name on one side and any numbers wanted on reverse side. F. S. BURCH & CO.  
178 Michigan St., Chicago, Ill.

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## Horse Fork Outfits.

If you have any idea of putting in a horse fork or wagon sling outfit this spring, write to us for an estimate of the cost. We are headquarters in Canada for everything that is good in these labor-saving hay appliances. We are in a position to quote very low prices. We only handle the best goods, and we have everything required. Give us the length of your barn, and say whether you prefer a fork outfit or a sling outfit, and we will promptly mail you an estimate of the cost for a first-class article. Ask for spring catalogue of plows, harrows, cultivators, seeders, etc. Our prices are right.

ADDRESS:  
**Stanley Mills & Co.,**  
HAMILTON, ONTARIO.  
Our Maple Leaf Double Harpoon Fork beats everything else in its line.

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For MAPLE SYRUP and SUGAR. Has a corrugated pan over firebox, doubling boiling capacity and saving fuel; small interchangeable syrup pans (connected by siphons), easily handled for cleaning and storing, and a perfect automatic regulator, which secures rapid and shallow evaporation, and produces the best quality of syrup. The Champion is a perfect evaporator for

SORGHUM, CIDER AND FRUIT JELLIES.

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Conducted in all parts of the country. Pedigree stock a specialty. Write for terms. References: J. C. Snell, Edmonton; John I. Hobson, Guelph; Hon. M. H. Cochrane, Compton, P. Q.; or this office.

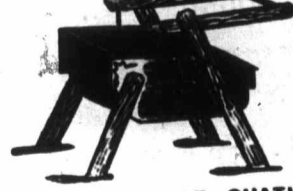
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## LIVE STOCK AUCTIONEER.

The undersigned is prepared to conduct pure-bred auction sales. 20 years' experience. References: John I. Hobson and Alfred Stone, Guelph; Jas. Hunter, Alma, and Mossom Boyd, Bobcaygeon. Telegram. Care Mercury Office, Guelph, Ont. -o-

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has gone through various stages of improvement, until it stands, as its name indicates, a perfect Washer. All machines are fully warranted. Ask for full particulars, prices, etc., apply to  
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**P**OTASH gives color, flavor and firmness to all fruits. No good fruit can be raised without Potash.

Fertilizers containing at least 8 to 10% of Potash will give best results on all fruits. Write for our pamphlets, which ought to be in every farmer's library. They are sent free.

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Always cheaper in the end than any seeds that only cost half as much. Tented, true to name, fresh and reliable. Always the best. Ask for Ferry's—take no others. Write for 1900 Seed Annual. **B. M. FERRY & CO.,** Windsor, Ont.

ADDRESS **Belleville Business College.**  
BELLEVILLE, ONTARIO.

**You'll enjoy it.**  
A course in our college will be one of the most enjoyable experiences of your life; and the important and valuable knowledge gained will fit you for lucrative employment and give you the means of enjoying the best things of life. Write for particulars. You may enter at any time. No vacations.  
**Central Business College,**  
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W. H. Shaw, Principal.

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AND SHORTHAND SCHOOL.  
Students enter any time. Increased teaching staff. The best that can be had is given. Write for particulars.  
**H. M. KENNEY, PRINCIPAL, WOODSTOCK.**

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Young farmers who would like to get a business education, but who have not the time or, perhaps, the means, should procure some suitable books, and study at home during the long winter evenings. The

**NORTHERN Business College**  
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has published a series of Business Books, which are not only suitable for use in the college, but are excellent for home study. Subjects—Bookkeeping, Commercial Law, Correspondence, Mensuration, and Commercial Arithmetic. Write for descriptive book circular to  
**C. A. FLEMING, Principal, Owen Sound, Ont.**  
PLEASE MENTION FARMER'S ADVOCATE.

GOSSIP.

In writing to advertisers, mention the "Farmer's Advocate."  
**MR. DUDDING'S SHORTHORNS AND LINCOLNS AT RIBBY 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 Ribby 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 Ribby 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 Ribby. 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 73340, bred by Duthie, by Pride of the Morning 64546, dam Flora 92nd, bred by Duthie, by that noted bull, William of Orange 50934.  
Prince of Perth 73396, bred by Mr. Vickers, by Administrator, dam Bertie, 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 Risington Lass by Umpire, a champion winner in 1898 and full of the best strains of Garret's old Gloucestershire blood.  
Golden Robin 63718 ('97), bred by J. D. Willis, sire Roan Robin 57992, 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 Ribby, 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 64 prizes. It may be mentioned this bull is getting a grand lot of calves. Shanghai, a grand Scotch bull, from Wilson of Pieriesmill, 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 1899, by Shylcock 71590, out of Dairy Maid 2nd, by Lord Harry, another descendant of Garret's old blood. Royal Tattler, by Scottish Royal 68556, 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 60735, out of Sylvan Charmer 20th, by Cambridge Duke 25th. This Charmer family is a noted milking strain. Victoria's Cup, bred by J. Fisher, of Pilschery, by Christmas Cup 70155, out of Fernflower, by Major 59419. Marchmount, a deep roan, bred by C. M. Cameron, by Fortune 76467, dam Marchioness 15th, by Merlin, whose full sister, Marchioness 16th, took first and champion prizes in 1895 in strong Scotch classes, and stood R. N. to the Queen's heifer, Frederica, when the latter won first and champion at Smithfield in 1898; and several other very excellent young bulls of the highest breeding quality.

A grand old Cruickshank cow, Jessie 4th, 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, 1899, 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 1895, '96, and '97. Twin Princess 9th, by Idol 63791, dam Twin Princess 7th, by Lord Violet 56103. This cow was dam of Tip Top 68704, 1st champion at Inverness in 1896, and who was sire of Merlin, who sold for \$4,000 in the Argentine. Jilt 22nd, bred by J. McWilliams, by Spice Box 63402, out of Jilt 19th, who traces back to Gravesend 46461, 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 Garne 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 Shorthorn blood can do so at Ribby, and they can, if desired, purchase subject to passing the tuberculin test, an advantage all breeders will not allow.

There is not space to note the Lincoln flock; this must be left over for another time. Suffice, 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 24, 1900. All are welcome, and every assistance will be rendered to all buyers.

**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.

**SHEEP SHEARING REVOLUTIONIZED.**

**Chicago Sheep Shearing Machine**

STEWART'S PATENT. PRICE, \$15.00.

The only Sheep Shearing Machine ever invented. The day of the old fashioned hand shears is past. Over one million sheep shorn last season with this machine. Thousands of testimonials. No sheep owner can afford to shear the old way. Saves from one-half to one pound wool from each sheep. Pays for itself the first season. Be humane and don't butcher your sheep. Requires no experience to operate. Send for large illustrated circular.

**CHICAGO FLEXIBLE SHAFT CO.,**  
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**RAPID-EASY CRINDERS**

Will do for you what they are doing for others everywhere—grind more grain with the same power than any other machine. The following letters, with scores of others we have, go to prove this. R-E Grinders save PLATES (see what those using them say) and save POWER, which is MONEY. Don't TAX yourself for life by using any grinder that uses up more horse-flesh (oats) or steam (wood) than Rapid-Easy Machines. Buy the RIGHT Grinder, and let others pay the useless extra tax.

D. HOLDSWORTH, Thornton, Ont.: "I have ground over 3,000 bushels with one pair of plates, and they seem none the worse yet."

WILLIAM CRAIG, Dunchurch, Ont., Jan. 2nd, 1900: "It gives me pleasure to state that the Rapid-Easy Grinder is doing good work, and my customers are pleased. I have a heavy engine, but could run the machine to its full capacity with a great deal less power. I grind 80 bushels of clean oats in an hour, and 30 bushels of peas."

JOHN FLUMMERFELT, Sandford, Ont., writes, Jan. 30, 1900: "With a 30 h-p. engine on the Rapid-Easy Grinder I grind from a ton to a ton and a half per hour. Farmers who were at first prejudiced against plate Grinders now come to me in PREFERENCE to going to the stone mills, saying I do a BETTER JOB."

On application we will send a beautiful lithographic hanger of "Rapid-Easy Grinder" No. 2.

**J. FLEURY'S SONS, AURORA, ONTARIO.**  
Gold Medal for Plows, etc., at World's Fair, Chicago.

**Provan's Patent Reversible Carriers, Fork and Slings**

HAVE now become a Standard of Excellence with the Farmers of Canada and the United States. At the World's Fair, Chicago, 1893, the only Medal and Diploma given on Hay Carriers, Forks and Slings was awarded to us on these Implements.

Following is a copy of the Judges' Award:

AWARD. "For open trip hook to receive the sling; automatic clutch, adjustable for size of load desired; ingenious design of stop block, which enables perfect control of carriage; no springs required for locking car, which has motion in all directions; compact form of fork, which can be tripped in any position; the car is reversible and of double action; for novelty, ingenuity, and usefulness. Excellence of material and construction."

Correspondence solicited. Special discount for cash.

Manufactured by **James W. Provan, OSHAWA, ONT., CANADA.**  
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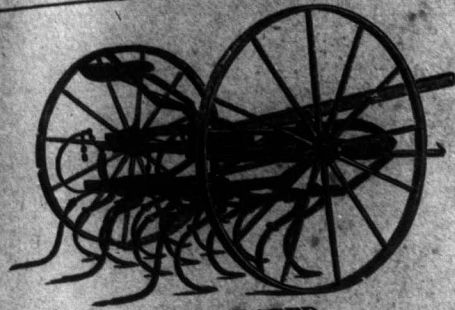
ALL MODERN CONVENIENCES. RATES, \$2 TO \$4 PER DAY.  
BUS MEETS ALL TRAINS.

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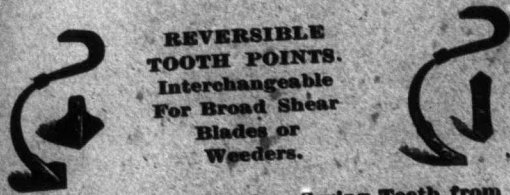
**FREE!** Best Fence Machine Made.

To first purchaser in each neighborhood of not less than 1,000 lbs. Coiled Spring wire at market price Offer open for 30 days to introduce our goods. -om  
**McGregor, Banwell & Co., WINDSOR, - ONT.**

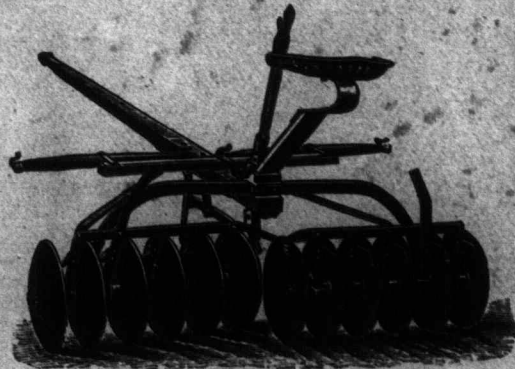
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CELEBRATED  
GIANT SECTIONAL CULTIVATOR.  
Covered by Patents.  
Made in Two Sizes—13 Teeth and 17 Teeth.



REVERSIBLE  
TOOTH POINTS.  
Interchangeable  
For Broad Shear  
Blades or  
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We Manufacture Our Own Spring Teeth from  
the Best of Imported English Steel.



GIANT DISC HARROW.  
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Cultivators, Seeders,  
Disc Harrows,  
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Have Made Their Name

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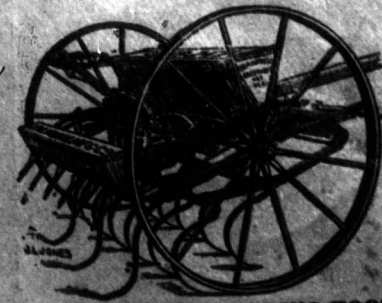
Famous Throughout the World.

All money-makers to the farmers who possess them. Every pound of material used in GIANT machines is of best quality. Write for large illustrated catalogue—free.

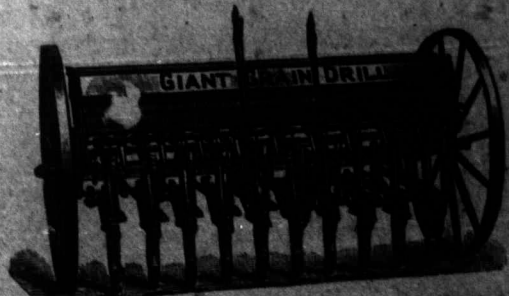
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Agents wanted in Unrepresented Districts. None but first-class  
Need Apply.



GIANT SECTIONAL SPRING-TOOTH  
SEEDER. Patented.



GIANT STEEL COMBINED PRESSURE  
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Made in Two Sizes—10 Hocs, 12 Hocs.



GIANT DIAMOND SMOOTHING HARROW.  
All Solid Steel. Teeth Easily Adjusted or Re-  
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Teeth Never Get Loose.  
Does the Very Best Class of Work.  
Teeth and Bars Guaranteed All Steel.  
Made in Two Sizes: 3 Sections, 45 Teeth; 4  
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PURE MANILA, 650 FEET,  
SPECIAL MANILA,  
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Farmers! Don't be taken in. There is none "just as good." These twines will not bunch at the knotter, and a Binder will run all day without stoppage, thus saving time, annoyance and a "lot o' cussin'."

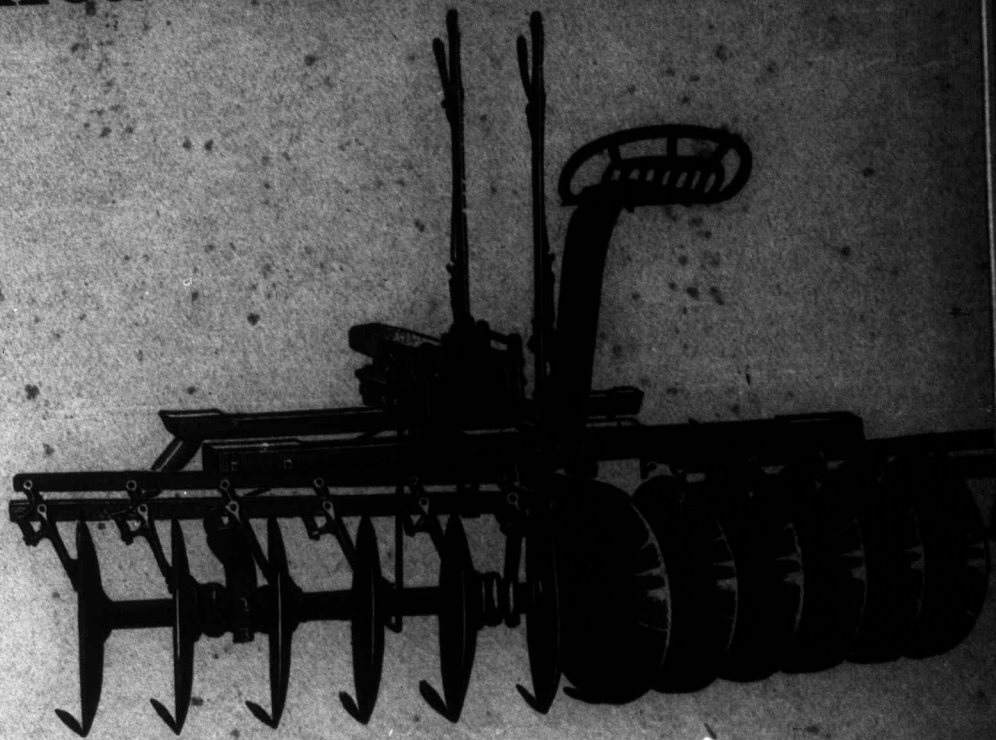
We pack our twine in bags of the size of ordinary grain bags, and we are not ashamed to put our name upon it. Don't take any other.

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HOWERS, SONS, ENG. THE WINDSOR DISK.

### The Largest Makers of Disk Harrows in Canada.

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to learn how cheap we are selling fencing this year considering the cost of wire. Better see about it before you buy. No other fences made of wire like ours. Put Page up with good end posts, it will stay there tight and nice.

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KNOWN TO FARMERS and AGENTS AS THE MOST POWERFUL CULTIVATOR ON THE MARKET.



- Will loosen up fall-plowed land ready for seed in the spring.
- Will make a garden of a sod field, whether fall or spring plowed.
- Will do the Greatest Amount and Variety of Work.
- Trials given on hard ground with Anything that Cultivates.

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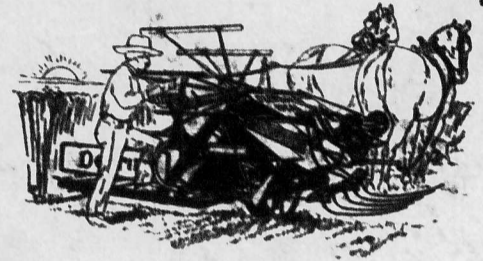
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DEERING BINDER

"TWO HORSES, THAT'S ALL."



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It Pays

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Send for Catalogue. It's Free.

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THE Massey-Harris Cultivator

Is made almost entirely of steel. The framework, sections, teeth and shoes are of steel, which accounts for the splendid wearing qualities of the implement.

Every farm should have a MASSEY-HARRIS CULTIVATOR among its implements. It stirs up the soil and cultivates it at a perfectly uniform depth. Farmers who have used it say they would not be without it—it is such a saver of time and labor.

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