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# THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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VOL. XXXV. LONDON, ONTARIO. FEBRUARY 1, 1900. WINNIPEG, MANITOBA. No. 495

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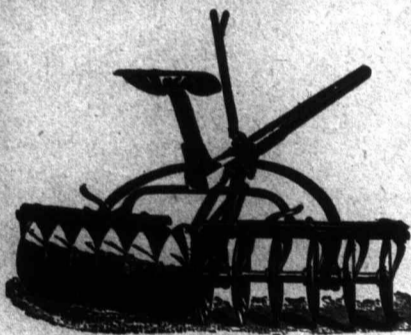
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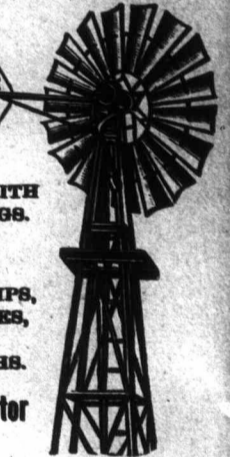
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VOL. XXXV.

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

No. 495

## EDITORIAL.

### The Making and Application of Farm-yard Manure.

One principal advantage claimed for stock-farming or dairying over grain-farming is that the land is less impoverished, because of the annual return to the soil of the great bulk of the crops produced. Whether it be in pasture or as winter feeding on coarse fodder, grains, roots, etc., it may be taken as correct that the excreta contains nearly the same fertilizing matter as the food originally did. It is important, however, to observe that with regard to the total amount of solid excreta and urine voided, the latter contains, as a rule, more nitrogen and potash than the former, while the lime, phosphoric acid and magnesia are almost entirely found in the solid portion. It is, therefore, apparent that if we are to reap one of the chief benefits of stock-farming—that of keeping up the fertility of the soil—it is necessary to prevent as completely as possible the loss of manurial constituents before its return to the soil. There is no doubt whatever that very serious losses occur on many farms, especially large farms rather carelessly conducted in a sort of a wholesale way. As not only is there danger of the liquid portions leaking away where they will do no good, but because of the easy decomposition of both liquids and solids, great losses may easily occur without our even suspecting that a waste is taking place. We grant it is true that volatile gases do return to earth along with rain and snow, but it is poor consolation when the ammonia from our manure pile is falling on surrounding hills and wood lots belonging to someone else. In order to prevent such losses it is necessary to make provision against the leaking away of liquid as well as the volatilization of gases due to fermentation in the manure pile.

The modern concrete stable floor having a gutter to catch the liquid, where it is absorbed by litter, is a great step forward in the better care of farm manure, but if the cleanings of the stables is to be allowed to heat in a loose pile, the loss will be little less than if the liquid manure found its way to a running stream or is otherwise rendered irrecoverable. There is little doubt but that the best manure with least loss is made in box stalls liberally littered and kept solidly tramped, as then all the liquid is absorbed and well mixed with the other portions, and little or no fermentation goes on. Ordinarily this is not practicable with all stock, but with sheep, young horses, calves, and dehorned cattle running loose, it can be done with little or no loss of fertilizing material. There need, however, be practically no more waste of manure with tied stock than with loose, if certain precautions are taken. As already stated, a tight floor and liberal use of absorbents are necessary, and of the latter a daily slight sprinkling of gypsum will fix valuable gases that might otherwise escape.

Some years ago the covered manure shed was justly popular as a place for the manure to undergo the preparation then considered necessary for application to the soil, but the day of such a shed and also of the manure pile is passing, since it is becoming generally recognized by good farmers, not too fixed or conservative in their opinions, that the maximum benefit is secured when the manure is applied to the land in the fresh state, allowing all the fermentation to go on in the soil. On many farms, where the fields are not too hilly, this is done each day when the ground is firm enough to drive on and not too deeply covered with snow. Usually in such cases the doors to the stable and passages behind the cows are wide enough to be driven through with a sled or boat, and the manure hauled

directly to the field and spread. At times of the year when circumstances render this impracticable, the manure should in no case be left in a loose pile—the best condition for fermentation—but it should be evenly and thinly spread and thoroughly tramped each day until it can be hauled to the field and spread.

Probably one of the chief objections raised to applying fresh manure is that practically all the weed seeds in the crop are returned to the soil in a vital condition, ready to germinate as soon as they come in contact with growing conditions. There is undoubtedly some force in the objection, but not enough, we think, to warrant sufficient fermentation of the manure to destroy the vitality of the seeds contained in it. The true policy is to grow clean crops, and there will be no weed seeds to germinate. Some soils will be a bit slower working in spring, and if manure is strawy the plowing will be less smoothly done. Just here reference may be made to an experiment conducted at the Central Experimental Farm, Ottawa, to ascertain the great loss that occurs in manure by reason of fermentation in the pile. Seven years' experiments in applying fresh and rotted manure to various grain crops showed that fresh manure yielded astonishingly better results than the rotted manure. In this connection, on March 7th, 1894, 8,000 pounds of fresh horse and cattle manure were placed in a shed on a tight board floor. It was turned and weighed once a month, and the pile carefully watched to see that proper conditions of moisture were preserved. In one month the weight was reduced to 5,530 pounds, in two months to 4,278 pounds, in three months to 3,947, and in four months the weight was reduced to 3,480 pounds. At this time the manure was in what had usually been considered first-class condition, having that pasty character which would admit of its being cut with a spade and mixed readily with the soil. The turning and weighing was continued until Dec. 7th, when the former 8,000 pounds of fresh manure had lost more than two-thirds of its original weight, as it then weighed 2,600 pounds.

From this lesson, together with a knowledge that for seven years fresh manure gave larger returns pound for pound than rotted manure, the unduly expensive method of killing weeds by allowing the manure to heat in a pile is at once apparent. It would seem a much better policy to combat weeds by a wise rotation of crops together with the thorough cultivation that should go with all good farming.

Summing up the matter of saving and applying manure from farm stock, we take it that the maximum returns are recovered in crops when the mixed manure from all the classes of stock kept on the farm is preserved without liquid portions running away, and applied to the soil before any fermentation has taken place. The subject we have here endeavored to cover is of great importance to not only the present, but, perhaps, more particularly the future of agriculture. We would, therefore, be glad to hear from those of our readers who believe their system of saving and applying manure is such as to give them maximum returns in yields from their farms.

### The Breeders' Association Meetings.

The annual meetings of the various breeders' associations, announced in our "Gossip" columns in this issue to be held in Toronto, Feb. 6th to 8th, will no doubt be of unusual interest owing to the active trade in both beef and dairy cattle and in horses. There is a considerable element of inspiration in meeting with other breeders and comparing notes. Useful information is often gained and acquaintances made which leads to business transactions. It generally pays a breeder, even if only such in a small way, to attend these gatherings if within moderate distance from the place of meeting.

### The Spraying of Fruit Trees and Bushes.

The practice of spraying fruit trees and plants in order to combat disease and ravages of insects is not of recent origin. While, however, it has grown tremendously in popularity during late years, there are still many owners of orchards and other fruit plantations that do not appropriate or concede its advantages, or who do not think it will pay to take the necessary time and trouble. Among fruit-growers, as with other classes of men, there are many "doubting Thomases," who have no faith in "these new fads," and of course never give them an earnest trial; while there are others that after one or two half-hearted or imperfect attempts at spraying, are ready to pronounce the thing a failure. Having learned from personal experience and from the testimony of many intelligent fruit-growers, that exceedingly profitable results can be secured from spraying judiciously, and hearing of several unsatisfactory results from spraying, we determined to get at the facts of the matter by appealing to a number of fruit-growers with regard to their experience in spraying. The replies from a number received, some of which are published elsewhere in this issue, are more than gratifying to the advocates of spraying. Our effort was to obtain a plain statement of facts, based on actual experience in treating the various classes of fruit trees and bushes, as to the best mixtures, methods of preparation, methods and times of application, the beneficial results in health of the trees, condition of the fruit as to fungus and insect ravages, touching the general appearance and size of fruit from sprayed trees as compared with unsprayed, and also to learn, if possible, the cause or causes of any unsatisfactory results where spraying was attempted.

While the letters speak well for themselves, a few of the outstanding advantages referred to may be given editorial prominence. Mr. Fisk, who has had ten years' experience in spraying, wisely enjoins those who have met seeming partial failures not to become discouraged, but to persevere, which will bring its due reward. His experience in 1890 in securing a good harvest to dispose of, while his adjoining neighbors had practically no fruit, says more for spraying than a whole treatise on the subject. Mr. Govenlock, in his frank and pointed letter, states that he has been able to produce apples and pears free from scab, and reduced wormy fruit in a very large degree. It will be noticed that in spraying for tent caterpillars a stronger dose of Paris green is necessary than for other insects. It is essential for certain pests that applications be made at the right time. Mr. Hamilton tells us that he has, by spraying, reduced the proportion of culls from 2-5 to 1-10 of his entire apple crop. He also emphasizes the importance of keeping the trees well pruned and supplying other conditions favorable to the vigorous condition of the plantation. The letters we publish in this issue, and those that will appear later, should prove a very valuable service to our fruit industry on the farm, which, unfortunately, is not up by half to what it could be made if the means so easily in command were more generally brought into service. We invite a general discussion of this important subject, upon which there is still much to learn. It should not be forgotten, either, that spraying is not the only condition of success in fruit-growing, but it is likely that the orchardist who is careful in this particular will not be neglectful of other precautions.

Specially interesting and instructive articles will be found in this issue on the subjects of orchard culture and the spraying of fruit trees for the destruction of insect pests and fungous growths, also on dairying, barn building, the breeding and feeding of dairy cattle, the cultivation of forage and fodder crops for stock, the care and application of manure, and the construction of cement concrete walls and floors. There are single articles among these that are well worth the annual subscription price of the paper.



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THE LEADING AGRICULTURAL JOURNAL IN  
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### Time and Cost of Spraying.

The subject of spraying fruit trees, especially apples, is well discussed in this issue by well-informed correspondents, as well as editorially, but little has been said regarding the time it takes to do the work or the cost of an outfit and spraying materials. One of our editors has sprayed his orchard of 350 trees for five years, and it is from his experience we speak. With a large machine, that costs about \$16.00, the 350 fairly large trees took the time of two men three days at each spraying. A smaller outfit would have taken more time, but we believe sprayers have been so perfected since then that a \$10.00 machine would now accomplish just as much work and do it much better; in fact, an \$8.00 sprayer with all attachments will do for an orchard of 500 trees very well.

Regarding the expense of materials, the orchard in question took 40 gallons of Bordeaux mixture with Paris green for 20 trees at each spraying. At this rate the 350 trees required 72½ barrels of the mixture for the season, and as each barrel contained 4 pounds of copper sulphate, 4 pounds of lime, and 4 ounces of Paris green, the totals for chemicals were 288 pounds of copper sulphate, 5 bushels of lime and 18 pounds of Paris green. The wholesale price of copper sulphate is 7 cents per pound; lime, 25 cents per bushel, and Paris green, 20 cents per pound, which for the quantity used on the 350 trees in the four sprayings cost \$20.16 for copper sulphate, \$3.00 for Paris green, and \$1.25 for lime, making a total of \$25.01. In the majority of seasons, three sprayings may be found sufficient, which will reduce the cost for material to \$18.75. This sum added to, say, \$10.00 for a spraying outfit, is a very small outlay from which to secure the increased and improved crops referred to by several of our correspondents, to say nothing of the improved vigor of the trees as a result of the application, and which will tell abundantly in the years to come.

### Uniformity of Type, "Canada's Ideal."

The study of beef type, which will be exemplified in our great premium picture of notable Canadian Shorthorn cattle (now in the hands of our artist, and which will be ready for mailing about the middle of the present month), is one which will interest all lovers of good stock, and is really of national importance to the Dominion, since the welfare of the farming community depends very largely upon our markets and our revenues from our exports of live stock and its products, in the form of meat, cheese and butter. Practically all farmers are stock-raisers to some extent, and are becoming more so as the years go by. That there is more satisfaction in raising good stock than inferior, and more profit, too, is being more generally realized year by year, and it is beyond dispute that the better the quality and the more uniform the character of the products we send to market, whether of live stock or of any other of the fruits of the farm, the better prices we are likely to receive, and hence the better returns for our labor and for the feed consumed by our stock. An inspection of our premium picture will reveal the interesting fact that though the animals represented in it have been selected from the prizewinners at the principal shows in nearly all the Provinces, there is a very striking uniformity of type in the collection, all being short-legged, deep-bodied, thick-fleshed, smoothly-turned animals of the early-maturing sort, and showing strong indications of robustness and constitutional vigor. Those of our readers who



HON. JOHN A. DAVIDSON.  
Minister of Agriculture and Treasurer for the Province  
of Manitoba.

have given attention to the pedigrees of Shorthorn cattle, and who have studied, or will study, the breeding of the animals included in the engraving, will discover, if they do not already know it, that while there is considerable variety and divergence in the foundations of the pedigrees of the animals, yet the top crosses in every case show a great deal of similarity of breeding, being, without an exception, deeply bred in the blood lines of Scotch-bred families which were represented in such prominent herds as those of Messrs. Cruickshank, Campbell, Marr, and other Aberdeenshire breeders of a generation that has passed away, but whose work is being well carried on by able men of the present day. This class of cattle has won its way to favor both in Great Britain and America by its suitability and adaptation to the markets of the present time, and has succeeded by sheer force of merit from this practical standpoint in breaking down strong walls of prejudice even in old England, the home of the breed, where North Country blood is now being freely used with gratifying results. Our premium picture is therefore an excellent representation of the ideal type of beef cattle for Canadian farmers to produce, whether their fancy be for Shorthorns or for any other of the beef breeds, as the best specimens of any of these are built on a similar pattern. It is not a question of breeds or color, of horns or no horns, or any other fancy points, but of the production of the greatest weight of the highest-priced meat in the least compass and at the least

cost. We trust our readers everywhere will take an appreciative interest in securing this picture, and especially in securing it as a premium for sending in new subscribers, which will prove a threefold benefit, being helpful to themselves, to the new reader, and to the FARMER'S ADVOCATE. The picture will be sent to anyone sending us two new subscribers with two dollars.

## STOCK.

### The Wintering of Idle Farm Horses.

FEED FOUR TIMES A DAY.

This is a question with regard to which there is a great diversity of opinion, and I don't know that I can do better than to outline the plan which I follow on my own farm, and I know a great many successful horsemen who winter their horses much in the same fashion.

The first consideration is to see that the feed is somewhat reduced when the horse is taken off heavy work. The food should also be of a more loosening nature, that is, more bran and boiled grain should be fed; roots would also be beneficial, though I do not feed any myself.

I invariably feed four times a day both summer and winter, always watering before feeding in summer, but I find this will not work in winter, as the horses do not need so much water, and will not drink so often. I therefore give them their grain first thing in the morning, followed by hay; they are then watered about nine o'clock a. m.; they remain in the stable till noon, when they get another small feed of grain, and are turned out in the pasture immediately after noon, where they should have a large straw pile to run around till about four o'clock, when they are again put in the stable, watered, and given a sheaf of green oats each, followed by a feed of boiled barley or small wheat and bran, mixed with a little salt, at seven or eight o'clock.

I think a great many farmers make the mistake of feeding far too much hay to idle horses. There are some horses that will not eat enough to do them any harm, but the great majority will eat far more than is good for them if they can get it. It will be seen that my horses only get hay once a day, and that is nearly always cleaned up within two hours after it is fed. I would give another feed of hay in the evening if I was not feeding sheaf oats.

My driver, and the team I keep for hauling wood and other heavy work, do not get any sheaf oats, but get hay and oats instead. I consider green sheaf oats too soft for working horses.

Weanlings and colts are fed much the same as above, except that their grain should be crushed; indeed I think it pays to crush oats for nearly all horses; barley should never be fed to horses except it is well boiled; some object to feed it even then, but I have never found any evil results, and my horses get it six times a week, except when they are on the grass.

There are many farmers with a number of horses who seem to be afraid to let them out in the winter for fear they might get hurt running through snow banks or wire fences, but I think if they are turned out the first day they are idle after coming off the plow, and kept out every day that is fit for them to be out afterwards, the danger of their getting hurt would not be half so great as the danger of leaving them in the stable, and they will be in far better condition to go to work in the spring than they could possibly be if tied in the stable all winter.

As to hardening horses for spring work, I don't do anything at it till the actual work begins. Just as soon as the land will work I try to get all the horses started, and work them very light for three or four days. By this time the land will be in pretty good shape to work, and the horses will be in pretty good condition to work it if they have been well handled. It is necessary at this time to increase their feed somewhat, and here is where a great many err. They seem to think when the horse goes to work he needs more feed, and give it to him accordingly. The horse eats the first few feeds all right, but about the third day he comes in tired, takes a few bites of oats, then backs up in his stall and stands there till it is time to hitch up again. He will, perhaps, keep this up for three or four days, and by this time he is beginning to lose flesh, and will likely keep on falling till seeding is finished and he gets a rest. A much better plan, I think, is to feed the horse rather light the first three or four days, and then gradually increase his rations and his work, until at the end of a week you have him feeding well, feeling well, and fit to go through the remainder of the season in good shape.

I like to clip horses that have been idle all winter if they are very long in the hair, before starting to work in the spring; they seem to work much cooler and nicer than if the long hair is left on till it is scraped off with the currycomb. It also saves a vast amount of scraping and cleaning, which is quite a consideration where a man is working four horses, and I don't think there is any danger if they are blanketed for a time after clipping. There is no necessity for clipping horses that have been working all winter, nor do I like clipping in the fall; I would much prefer singeing.

Portage la Prairie.

J. W.



### Constitution in Dairy Cattle.

Much has been said and written regarding the importance, in their breeding and management, of keeping up the standard of robustness of constitution and good feeding qualities in the beef breeds of cattle, and the result of such breeding and care is manifest in the broad chest, deep and well-sprung ribs and strong loins of the best specimens of those breeds, the result of the use of strong, healthy, vigorous sires, liberal feeding of the young stock, and not allowing them to breed at too young an age. But comparatively little attention has been paid to these points by the great majority in the breeding and care of dairy cattle. Undue importance has too often and too generally been attached to fancy points, many of which have been proven by experience to be mere fads, and the great fundamental principle of constitutional vigor which underlies all true success in building up and maintaining an enduring and profitable class of stock of any breed has been relegated to a subordinate place in the operations of too many of the breeders of cattle of most if not all the dairy breeds. The fact that the bull calves of most dairy breeds cannot profitably be turned into steers to feed for beef has led to many inferior bulls being raised and sold for breeding purposes. Many of these are not only inferior themselves, but are sons of weak and inferior cows, and go out from the herd to perpetuate their meanness in their offspring. The mania for using bulls related in blood lines to some particular family which has gained notoriety from the fact of one or more of its members having scored an unusual record as prizewinners or producers has led to the use of many sires individually deficient in vigor of constitution, as the result of too close inbreeding for the purpose of combining to the greatest possible extent the blood of a family which may have been fortunate in falling into the hands of an ambitious or enterprising man who has assumed the trouble and expense of making records for some of its members, and thus succeeded in giving the family a reputation. The value of the principle of heredity or of individual excellence of conformation and performance being perpetuated by inheritance can hardly be overrated when applied with discrimination and good judgment and in conjunction with the equally important law of "the survival of the fittest"; but to breed from a weak and inferior member of a noted family, whose only claim to preference is relationship to a great-grandmother, a cousin or an aunt with a record above mediocrity, is equivalent to building on a foundation of sand.

Some few men with a genius for the work, and some by good luck rather than good management, may, and doubtless have, made a success of more or less close inbreeding, but in either case it may be safely assumed that the use of vigorous animals was the rule, and for the rank and file of breeders the safer plan is to make judicious selections of healthy, robust individuals of approved type, bred from immediate ancestors of similar stamp, having the acknowledged indications for dairy production; and if these can be secured, combined with superior performance by actual test, all the better. By this means individual excellence is vastly more likely to be reproduced and perpetuated than by the use of inferior stock having only pedigree or family lineage to lean upon. The practice of this incestuous breeding, it is well-known, caused the downfall of what was once one of the most popular families of Shorthorns, resulting in barrenness and disease, which literally swept them off the face of the earth. Yet many breeders of dairy cattle, and notably Jersey breeders, are following the same course without regard—or with little regard—to constitution, a course which must inevitably have the effect of reducing the vigor and vitality of the stock. This tendency must be greatly intensified by the practice of using bulls for service before they are a year old, and breeding heifers to produce their first calf at less than two years, many indeed being mothers before they are a year and a half old. Unless all the accepted principles of breeding and management, with a view to maintaining constitutional vigor, are baseless and unsound, such a system continued from generation to generation must in time prove disastrous to a large proportion of the stock concerned, and to the general well-being of the breed.

Speaking of Jerseys as a breed, one is bound to own that, considering the manner in which they have in many instances been bred and handled, they must be credited with remarkable vitality and vigor of constitution to present as strong a showing as they do. Even in the home of the breed, on the Island of Jersey, they have been cramped, owing to the limited area of arable land and the remarkably large number of cattle kept in proportion to the acreage, being either stall-fed or tethered much the greater part of their lives and thus denied the acknowledged benefit in regard to robustness that comes from abundant exercise in the open air. In America, while many of them have fallen into the hands of wealthy owners and have had liberal fare so far as feeding is concerned, yet they have been often in these instances unduly pampered, closely housed, early and incestuously bred, and been unmercifully milked, in many cases being kept

milking constantly for years without a day's rest; while in the hands of the average breeder they have in numerous instances, in addition to the disabilities above named, been subjected to short rations and hard fare; and in the respects mentioned—as well as others—it is probably true that no other breed has so often and in so many ways been wounded in the house of its friends. Yet, the record of the breed itself is an honorable and creditable one, having proved in many trials and tests its capability of producing extraordinary milk and butter producing cows, and taking it all in all, there is perhaps no better special purpose breed of cattle in existence to-day. There is no more satisfactory cow for dairy purposes, milk and butter combined, than the better half of the cows of this breed; but there are in this, as in all breeds, by far too many inferior and unprofitable cows, and there never was a better or more favorable time to weed out such than the present, and if advantage is taken of the present high prices for beef to weed out a large proportion of this class of cows, and inferior bulls and young stock too, by feeding them off for the butcher's block, the "beef boom" will have proved a blessing in disguise to dairymen.

The writer has been led into this train of thought by studying the portraits of some of the best English-bred Jerseys, one of which is reproduced in the present issue, in accordance with the well-known policy of the FARMER'S ADVOCATE in thus keeping ideal types of the different breeds and classes of stock before its readers. Nowhere has the Jersey breed been so rationally bred and used as in England, where there has been a wholesome absence of prejudice as to color and pedigree fads, where they have been liberally fed on roots and rough fodder, given ample outdoor exercise, and the heifers bred to calve at from two to three years old, and where money has been freely spent in buying the best Island-bred animals that could be bought. In the public milk and butter trials in England, and on the Island of Jersey, last year the English-bred cows made by far the better records, a number of the latter having made from 2 lbs. 7 ozs.



HAVERING CARNATIC.

English-bred two-year-old Jersey heifer, first and champion at the Royal County Show, first at the Royal Show, 1899.

THE PROPERTY OF MRS. C. M'INTOSH.

to 3 lbs. 4½ ozs. of butter each in a day, while the highest public record at the Island Show for the same year was 2 lbs. 6½ ozs. If the number of entries at the principal exhibitions be an indication of the popularity of a breed, the Jersey stands highest in England, the home of so many breeds. At the Semi-Centennial Exhibition of the Royal Agricultural Society, at Windsor, in 1889, there were over 420 entries of registered Jerseys, quite twice as many as of any other breed of cattle, and nearly the same proportion has been maintained at subsequent meetings of the Royal. With the knowledge of these facts, it has been the subject of surprise to many that Jerseys have not in recent years been imported to America from England. This is easily accounted for by the fact that the only acknowledged pedigree register of Jersey cattle on this continent is under the control of a corporation, the membership fee of which is \$100, and which, in the interest of its members, has framed its rules on the narrow-gauge principle that only the pedigrees of animals exported from the Island of Jersey direct, and their produce, are eligible to registry in the herd register of the American Jersey Cattle Club.

The absurdity of such a rule is well illustrated by the fact that the animals constituting the foundation of the St. Lambert family, which has figured so prominently in the pedigrees of the cattle owned by many of the leaders in this corporation, and from which these same men have made a mint of money, were English-bred and were admitted to registry previous to the adoption of the present contracted rule. The great bull, Rieter 746, E.H.B., who was paternal grandsire and maternal great-grand sire of Stoke Pogis, the sire of Stoke Pogis 3rd, was also English-bred. Let us hope this rule, which is unworthy of a people claiming to be liberal and progressive, will be amended or ended before the dawn of the twentieth century, and that the way may be opened for bringing out the best possibilities of the breed by use of the best specimens that can be secured, untrammelled by narrow rules, so long as the records show that the stock has been purely bred.

### Growing Pastures and Fodder for Sheep.

BY PROF. THOS. SHAW.

The field that is opening up for the growing of pastures other than grass for sheep in this country is practically without limit. If our farmers only enter into this open door as they may, and doubtless they will, within a few decades America will astonish the world with the extent of the increase in the sheep industry, and with the high average quality of the product. Until recently we have been accustomed to look to Great Britain for pointers on sheep husbandry, and especially when mutton qualities were involved. We have been prone to adopt hints from the practice of the Old Country shepherd, but the day for this will soon be forever gone. When the shepherds of Great Britain grow green crops for sheep, they graze them off through the cumbersome and expensive process of folding, but the American shepherd has found a better way in simply allowing the sheep to graze down the supplemental crop without the aid of hurdles, which must needs be moved from time to time. By the American plan, only such movable fences are used as are necessary to separate the various crops grown, which have been sown side by side to produce the desired succession on succulent pastures. The Englishman will object, first, that such pasturing will produce waste, and that the land so pastured will not be equally fertilized. To this, then, it may be replied that the waste from such pasturing will be infinitesimally small with nearly all kinds of crops, and that sheep are apparently wiser sometimes in their method of distributing fertility than the men who own them. On level land they will take their rest anywhere, and will thus distribute the droppings with a fair measure of uniformity, but if the land is rolling, they will rest on the hills, and will deposit there a preponderance of fertility, exactly in the place where it is most wanted.

Note carefully the idea on which this system of pasturing sheep rests. It makes sown pastures, other than grass, the main feature in pasture production, and grass pastures supplemental. But so flexible is it in its application that these sown pastures may be made supplemental to the grass pastures, and they may be made to furnish any proportion of the pasture desired, or all of it if necessary. It will be at once apparent, therefore, that while it is adapted to all conditions existing in America, save those of the open range, it is especially adapted to an intensive cultivation, and the more intensive the cultivation the more completely does the system meet the requirements.

**The Chief Pastures Grown.**—In 1897, at the Minnesota Experiment Station, about one hundred head of sheep and lambs were pastured on ten acres of land from May 1st to Nov. 15th. About two-thirds of the entire number were sheep, and one-third lambs. In addition to the pasture a fraction over 10 tons of cured fodder, and also something over 10 tons of green food, were taken from the same land.

**General Plan Followed.**—Two and one-half acres of the land was kept in grass. On this the sheep were grazed when the weather was wet or when other pasture was not ready. The pastures were grown so that, if possible, some variety would be always in season. Movable hurdles were used to enclose the plot, or plots, that were being eaten down. The sheep were grazed on these in the forenoon and in the afternoon, and were given the freedom of the shed and of the adjoining yards in the middle of the day and also at night.

**The Foods Grown.**—The foods grown that proved the most useful were winter rye, oats and barley grown together, corn, sorghum, rape, and cabbage. Many other varieties were tried, some of which may yet prove helpful in providing such pastures, while others are not of much value. Of these, winter rye was first in season, and was the only variety that furnished early pasture. Sorghum was the best midsummer pasture. Rape provided pasture for a longer period than any of the other plants, and, taking it all in all, proved the most valuable plant. But the greatest amount of pasture per acre was obtained from cabbage.

**Succession in the Foods.**—Rye, as stated above, was first in season. As soon as it ceased to provide pasture abundantly, the land was plowed and sown with corn, sorghum or rape, and in some instances it was sown again in the early autumn with winter rye, after one or the other of these crops had been grazed down. As soon as the rye pasture was gone the oats and barley were ready, and when eaten down this crop was followed at once with corn or rape. In some instances oats and peas were sown, and with satisfactory results. Sorghum was usually followed by winter rye. Corn was sown at any time, as occasion offered, after the weather had become sufficiently warm. Rape, also, was sown any time from the opening of spring until the middle of July. It was the chief reliance for fall pasture, and cabbage was the last food grazed down.

**Preparing the Land.**—As far as practicable the land was plowed in the fall. If the crop to be grown on it was not to be planted for some time subsequent to the opening of spring, the harrow was used on it occasionally to destroy sprouting weed seeds, to assist in the retention of moisture, and to improve the tilth of the land. As soon as dry weather had set in the aim was to roll and then harrow the land soon after it had been plowed, and in some instances sowing was delayed till weed seeds on the surface had been sprouted and then destroyed by harrowing.

**Sowing the Seed.**—The aim was to sow winter



rye not later than early September. That sown in the spring did not give results entirely satisfactory. It was put in with the grain drill, not less than 2½ bushels of seed per acre were used. Oats and barley were sown as soon as the ground was dry enough to receive the seed. From 2½ to 3 bushels of seed per acre was used. Corn was not sown until the weather had been sufficiently warm. It was put in with the grain drill, all the tubes in use. From one to two bushels of seed were used. The harrow was used judiciously before and after the corn plants appeared. Sorghum was not sown until the heat of the sun had sufficiently warmed the soil, which was usually later than the ordinary season for planting corn. About one bushel of seed per acre was sown with the grain drill, all the tubes running. The seed was not buried deeply, and a light harrow, with the teeth much aslant, was run over the ground just as the first sorghum blades began to appear. The rape seed was more commonly sown broadcast and covered with the harrow, and the cabbage seed was sown in rows about 30 inches distant. The plants were cultivated in much the same way as those of a crop of turnips. The crop was thinned with the hoe, and the cabbage were left from 20 to 24 inches distant in the line of the row.

**Mixed Pastures.**—Many experiments were conducted in sowing the crops in mixtures. For instance, rape and rye, rape and corn, rape and sorghum, and rape, oats and barley, were sown together. In some instances the results were encouraging, and others less so. The weak point in such mixtures lies in the fact that one plant overshadows the other usually.

**Pasturing the Various Crops.**—The aim in pasturing the rye was to keep it grazed closely. When thus eaten it is more palatable, and jointing, which would be destructive to its pasture-producing properties, is prevented.

It was found that much more pasture could be obtained when the sheep were first grazed on one part and then on another, but frequently in farm pastures it is not convenient to graze it thus. The grazing of the oats and barley began when they were only a few inches high. They were usually cropped down two or three times. In some instances they were grazed off but once, and when sufficiently grown again were cut down and made into fodder. The amount of fodder thus obtained was somewhat reduced in yield because of this grazing, but it was greatly improved in quality because of the increased stooling of the plants, and consequently the increased fineness of the fodder. The grazing of the corn usually began when it was about as high as the sheep. It was delayed this long because of the fact that when eaten down it does not grow up again. Pasturing the corn was attended with some waste, but the waste was not usually very great, as the sheep would eat much of the corn that had been broken down when in a partially cured form. The pasturing of the sorghum began when it was about a foot high on the level. It will grow again and again when eaten down, and it grows most vigorously when the weather is hot; hence its great value as a midsummer pasture. The experience in pasturing rape at the Minnesota Station has taught us that it is usually better to allow the rape to reach a maximum of growth or nearly so before pasturing it with sheep. And then it should, for various reasons, be grazed off as quickly as possible, especially in hot weather. The grazing of the cabbage was delayed until the late autumn. It was found that cabbage took less injury from frost than rape; hence the crop could be grazed later.

**Sowing Grass Seeds with Pasture Crops.**—In several instances clover alone or clover and timothy were sown with several of the pasture crops. The grass seeds were commonly sown just after the other seeds, and they were covered with a single stroke of the harrow. A good stand of grass was thus obtained, when sown in peas and oats, oats and barley, rape alone, or in oats and vetches. The pasturing of such crops on the soils of the prairie seems to be helpful rather than hurtful to the young grass. But it is not so on all soils nor under all conditions.

#### GROWING FODDER CROPS.

Experience in growing fodder crops for sheep at the Minnesota Experiment Station has been more limited than in growing pasture crops. Some things, however, have been gleaned. The experiments related chiefly to growing grain in certain mixtures, also corn and sorghum without admixture.

**Mixed Grains.**—The mixtures chiefly grown were peas and oats, oats and wheat, peas and spring rye, and oats and flax. The aim in each instance was to cut the grain a little underripe, and then to cure it as hay is cured. The results were on the whole satisfactory, but the problem has not yet been fully worked out. Oats and peas made an excellent fodder, but the crop was not a little inclined to lodge. The one objection to the oats and wheat was that the wheat straw was not much relished by the sheep. It was found that only a sprinkling of rye sustained the pea crop, and in consequence greatly improved its quality. Of course the rye in itself was not a satisfactory food, because of the woody quality of the straw. Much is expected of the flax and oats, as sheep are fond of flax. The crops grow nicely together, but we have not yet gauged the best proportions in which to mix the seeds. The aim in growing this crop is to provide a winter fodder that will sustain sheep in good form in winter without the aid of bran or field roots.

It was also found that in growing these crops on

soil in a fair condition as to fertility, they lodged considerably, and the fodder was coarse. To prevent this, sheep were in some instances pastured on the various crops when young. The fodder was in consequence greatly improved in quality, but in a dry season the yield was considerably decreased. In a moist season the plan worked admirably.

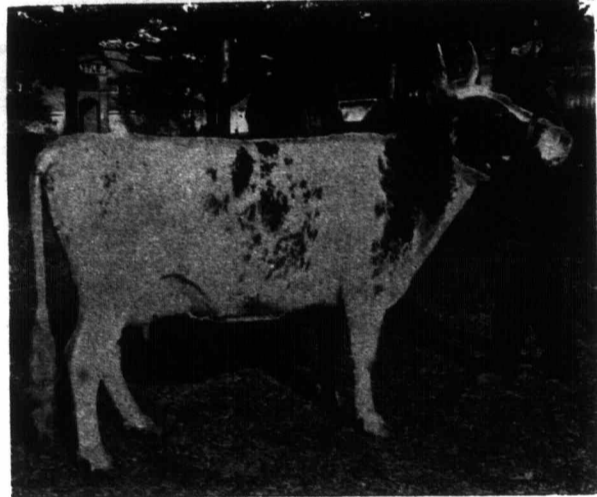
Oats and vetches were also tried, but without marked success. The hot summer sun in Minnesota, linked with the dryness of its atmosphere, caused the tares to languish before they were fully ripe.

**Corn.**—The experience at the Minnesota Station in growing corn to provide fodder for sheep, points to the conclusion that it can best be grown in double rows, 6 to 8 inches distant, and with a space of about 36 inches from one double row to another. The seed is planted thus with the grain drill. Such corn will have but few nubbins, but sheep are very fond of it, and an immense amount of food can thus be harvested per acre. It is cut with the binder or with the corn harvester.

**Sorghum.**—The Early Amber sorghum is proving to be a useful crop in early winter feeding. It may be grown as for pasture, and when about or nearly matured cut with the binder, or it may be grown in double rows as described above in growing corn. It has this great advantage over corn, viz., that it does not readily blow down, and it has much greater power than corn to grow in dry weather. It will also resist adverse weather in the autumn much better than corn.

**Soiling Foods.**—At the Minnesota Station the best soiling foods grown have been rape, peas and oats, and sorghum. Of these, rape stands out pre-eminently as the most valuable. Sorghum is chiefly valuable in hot weather, when rape is not so valuable as at other times.

**Advantages of Such a System.**—The benefits resulting from growing such pastures are many. They include the following: 1. The capacity of land to sustain sheep is greatly increased. It is increased according to the intense character of the methods adopted. 2. The system is most destructive to weed



LADY OTTAWA—3001—

First-prize three-year-old Ayrshire cow at Toronto and London, 1899.

BRED AND OWNED BY WM. STEWART & SONS, MENIE, ONT.

life. Scarcely any form of weed life can long survive under such a system, and the weeds that do grow are turned into meat. 3. No other system of handling land will better sustain fertility, and will at the same time yield revenues. Where the crops are all pastured off where they have grown, fertility near the surface will be increased rather than decreased. And 4. The influence on the health and well-doing of the sheep is excellent.

#### Our Scottish Letter.

Let me at the outset congratulate the FARMER'S ADVOCATE on the magnificent special number which it issued at Christmas. The enterprise involved is of the first order, but surely the time has come when the impossible representations of stock which have so long characterized American and Canadian journals should be abolished. Nature never made a straight line—she believes in curves; but judging by pictures one sees in American and Canadian stock magazines, Nature would seem to work with a ruler. Nature makes trees, but man makes masts; the mast may have greater utility, but it could never exist but for the tree, and in spite of the artificial forms developed in modern stock-breeding, Nature has still the leading hand in producing cattle, horses, and pigs.

The winter is partly gone, and the Scottish farmer is finding once more that Providence is kind. An old Scotch farmer of the Covenanter type, who is never known to grumble, no matter what the weather may be like in harvest, once quaintly observed to a group of grumblers during a bad harvest, "They that have charge of the weather know more about it than we do." The witness is true, and farmers everywhere should lay the lesson to heart. During the past summer the turnip crop was a failure; it almost seemed as though there was to be no turnip crop, and gloomy were the forebodings for the winter that is now half gone. But Providence sent compensations. The weather in October was possibly the finest of the whole year,

the bulbs swelled out and continued to grow until Hallowe'en was past. November was a very open month, and stock were kept outside, making comparatively small demands on turnips and straw until December was entered upon, with the result that the supply of turnips seems likely to last as long as usual, and it is even said that in some places there are not enough sheep to eat them. The price of beef has rapidly advanced, and at present we are threatened in Glasgow with an addition of 2d. per pound in the retail shops. Grain has not advanced in price, and feeding stuffs have therefore kept at comparatively easy figures, the upshot of the whole being that the farmer has less cause for complaining than he at one time supposed he would have. How long this state of matters may continue does not appear, but it has lasted sufficiently to suggest that the old farmer's spirit is worthy of cultivation. "Trust ye aye in Providence, for Providence is kind; and ilka blade o' grass keeps its ain drap o' dew."

With the long nights and short days of winter, Farmers' Clubs and Discussion Societies are in full swing, and though their influence is indirect, there can be no doubt that it is favorable to the promotion of the best interests of agriculture. Many subjects come up for discussion, but recently a good deal of interest has been taken in the value of manurial experiments conducted over a wide area during the past ten years. These experiments embrace a wide variety of problems, but possibly they are too diffuse, and many of them of course yield results which are purely negative. A praiseworthy attempt was recently made by Professor Campbell, of the Yorkshire College, Leeds, to summarize the results of a large number of these experiments, and some of the lessons are of direct pecuniary value to farmers. Professor Campbell has the knack of looking facts squarely in the face, and he can deduce lessons other than those which appear on the surface; e.g., as the result of a variety of experiments we have had a striking tribute paid to the "Oliver 240" plow, an implement which is proving invaluable on certain kinds of lighter soil for lea plowing. It is practically a trenching plow and cultivator combined, and no one who has used it on the friable red loam so prevalent in the west and south-west of Scotland reports having done so. In the course of discussion it transpired that deep plowing may have a good deal to do with the banishing of clover. Mr. Gibb, of Gladstone farm, Bishopston, had a field on which cabbage had been grown. After the cabbages were removed he treated part of it by plowing and harrowing in the usual way, and the remainder he treated as follows: He "split" the ridges after the cabbages were taken off, harrowed the land and put the Massey-Harris cultivator through it in spring. The whole was then sown down with grass seeds. On the plowed part in due time the pasture contained no clover, whereas on the part not plowed, but treated with the cultivator, the pasture was full of white clover. The reason is obvious. The clover seed was buried so deep by the plowing that they never got up, whereas by the cultivator the land was stirred and pulverized, but the seed was kept near the surface, and in due time yielded rich pasture. Chilled plows and cultivators are revolutionizing much of our farm practice in this country.

A most instructive experiment was conducted at Cockle Park, Northumberland, by Professor Somerville, who has recently been appointed first occupant of the Chair of Agriculture in Cambridge University. The object of this experiment was to find out the best dressing for pasture land of the poorest quality—cold hard clay—worth about 5s. per acre in its natural state. To make the test as effective as possible, it did not end with the weighing of the hay produced, but sheep were pastured on certain of the plots; these were sold to the butchers, and their report on them taken into account. Other plots were utilized for the production of hay, and both the weight and the analysis of the crop taken into account. That is to say, the composition of the grasses after the various manures was considered in detail. The result of this exhaustive inquiry is a remarkable triumph for that form of phosphatic manure known as basic slag. It triumphed all along the line, beating every kind of combination of manures pitted against it. It not only gave the best results in the quantity and quality of the grasses, but it produced the best mutton and the most valuable hay. In fact, on every ground, financial as well as agricultural, basic slag has been shown by this experiment to stand easily first as a means of applying phosphates to gray and clayey soils. It has not done much good on sandy soils, but for moss or clay and their combinations it is an easy first. As a plant food it is specially relished by the most valuable grasses and clovers; hence, when applied as a top-dressing to hill pasture, it has simply transformed the face of the country on such soils as I have described.

The South African war is proving a bigger thing than the quidnuncs who sit in their armchairs at home supposed, and the volunteer movement has proved highly infectious. Many young farmers are amongst those who have gone to the front, and the County of Ayr especially has contributed a notable quota to the yeomanry ranks. Mr. Adam L. Montgomerie, Lessnessock, Ochiltree, well-known to many of your readers, who has been in Canada, is one of the men who has been accepted, and it is a notable fact that none of the Ayrshire men have been rejected by the medical men, but all have passed, and go forward. "SCOTLAND YET."



FEBRUARY 1, 1900

### Why Every Farmer Should Raise Improved Stock.

The benefits available to all farmers from raising and feeding improved stock are well set forth in a paper read by Henry Wallace before the Illinois Live Stock Breeders' Association, from which we quote:

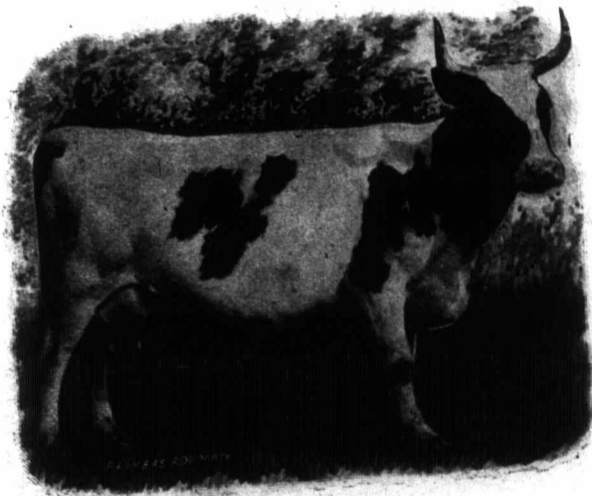
As a preliminary question, it might be asked why the farmer should grow any kind of stock? Why not grow grain exclusively? Many plausible reasons might be given why he should keep no stock at all except his work horses, a cow or two to furnish milk and butter for the family, and a few pigs to consume the waste and supply the family wants. It might be argued that a grain farm can be conducted with much smaller capital in every way. Little or no fencing would be required, and no buildings except for the comfort of the family and the stock absolutely necessary to a grain farm. It might be argued, on economical grounds, that a flesh diet is vastly more expensive than one purely vegetable; that man lived for at least two thousand years on a purely vegetable diet, and that one of those old fellows, named Methuselah, lived nearly a thousand years; that the period of human life was shortened after they commenced to eat flesh, and that 100 bushels of wheat will keep a man in good health for many years, while, if converted into beef, it would make only about 250 pounds of dressed beef, which a stout, hearty man could eat as fast as one steer could make it. In short, it might be argued further, from the standpoint of personal comfort, or political economy, or morals, or the welfare of the race, that the farmer should not grow live stock at all.

As a matter of fact, the farmer does not grow live stock until he is driven to it. All new agricultural countries, and nearly all new farms, are opened up by grain-raisers. The grain growing habit, when it has become fixed, usually continues until the farmer is by force of circumstances driven to growing stock. As a rule he avoids it as long as he can. When waning fertility is observed he tries a rotation of grains, and this proving a failure, is finally driven to grass, and then forced to grow stock to consume it, forced to fence, to build, to study the habits and appetites of animals; the science and art of breeding; the food value of grains and grasses; in other words, the science and art of mixing feeds, or the balanced ration. It is either this or the impoverishment of land, and sooner or later a mortgage, a death grip—for that is what the word mortgage means—and, after that, migration to a new country or falling down from the position of owner to renter, and finally to that of a hired hand. It should be thoroughly impressed upon the minds of farmers that there is no such thing as maintaining as maintain the fertility of land without live stock. It is essential to the maintenance of soil fertility; that is, available fertility. A wise Providence will not allow any farmer to so utterly exhaust land that it cannot be restored by clover and live stock, but he locks up the fertility, thus rendering it unavailable, and hides the key where only the good stock-grower can find it. If, then, the farmer must raise stock or sell his land by piecemeal, why not grow improved stock—the best for the purposes, whether in breed or individual merit, that can be obtained?

The breeder comes in after the farmer has been driven from grain to grass and live stock, after rotations have been established, which is seldom until after the land has begun to show exhaustion. The clay must appear on the hillsides before farmers, as a rule, really begin to do hard thinking on agricultural lines. After he has had experience in growing live stock, and has so far restored fertility by his means (and it is mainly a restoration of the humus to the soil), the farmer begins to study his animals with a view to their improvement, and he learns a number of things that surprise him greatly. He is at first disposed to resist improvements, to criticize, and often to condemn improved breeds and breeders. He maintains that he can with a given amount of grain make as many pounds of gain on the unimproved stock as he can on the improved, and in this he may be correct, for gain does not depend on type and form, but upon the capacity to digest and assimilate, and this is quite as likely to exist in a high degree in the common stock of the country as it is in improved stock. It is when the farmer goes to market with his cattle or sheep that he finds that there is a wonderful difference in the selling price; that while one bunch of steers, for example, may sell at \$7.00, another bunch equally fat may not bring over \$5.00. He is at first disposed to lay the blame on the "Big Four," or the combination of buyers, but further investigation will show him that the men who buy his stock have no prejudice either for or against any breed, any color of hair, for horns or no horns, but that they are buying simply with a view of securing the kind of stock that will furnish the most dressed beef per hundredweight and the largest cuts that bring the high price on the market. In short, he finds that whether in cattle, sheep or hogs, the long, deep middle, the strong, thick loin, or the firm, thick ham, brings the highest price live weight. It is the steer, for example, that with a vigorous appetite and digestion puts the fat on his broad back, deep loin,

and well-covered ribs, and interlards his muscles until he walks like a well-fed lawyer or unctious doctor, that brings the price per pound on the market, and the seller goes home with a resolution that hereafter he will grow and feed stock, not for the sake of having a market for his grain, roots and grass, nor for praise or vainglory, but for the sordid cash. He finds that there is a type in all kinds of improved stock to which he can sell safely his grain or grass on ninety days, six months or a year's time, with the probability that it will pay him a better price than the dealer at the nearest station, who buys his grain perhaps to sell to other people to feed their stock. The reason, therefore, that the farmer should grow improved stock is simply because they are built in such a way that they are safe customers for everything that he has to sell. In growing or feeding any kind of live stock, the farmer is not only improving his land and fitting it to grow larger crops in the future, but he is finding good future customers for the crops which he may grow, customers which are solely under his care and control and which will turn over to him, not merely the price which the merchant will give, but a large profit in addition. He is conducting both sides of the bargain.

Let us go into the matter a little more thoroughly. Few farmers realize wherein the difference lies between improved stock and unimproved. It is not, as we have before stated, in the capacity to furnish fertilizers to the land. The unimproved steer is as good a manure factory as the improved. It is not in the capacity to make pounds of gain. The unimproved, with equal digestive and assimilative capacity, will make as many pounds of live gain as the improved steer, and his appetite and digestion are quite likely to be fully equal to the improved. The difference between them is in where the gain is placed. Breeders have been for a hundred years studying how to secure a type of all kinds of live stock used for meat production



MYRNIÉ — 2065 —  
First-prize Ayshire cow and sweepstakes female of the breed,  
Nova Scotia Provincial Exhibition, 1898 and 1899.  
OWNED BY C. A. ARCHIBALD, TRURO, N. S.

that will furnish the largest amount of cuts so located that they have little movement when the animal takes its ordinary exercise. These are the loin and the ribs. It may be surprising, but it is nevertheless true, that a first-class beef animal will not only dress, when equally well fattened, a much higher per cent. of beef than the unimproved or improved in other lines than the beef production, but that 60 per cent. of value of this carcass lies in the ribs and loins alone, and that this represents less than 30 per cent. of the total weight of the dressed carcass.

Some years ago the Iowa Experiment Station conducted some valuable experiments in this line. While the experiment was intended to reveal the merits of the different breeds, it nevertheless revealed some facts quite pertinent to our purpose. Among these were a Jersey and a Hereford, each fattened to a finish on the same feed and with the same care. The Jersey had 190 pounds of tallow on a 747-pound carcass, while the Hereford had only 131 pounds of tallow on a 1,062-pound carcass. The Hereford dressed 66.4 per cent. beef, while the Jersey dressed only 57.5 per cent. Why? The Jersey, which for beef purposes should be ranked with the unimproved, put the fat as near as possible in the place where his mother put the essence of her food. The Hereford put it largely between the muscles. The Jersey had been bred for milk and butter production; the Hereford for beef. The Jersey, therefore, had thinly covered ribs and a deficient loin; the Hereford was perfect in both these points. The same was true, in different degrees, of the Short-horn and Polled Angus. The farmer, therefore, should grow improved cattle if he is growing for beef, because they furnish the largest per cent. of beef, because they furnish the largest per cent. of cuts that bring the high price. When this experiment was made, the loins sold for 19 cents and the ribs for 16½ cents per pound, while the other parts of the carcass sold at from 2 cents to 6 cents per pound, the average value of the entire carcass, outside of the loin and ribs, being about 4.5 cents per pound. In short, the loin and ribs, while less than 30 per cent. of the weight of the dressed carcass, had more than 60 per cent. of the value.

Thus far I have spoken of animals improved in

the line of meat production and have taken beef cattle as an illustration. The same principles apply to a greater or less extent in the production of both pork and mutton. The same underlying principles should guide the farmer when his object is not the production of meats, but of milk. The improved special purpose dairy cow—and this is the type the farmer should use when dairying is his main or exclusive business—is the one that, with a given amount of food, produces the greatest number of pounds of butter-fat consistent with the health of the animal. In other words, he should aim for the greatest production of that which sells for the most money on the market. The dairyman is fooling away his time and his feed with any cow that produces less than 200 pounds of butter-fat per annum. If he is living up to his privileges as a dairyman, he will not stop short of 300 pounds, which can be obtained, not easily, but can be obtained by using the improved breeds, taking advantage of the work that the breeder has done for him.

His circumstances and conditions may require him, while not overlooking the butter yield, to combine this with the yield of meat, and with this end in view he should improve on both lines. While apparently incompatible, they are so only to a limited extent. If he is a sheep farmer, he combines both wool and mutton. In certain lines in growing horses he finds it profitable to combine a moderate weight with a moderate speed. In growing certain lines of poultry he combines weight and egg production. He can in beef production do the same thing.

How, then, can a farmer, once he has clear ideas on this important subject, the correctness of which has been demonstrated both by the theorist and the practical farmer, secure the improved stock which alone will pay him a decent profit? Manifestly only by availing himself of the labors of breeders who have made this a matter of special study ever since live stock improvement began. In other words, he must secure the kind of stock which have the ability to pay the farmer the top prices for his grains and grasses. He is foolish if he engages in the strife between the herdsmen as to which breed is best. There is no best breed, for example, of beef cattle. Intelligent breeders have all been working with the same end in view: to get the greatest weight of the cuts that bring the highest price in the world's market. They differ about horns or no horns, color, and such minor matters that really are of but little practical importance to the farmer who wishes to grow improved stock and thus secure customers for the crops that will usually pay, and pay well.

He should not start at the first with the idea of becoming a breeder. He should use improved sires of the breed that suits his fancy and aim at the production of a grade herd. After some years' experience in this line, he can purchase one pedigree female, and by giving thoroughbred care he can, if he chooses, gradually and surely develop into a skillful and experienced breeder. It is possible to do with cattle what has already been done with hogs: banish the unimproved stock. Five or six crosses of improved stock in either line will develop a herd which for beef or milk production is practically equal to pedigree stock. The only reason why we do not have a uniformly high grade in our cattle stock is because farmers have not followed the same lines, the reason for this failure being in the greater cost of the purchase of males and the slow rate of increase. When the farmers generally have been forced from grain to grass and live stock, and then forced by the higher price of land and grain to improve their live stock, then will begin the breeder's millennium, for then the day of the scrub and the unimproved stock will have passed away. The day of the grade sire will also have passed, and every farmer will find it necessary to use not merely pedigree sires, but the pedigree sire so formed that he will dress the highest per cent. and have the largest possible portion of this dressed weight on the loins and ribs, where it sells for the highest price. The reason why the farmer should grow improved stock is that only along this route lies the pathway to prosperity. He must do this or worse, and in doing this he will acquire an education along many lines that can be obtained in no other way.

### The Objection to Sudden Changes in Food Rations.

When cattle are changed at all suddenly from one description of food to another they almost invariably suffer very sensibly in condition, even though such change may be from a good to a better ration. An experiment was specially conducted some time ago with the object of testing whether the commonly accepted ideas on this subject were not exaggerated, and it was found that in every case in which a change in food suddenly took place the animals were adversely affected thereby. When a cow is fed on a certain ration for a considerable time, her stomach naturally becomes accustomed to a certain bulk or consistency in her food, so that when the change is made, except it is very gradually brought about, there is a tendency on the part of the system to become disarranged, and several weeks frequently elapse ere the animals begin to make what may be described as normal progress on the new food. It is because of this that it is so essential to exercise every care at this season of the year in changing animals to rations in which their feed consists largely of dry and concentrated foods.



### Scarcity of Good Beef Cattle.

To the Editor FARMER'S ADVOCATE:

Recently a number of stock dealers were discussing an article that appeared in the Christmas number of the FARMER'S ADVOCATE. Amongst the opinions expressed was that the very large decrease in the number of export cattle was due to the increased attention paid to dairy cattle.

Some say that the falling off of receipts is caused mainly by the degenerating tendency in cattle which has been observed for several years past, the farmers not having paid sufficient attention to improving the breed of beef cattle. Another opinion was that the export to the United States of light stock and feeding cattle that are considered not good enough for winter feeding was the cause. Were these kept and fed during the winter, and sold for export in the spring, it would have a tendency to improve the quality. This, we consider, would not touch the question, as the class referred to would never make even fairly good export cattle, and the majority are doubtless sold for the local butchers' trade in the States. On the Toronto market there has been for several months a steady demand for short-keep, well-bred feeders, and no supply. Farmers from the best winter feeding districts, such as Huron, Perth, Wellington, Peel, Dufferin, and South Ontario, are constantly on this market for the purpose of buying short-keep feeders, but rarely obtain what they desire, and complain that the considerable quantity of stockers shipped out to the American market has drained the country of this desirable class of young stock.

We are of opinion that this is not the real cause. Dairy farming is probably more profitable to the average farmer, and yields more quick returns. The breeding of this class of cattle is not considered so very important. A high standard of breeding is, in most instances, overlooked by the dairy farmer.

The next question is, how can the difficulty be remedied? What is needed is a more general use of good pure-bred bulls of the beef breeds, and more liberal feeding from calfhood, fitting the cattle for exportation at 2 to 2½ years old; and, if necessary, the importation of new blood to breed up our grades, as too many of them are now undersized, of undesirable shape, and stunted. The reply is, that importation does not pay. Quarantine regulations, tuberculin testing, etc., render the importation and distribution too expensive.

We chronicle the fact week by week of the large number of stockers going through to Buffalo. If these animals are useful to our cousins for feeding purposes, why should they not be to our own farmers? The answer comes that transportation is reasonable, food is more plentiful, coarse grains are cheaper, beef cattle of all grades are scarce, and prices rule high; and for these reasons alone can the business be made profitable in the States. We offer, as a possible remedy, the suggestion of the organization of Farmers' Clubs, for the purchase and keeping for local public use a standard bull of approved quality, and the relentless stamping out of the weedy scrub bull of the hedgerow back lot.

Toronto, Jan. 15. MARKET CORRESPONDENT.

### How to Forecast the Weather.

The formula of popular weather signs which is most kindly treated by the official observers is that adopted by the Farmers' Club of the American Institute a number of years ago: 1. When the temperature falls suddenly, there is a storm forming south of you. 2. When the temperature rises suddenly, there is a storm forming north of you. 3. The wind always blows from a region of fair weather toward a region where a storm is forming. 4. Cirrus clouds (a form of clouds appearing like spreading wisps or locks of hair) always move from a region where a storm is in progress towards a region of fair weather. 5. Cumulus clouds (irregularly rounded heaps or masses, white above and darker below) always move from a region where a storm is forming. 6. When cirrus clouds are moving rapidly from the north to north-east, there will be rain within twenty-four hours, no matter how cold it is. 7. When cirrus clouds are moving rapidly from south to south-east, there will be a cold hailstorm on the morrow if it be in the summer, and if it be in the winter there will be a snowstorm. 8. The wind always blows in a circle around a storm, and when it blows from the north the heaviest rain is east of you; if it blows from the south the heaviest rain is west of you; if it blows from the east the heaviest rain is south. 9. The wind never blows unless snow or rain is falling within 1,000 miles of you. 10. Whenever heavy white frost occurs a storm is forming within 1,000 miles north or north-west of you. This is as far as popular weather prophecy has yet advanced.

### Instructive and Entertaining.

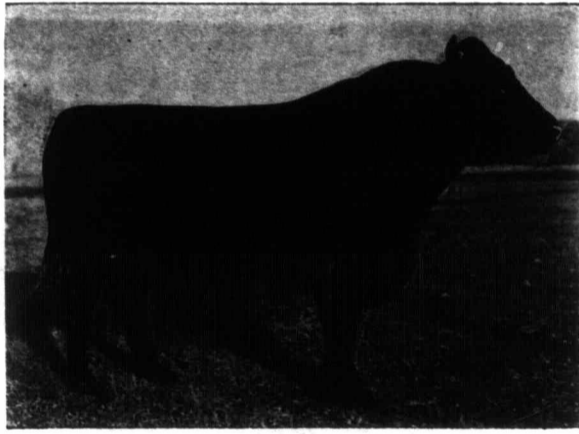
I sincerely thank you for the very handsome copy of the Christmas FARMER'S ADVOCATE you so kindly sent me. It is the most attractive number of its kind I have ever seen, and you may well be proud of such a publication. The illustrations are splendid, and it is seldom one finds so much instructive and entertaining reading matter between the two covers of a journal devoted to farming. You certainly are to be congratulated.

With renewed thanks, LAURA ROSE,  
Guelph Dairy School.

## FARM.

### How I Would Build a Cement Silo.

As I have been working in the cement trade for four years, and have been travelling agent and instructor for Battle's Thorold Cement Works for the last year, and am employed by them now, I take pleasure in giving to my fellow farmers some of my ideas why they should build a cement concrete silo in preference to a wooden one, and how to build it. Take one instance—the wooden silo at the Guelph Agricultural College, with its great blue oak plank for studding, only lasted five years, when they had to fix it over and put a new inside into it, and five years from that they tore it all down and built a concrete silo, and Mr. Rennie told us that a wooden silo was too expensive to build for the time it lasted. Now, a concrete silo, if it is rightly built, will last as long as man is on the face of the earth. I will now describe how to build a concrete silo, say 12 feet in diameter inside by 30 feet high: By all means build a silo with six corners, as you can build a lighter wall than if you were building a square silo. First dig a trench 20 inches wide and about 20 inches deep; fill this up with concrete and large stone; pound the cement well in around the stone, then put up your scantling or long poles flattened on one side; stake them firmly at the bottom, three at each corner—two on the outside and one on the inside; tack small strips across from one to the other to keep them in their places; go around each corner in this way, then tack a piece of lumber from corner to corner, and then they are ready for cutting your plank to fit; take a plank say 9 inches wide, cut it in two, say long enough to go from corner to corner, then lay two edges together and nail a piece across the back to keep them together; go around the silo with these planks, inside and outside; make wall of silo 14 inches at bottom and 8 inches at the top; make the batter on the outside; make the inside of your silo one inch smaller at the top than at the bottom, so that it will give the ensilage a chance to settle without pressing too much on the walls of



ROYAL STANDARD = 23381 =.

Four-year-old Shorthorn bull, first prize and champion at Calgary Exhibition, 1899.

OWNED BY W. D. SHATTUCK, DAVISBURG, ALBERTA.

silo. In setting up your uprights at corners make them 6 inches wider than you are going to have your wall, so you can have your plank and room for an inch wedge at back; set up plank; cut small piece of board 14 inches long, put between planks; put in your inch wedge between planks and uprights, then take gravel and cement (one of cement and five of clean, sharp gravel), mix well together, then wet it enough so it will stay in a ball when you take and squeeze it in your hand; now take it and put it in between the plank; take an old axe or a small stone hammer and pound it well down, at the same time laying in all the stone that you can, as long as you keep them back say 2 inches from the edges on either side; after you go around it once, knock out your wedges, take your plank back from part of wall first built, and lift up about 16 inches; knock in your wedges again, and then start to fill the next round; keep lifting your plank as you go around. I also build in iron bands around the silo every 4 feet. Any old buggy tire will do by cutting them long enough to go from corner to corner and hooking them at the end; then you can lay them in as you go around. These irons are to keep it from spreading. Three common wires twisted together will do. Now I would make a door, 2x3 feet, out of plank, and nail a 2x4 scantling at the back in the center of the frame to make this air-tight; set this in the wall about 2 feet from the bottom; then build to the top of door; then build about 2 feet all around; then put in another door. Go on in this way until you get to the top, and you will have a silo that will keep your ensilage sweet, and you will never have any fear of air getting in and spoiling your corn. As to cost of silo, I will give you as near as I can: It will take 50 barrels of cement; two men 14 days to build; also 4 men one day to raise uprights; also 35 yard of gravel and 5 yards of stone. Now you have a silo that will last, for there is no rot about it.

Hay P. O., Ont.

A. P. STEVENSON, Nelson, Man.: "I am indeed much pleased with the Christmas number of the FARMER'S ADVOCATE." January 4th, 1900.

### Harvesting Ice.

The time to harvest ice is when there is ice to harvest, and it would seem that if the winter continues to break up at short intervals, as it has done so far in the southern portions of Canada, the first opportunity to get clear, solid ice of medium thickness should not be allowed to slip by unimproved. It requires no argument to convince anyone, but especially dairy farmers, that there are great advantages in having a supply of ice at command during the heated season. Not only is it profitable as an aid to keeping milk and cream in best condition, but it affords a deal of comfort in making it possible to hold fresh meats, fruit, etc., without deterioration for a reasonable length of time. Whether it will pay or not to store a supply of ice, is more a question of nearness to a suitable body of water from which to secure it than the providing of a place to store the ice, as a cheap shed that will keep out the sun, rain and wind is all that is required in a storehouse. Provision must be allowed, however, for drainage, but that is easily secured ordinarily. We find throughout the country, many ice houses consisting simply of sheds of inch lumber, using 2 by 4 inch scantling for frame, constructed at the north side of the house or wood shed, or at the back of a driving-house. Occasionally a box stall apart from where stock are stabled is appropriated, and we have seen a corner of the wood shed binned off so as to answer the purposes of a suitable storage for ice.

In filling the house, the blocks of ice should be cut as nearly even as possible, a convenient size to handle, so that they will pack in close and leave but little space between. It is well to pack in broken ice between the rows, and if the filling is done on a cold day, by pouring water on the broken or champed ice between the rows the whole mass will freeze together, which is an aid in reducing the waste by melting during the season. Sawdust is perhaps the most generally used packing material, as where it can be secured it is convenient to handle and is a good nonconductor. It is well, after providing for good drainage, to cover the floor of the house, which should be earth, with several inches of sawdust. This will prevent the warmth of the earth from reaching the ice. The ice should then be laid in tiers, fitted closely and chinked, leaving ten inches or a foot of space between the ice and the walls. Build up the tiers as high as is needed, and fill the spaces outside with dry sawdust, well packed down as each tier of ice is laid. Straw, chaff or shavings will answer well as packing, but they must be well packed down. The top should be covered nine or ten inches deep if sawdust is used. More than this is liable to heat, and melt the ice. Straw is sometimes used for covering, and answers a good purpose when from one and a half to two feet deep, as when ice is taken out in summer the straw can be rolled back easily, and after the ice is removed the same cold surface is rolled on again; whereas, when sawdust is used, some of the warm dust may be thrown on the ice, causing more or less waste. Whatever is used, it should be kept well tramped down so as to fill all spaces, and thus avoid the introduction of air. While it is important to keep wind from blowing into the building, good upper ventilation should be provided so as to protect the ice from the ordinary atmosphere.

### Distribution of Samples of Seed Grain.

To the Editor FARMER'S ADVOCATE:

DEAR SIR,—Under instruction of the Hon. Minister of Agriculture, another distribution of sample packages of the best and most productive sorts of cereals, etc., is now being made from the Central Experimental Farm, Ottawa. The distribution will consist, as heretofore, of samples of oats, spring wheat, barley, field peas, Indian corn, and potatoes. Each sample will weigh three pounds. The quality of the seed will be of the best, the varieties true to name and the packages will be sent free to applicants, through the mail. The object in view is the improvement of the character and quality of the grain, etc., grown in Canada, an effort widely appreciated, and the choice of varieties to be sent out will be confined to those which have been found to succeed well at the Experimental Farms.

These samples will be sent only to those who apply personally; lists of names from societies or individuals cannot be considered. Only one sample of one sort can be sent to each applicant; hence, if an individual receives a sample of oats he cannot also receive one of wheat or barley. Applications should be addressed to the Director of Experimental Farms, Ottawa, and may be sent any time before the 15th of March, after which date the lists will be closed, so that samples asked for may all be sent out in good time for sowing. Parties writing will please mention the sort of grain they would prefer, and should the available stock of the variety named be exhausted, some other good sort will be sent in its place. Letters may be sent to the Experimental Farm free of postage.

WM. SAUNDERS,  
Director Experimental Farms.  
Ottawa, Jan. 22nd, 1900.



**An Old Barn Made Over.**

While many new barns are going up annually on the farms of Canada, a great many old barns, especially in the older provinces, have arrived at an age when it has become necessary to remodel them or to raise them upon basement walls for stabling stock. While many old barns may appear too narrow to make over to good advantage, still very satisfactory quarters can be made for one's stock by cutting according to the cloth on hand, and figuring carefully the disposition of the space at command. The barn we shall attempt to describe,



BARN WITH NEW BASEMENT.  
OWNED BY AUGUSTUS YORKE, MIDDLESEX COUNTY, ONT.

and which is illustrated in this issue, is on the 100-acre farm of Mr. Augustus Yorke, in Dorchester Township, Middlesex County, Ont. As is shown by the photograph and basement plan, it is built in the form of an L, the superstructure having been two old barns, in size 34x46 and 36x52 feet respectively. These were placed as shown, and raised so that 8-foot walls were built beneath them. The walls are of Thorold cement concrete, and are exceedingly well constructed. The outside was given a wash of cement and water, put on like whitewash, and then blocked off in squares to resemble stonework, with whitelead paint, as is shown in the illustration. The east wing, which is 46 feet long and 34 feet wide, includes the horse stable for two teams, besides a box stall and drive-house, with space for implements. At the west end of the drive-house is the cement water-tough projecting through from the cattle stable. The trough is of Portland cement, 12 feet long and 3 feet wide, outside measurement, and 5 inches thick all around. The water comes from a well some 200 feet southeast, and is forced through iron pipes underground up through the bottom of the trough by means of a windmill. When the water rises to near the top of the trough it runs into another pipe which empties into a trough in the yard some 50 feet away. As the cows are let out each day they drink at this trough, while the horses are watered inside. Mr. Yorke has not yet seen an inside watering device for cattle that suits him, but when he does he will put it into his stable. He regards the inside water-tough supplied with wind power one of the most valued features of his barns. The horse stable could be extended to take in the space at the east end which is now used to store implements, if so desired. The ground-plan illustration shows the positions of doors and windows. All of the doors slide on rollers, instead of swinging open and shut on hinges. The windows, each of which contain six panes of 12x14 inch glass, swing on rods passing through the center. These are opened by tilting in at the top when desired. The horses stand on plank laid on cement. The cattle stable is entered from the drive-house and also from behind the horses. Behind the horses, close to this latter door, is a trap-door above, through which straw is put down for bedding for both stables, and hay is put down for horses at the space marked in the ground plan. The cattle stable, which is 36x52 feet, accommodates 20 cows fastened in the two rows by stanchions. There are no stall partitions, the cows standing side by side from end to end of the rows. The platform on which the cows stand is 5 feet 10 inches in one row, and 6 feet in the other, from stanchion to gutter. The gutters, which are level on the bottom, are 14 inches wide, 6 inches deep next the cows and 5 inches on the outside. This is large enough so that cleaning out requires to be done only once a day with a boat drawn by one horse. The boat used is shown in the photo-illustration at the west end of the barn. The mangers, which are 20 inches wide, are continuous without partition from end to end of the rows. The back of the manger rises 30 inches high in passage. The three box stalls on the east side of the 10-foot passage, each 9x10 feet, are filled with roots in the fall, and as emptied are ready for calves and other stock. The fronts of these box stalls consist of planks which slide in grooves. The ground plan shows the position of the chutes and boxes through which oats and chop come down from the barn above. We would draw

attention to the box stall, which may be used for roots, if desired, beneath the bridge or driveway to barn.

The floors, as well as the walls of the entire basement, are of cement concrete. The floors are 5 inches deep, and all, except in the box stalls, passages behind the cattle, and beneath the planks in horse stalls, are finished with Portland cement 1 inch deep, the other cement used being from the Thorold Cement Works. The ventilation system consists of 2-in. drain tile passing through the top of the wall at varying intervals. These are shown as dark spots on the south side in the photo engraving.

The barn floor above is of double inch, having the mows so arranged as to store the hay at the east end over the horses, while other conveniences are arranged for. The old frame was not disturbed, nor the roof raised in any way. One could gain considerable space by raising the purline plates with the rafters, and hiping the roof with short rafters at the peak. Mr. Yorke informed us that the basement was practically all new material, as well as the shingles on half the roofing. The outside of the barn, as well as all the wood-work inside, is painted. The cement used was 130 barrels of Thorold and 16 barrels of Portland. The cost of doing all the work and purchasing all the material was a little over \$900.

**Construction of Cement Concrete Walls and Floors.**

The following is a synopsis of an address delivered by Mr. Isaac Usher, Queenston, Ontario, at the Farmers' Institute meetings in Manitoba:

It is absolutely a waste of time and money to attempt to build concrete structures of any kind with fine, soft or earthy sand or gravel. There can be no chemical action or crystallization when such material is used, and very fine sand, though clean, must be condemned as being wasteful; it takes too much cement. The ideal gravel is clean and coarse, say gravel from the size of wheat grains to that of walnuts, with a little sand through it. I wish you to understand this point particularly. Perhaps I can best illustrate it in this way: Take a piece of gravel as large as a walnut, all that piece of gravel requires in a concrete structure is the slightest coating of cement, and crystallization will take place. Now suppose that you should crush that same piece of gravel into a fine, almost dusty sand, and you will have thousands of little particles to unite; just think how much surface you will have to cover, and each particle of sand, it matters not how small, must have a coating of cement or there will be no chemical action. I want to say here that a cement concrete made of the ideal gravel, such as I first described, will make stronger work, ten barrels of such gravel to one barrel of cement, than it would be possible to obtain from one barrel of cement to one barrel of sand. You will now see the importance of selecting the proper material.

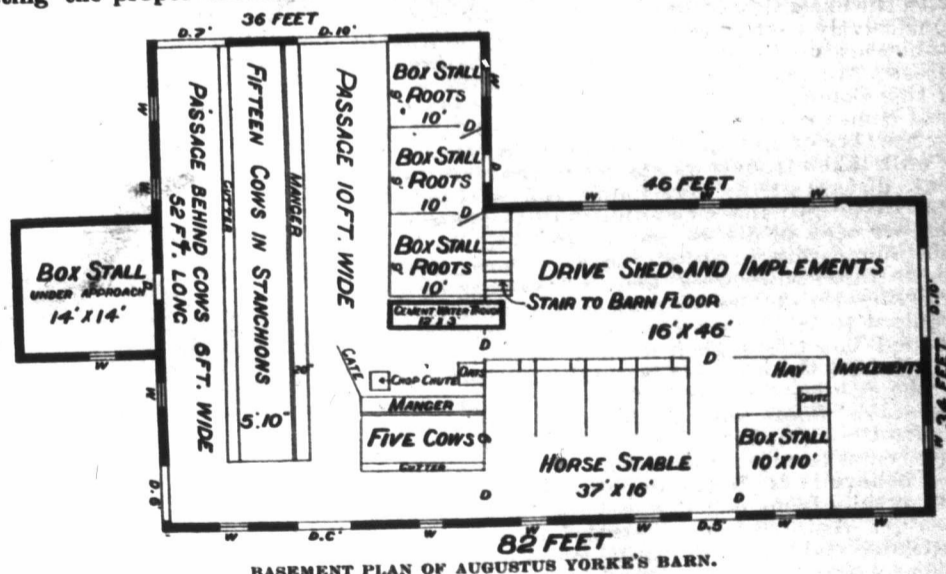
To mix cement concrete a large platform should be laid of boards or plank, and the concrete mixed in the following way: The usual proportions we use in Ontario for walls and lower concrete of our stable floors is generally six barrels of gravel to one of cement, thoroughly mixed, dry, before putting in any water. Make a hole in the center of the dry mixture, pour in a pail of water, take shovels and push a little of the dry mixture next the water until the water is nearly absorbed, then pour in more water and push in the material in the same way until it is all thoroughly moist, now turn the concrete completely over twice, using shovels to do this, and it is ready for use. Now, gentlemen, as to the depth of foundations required for the building, you know better than I what your climate requires, but our general practice in Ontario is to build the basement walls of barns from ten to twelve inches thick above the foundation footing. I consider a wall ten inches thick strong enough for any barn basement. If properly built you cannot put weight enough upon them to injure them in any way. Our foundations are prepared by excavating to a depth below the frost in clay subsoils. Where we have sandy foundations we

excavate to where the material is uniformly solid, in many cases not necessarily below the frost, because we find the foundations are not disturbed by freezing in sandy soils. We usually dig the trenches eighteen inches wide and to the depth required, fill in these trenches by spreading over the bottom of the trench two or three inches of concrete, then, if they can be obtained, roll in large stone, hammer them down solid, fill in with more concrete and small stone till the surface level is reached. Be careful to hammer the stone well into the concrete to make the foundation solid. I believe a firm foundation is the most important thing for all structures. Now build the walls above the footing foundation exactly in the center of this footing. That will give you, if a ten-inch wall, a four-inch projection on each side of foundation.

There are various ways of building walls. Sometimes studding are set up all around the building, inside and out, to guide the plank, and sometimes nothing but inside and outside corners are used, with bolts for the lower edge and wooden clamps for upper edge of planks. This is the most expeditious and economical plan when ordinary care by the builder is used. In the latter case, for outside corners, the best plan is to spike two planks together, say six or eight inches wide, spiked together at right angles, just as you would the corner boards of a frame building. In the inside corner of these planks that form the triangle put a beveled strip, made by ripping a one-and-a-half inch square scantling diagonally; that will make beveled strips for two corners. Nail these in the inside angle; set up the triangular pieces at the outside corners. The inside of these triangular pieces when set on end at the corners will form the outside wall line. For the inside corners of the structure set up a 4x4 scantling in the inside angle, this will give you the wall line of two inside walls. When the planks are set up ready to build walls, wheel in the concrete, mixed as before described, spread it in between the planks about three inches thick. Place small field or any other stone in the center of the walls, keeping them about two inches from the outside and inside planks, hammer down firmly, then take a narrow mason's hammer, or an old axe will do very well, and ram the concrete firmly between the stone in the center of the walls and the plank on each side. Fill in on each side and ram until the concrete is about two inches above the stones already placed. Keep repeating this operation until the walls are built all around the building to the top of the planks. When the planks are filled, commence to raise the planks that were filled first, and keep building on in this way until the walls are completed. This is a rather hurried description of how walls should be built, but any Canadian manufacturer of cement who is anxious to sustain the reputation of his goods, and that his patrons may obtain the best work, will send a man who thoroughly understands concrete work, at his own expense, to educate people in every locality where the work is not understood, just how to do the different kinds of concrete work. Gentlemen, I could show you how to do this work better in half a day at your farms than I can by telling you for a week. There are little details which need attention, and which can hardly be explained except by actual work.

**CONSTRUCTION OF FLOORS.**

I will now talk to you for a few moments on the construction of floors. First establish the grades of all parts of floors, and where it is intended to put in our patent system of ventilation, locate the position of the walls which form the sides of the elevated feed alley. These walls are only four inches



BASEMENT PLAN OF AUGUSTUS YORKE'S BARN.

thick, and extend from eight to twelve inches above the finished floor. We prefer the twelve-inch, as that is high enough for the back of any feed manger for cattle. This system of ventilation consists in placing eight to twelve inch tile (according to the size of building) under the feed-alley floor, and extending through walls, admitting the fresh air from the outside, with one-inch iron lateral pipe leading from the tile mentioned to the parting blocks in feed manger in center of each double stall, where the air is distributed in a full spray, in this way each pipe spraying pure fresh air to two animals. The air, absolutely pure, is partially warmed in passing through the large pipe under

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feed alley in unfrozen ground, as we find the temperature of this earth is about 49° or 50°. After the little walls are formed for the elevation of feed alleys, put in foundation for manure drops. We find ideas differ as to the width and depth of manure drops, but they are usually from twelve to eighteen inches wide, and from four to ten inches deep. The bottom of the manure drops should be laid first, and this should be, say, six inches wider than the finished drop, giving room to set on edge a plank, say 2x8, to form the face of each side of manure drop. Along the top of each plank nail a bevelled strip to cut off the sharp edge or angle of the concrete on each side of the trench. The concrete behind these planks must be well rammed in, and so soon as set the planks may be removed, leaving a smooth, well-finished trench.

In building stable floors of all kinds get grades all properly fixed, cover the ground, if convenient, with one or more inches of sand or gravel, well rammed, before putting down concrete; cover this with three inches of rough concrete, gauged six of gravel to one of cement; ram this solid and put on a finishing coat, one inch in thickness, of two parts clean, coarse, sharp sand, to one part cement, which is also firmly rammed while the lower concrete is still soft; the work can best be done by setting a 2x4 scantling on edge, commencing at one end of the building, about three feet from the wall, holding the scantling in place by two iron or wooden pins; ram the rough concrete approximately level within an inch of the top of the scantling, then spread on fine concrete, so that when thoroughly rammed it will be level with the top of scantling. Finish the surface true to grade. Where fine gravel can be obtained these floors may be put on in one coat, three inches thick, mixed three parts gravel to one part cement, well hammered down and finished smooth and true to grade. It is absolutely necessary that an iron rammer (which we supply) should be used, so that all concrete, both upper and lower, is thoroughly rammed. Concrete for floors should not be mixed too wet, but should be only sufficiently moist to pack well and to work up to a good smooth finish. In horse-stable floors the utmost care should be taken to have all concrete well rammed.

#### IMPORTANCE OF VENTILATION.

I cannot speak too strongly of the urgent need of some system of ventilation, because I am satisfied that our domestic animals cannot be healthy and grow without pure air. I have before me the report of the Commission (of five of the most practical and eminent men) appointed by the British Government to find out, if possible, the cause of tuberculosis and other diseases of our domestic animals, and the bacteria germs in milk. Their investigation shows that these diseases do not exist amongst cattle which are not stabled. The report shows that in the dairy districts in Cheshire, where the cattle are stabled and kept warm in order to insure a large flow of milk, 63 per cent of those cattle are suffering in a greater or less degree from tuberculosis, whilst on a breeding establishment of Jersey cows in the South of England, where cattle are not stabled, when the tuberculosis tests were applied to one hundred head there was not one single reaction. A very complete report was taken from data kept at one of the abattoirs in Glasgow, Scotland. The system of inspection there appears very thorough; not only were the lungs and intestines of the animal examined, but the large sinews along the back and down the front and hind quarter were laid open for inspection. It was also found that during the year thirteen hundred diseased animals were slaughtered. The whole number of diseased animals were cows, with the exception of less than fifty head, showing conclusively that ill-cleaned and poorly-ventilated stables are no doubt the cause of perpetuating this disease. In reading over the very lengthy report of this Commission, I find that the most startling data comes from Dr. Hope, the Medical Inspector for the City of Liverpool, England. In 144 samples of milk taken from cows stabled in the city, 2.8 per cent. disease germs were found, and in 44 samples that came into the city from the rural districts, 29.2 per cent. of disease germs were found. Now, the Commission, in examining the different stables where those cows were kept, found that by city ordinance the stables for cows kept in the city were required to be cleaned out twice a day—not only cleaned but thoroughly washed out with water supplied (by the means of hose taken in the stables) by the city waterworks. They also found that all cow-stable floors were made of cement or large square tile bedded in cement, so they were actually impervious to any stable taint.

I believe it is simply impossible to obtain the best results from our domestic animals without pure air. Animals that are stabled all winter in ill-ventilated stables cannot thrive, and I have noticed on many occasions that where the cattle are turned out in the spring they are in a very unhealthy condition. I think that this matter of ventilating, and the sanitary conditions of stables, cannot have too much attention.

I would like to say a few words before closing on the location and plans of stable structures. Try to locate the stables so that you do not have to tramp through muddy lanes and filthy barnyards, but rather that you can have access to your stables on good dry land, gaining an entrance from some side or rear door, if necessary. Spend some time in laying out the interior of your stables; you have to go to those stables to feed the stock at least one

thousand times a year—why not have it as convenient as possible?

I have spent ten years of my past life aiding the farmers of the country in designing and laying out farm buildings, and I will gladly give my experience and assistance to you. If any person wishing to build will send me the number of stock he wishes to stable, and the size he would like his barns to be, I will send him a pencil sketch of the basement floor, without any charge, showing how best he may use the room at his disposal, and save as many steps as possible in feeding. If the building materials for concrete work are got ready during the winter or any leisure time, it will require very little time and labor to put up the structures. Before closing let

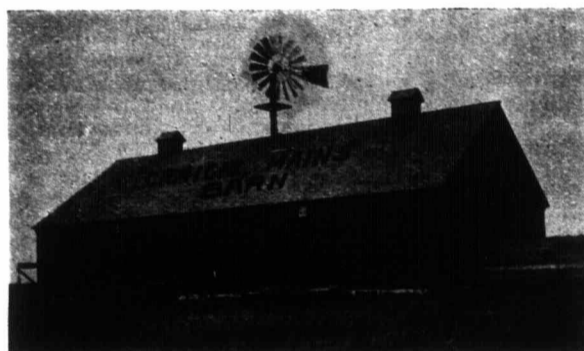


THE HOME OF A. & G. MUTCH, LUMSDEN, ASSA.

me give you the following important points: Mix thoroughly all concrete before using any water; all gravel and sand used must be coarse and clean, and free from earthy matter. Ramming doubles the strength of concrete; see that concrete, wherever used, is thoroughly rammed. No stone should come nearer than two inches to either face of walls. Do not attempt concrete work late in the autumn unless you can cover so as to protect thoroughly.

#### A Good House and Barn in Assiniboia, N.-W. T.

On this page appear illustrations of the house and barn at "Craigie Mains," the property of Messrs. A. & G. Mutch, of Lumsden, Assa. The Mutch



PRESENT BARN AT CRAIGIE MAINS, A. & G. MUTCH, LUMSDEN, ASSA.

Bros. homesteaded on their farm in '83, but owing to lack of capital and unpropitious seasons, were not able to do much farming until '88. Their new barn built in '98 contrasts favorably with the original stables, an illustration of which is also given, further detailed description of them being hardly necessary. The view of the barn presented does not show the basement, which has a nine-foot stone wall, and is divided to accommodate one row of horses and two rows of cattle, running the full length of the barn, a close board partition dividing the horses from the cattle. The horses and one row of cattle are fed from the one feed alley,



ORIGINAL STABLES AT CRAIGIE MAINS, A. & G. MUTCH, LUMSDEN, ASSA.

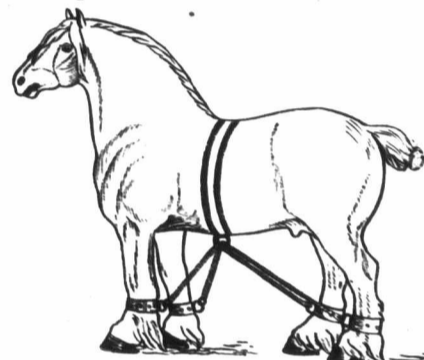
which is six feet wide. The cattle stand back to back, with an eight-foot passage between them. A feed passage five feet wide runs full length in front of the second row of cattle. The wide manure passages behind both cattle and horses permit the use of a manure boat direct from the stable to the fields, thus reducing the labor of handling the manure to a minimum. A drilled well is situated in the middle of the stable, from which water is pumped by windmill to tank on upper floor, and supplied through pipes to troughs running full length of the stable, in front of both rows of cattle. The trough for the horses is situated near the center, also supplied from tank. The barn is 102 ft. long by 53 ft. 4 in. wide. The frame superstructure has 16-ft. posts, 28-ft. purline posts, and frame being 8x8 and 6x6 timbers.

On the barn floor are two drive floors running right through, with large roller doors. Between the two drive floors, which are 34 feet apart, is located the feed granary, divided into bins for grain and chop. The granary is covered over, and on top of it is placed grain crusher, straw cutter, etc., run by windmill, which is carried on a 12x12 in. mast, 48 ft. high. The windmill is utilized to elevate the grain from drive floor to any of the bins, also to hopper above crusher. Feed chutes convey fodder and chop to feed passages in the stable below.

The house at "Craigie Mains" is particularly well built, although it appears in cut somewhat unfinished, as the verandas, etc., have not been built. The walls are of red brick, double thickness, with two and a half inch air space between the walls, both of which are plastered on inside, the inner wall strapped with one and a half inch strapping, and lathed and plastered; giving two dead-air spaces in the wall, with three coats of plaster. The basement is full size of the house, partitioned off into furnace room, coal bin, and vegetable cellar, etc. Diagrams are given of ground floor and first floor. The attic is, as yet, left in one large room, which is utilized for extra sleeping-room accommodation when needed, for drying clothes in winter time, and as a playroom for the children.

#### A Tackle for Breechy Horses.

D. C. BLACK, Middlesex Co., Ont.:—I enclose you drawing of a horse with ropes attached to prevent him from jumping fences. Take four straps 1 1/2 to 2 inches wide, and four rings to put on the straps. Fasten a strap on each hind leg below the hock and



on each fore leg below the knee. Buckle around the horse a good surcingle with a 2-inch ring which should hang below his body. Now take two pieces of rope and tie one end of each to the rings on the hind legs, pass them through the ring beneath his body, and down to the rings on fore legs. The ropes should be crossed so that the horse can walk or trot, but he will not be able to gallop or jump fences. The ropes will not interfere with his lying down or rising up.

#### GARDEN AND ORCHARD.

##### Remarkable Reduction of Culls.

1. Apples are my "specialty" in fruit-raising. Gravensteins, Golden Russet, Ribstons and Baldwins are the kinds I raise for market.
2. I spray as soon as the bud breaks, and stop when the bees commence, and begin again when the bees stop, and continue until the *blow end* closes.
3. Put the number of gallons of water you require in the barrel; then take a pail with two quarts of water in it; then put what Paris green you require into the pail; then turn the nozzle wide open, pump full force and hold the nozzle at the top of pail until pail is half full of water; then turn into barrel, and rinse pail with fine spray. It is then thoroughly mixed, which is a very essential part. I use a "Spramot pump" to apply it with, making the finest of spray. I avoid spraying in the heat of the day, as I think it causes the leaves to turn yellow and fall off.
4. Since I use the Bordeaux mixture and Paris green together, I find the trees look much better, more especially in cleaning them of bark lice.
5. I follow the Experimental Farm directions to a letter, especially in the amount of poison used per gallon of water.
6. I find all my experiments in favor of spraying. I had all kinds of bugs and black spot, I think, to contend with when I began spraying, and my orchard is comparatively clear of them, except where it joins neighboring orchards that have not been properly sprayed. There is a neighboring orchard that has been sprayed the past two years, with as good results as my own.

The following table will give a fair idea of the results I have had from spraying:

|  | Produced Bbls. | Culls. |
|--|----------------|--------|
| 1891. Paris green on all the time, except when in blossom                        | 160            | 133    |
| 1892. Paris green on all the time, except when in blossom                        | 200            | 40     |
| 1893. Paris green on all the time, except when in blossom                        | 340            | 15     |
| 1894. Paris green on four times (three times before blossom and once after)      | 300            | 20     |
| 1895. Paris green on twice before blossom  | 375            | 30     |
| 1896. Paris green on all the time  | 500            | 15     |
| 1897. Bordeaux mixture, Paris green (twice before blossom and twice after)       | 130            | 30     |
| 1898. Bordeaux mixture, Paris green (twice before blossom and twice after)       | 460            | 10     |
| 1899. Bordeaux mixture, Paris green (three times before blossom and twice after) | 420            | 10     |

G. W. F. McLEAN.

King's County, Nova Scotia.



Uniformly Satisfactory Results from Spraying--Black Knot Successfully Treated.

1. It is eight years since I commenced spraying, but during the first few years the work was very imperfectly done on account of my not having a proper spraying outfit. The varieties of fruit sprayed were apples, pears, plums, cherries, and raspberries. Apples for fungi and all leaf-eating insects, also for codling moth. Pears for fungi. Plums and cherries for black knot, monilia or rot and curculio. Raspberries for anthracnose.

2. Bordeaux mixture was used, consisting of four pounds sulphate of copper (i. e., bluestone), four pounds fresh lime, four ounces Paris green, to one barrel or forty gallons of water. From three to five applications should be made, but not less than three. The first application should be made just before the blossoms open. This is the most important spraying of all, and should be thoroughly done. It is at this season that most of the leaf-eating insects are just commencing their work, and the fungi or apple spot has not yet affected the stem of the blossom or young fruit. The second application should be made immediately after the blossoms fall, or within a few days. The third application ten to fifteen days later, or should it rain in the interval, not more than ten days should elapse. The fourth and fifth applications to be made at intervals of from fifteen to twenty days.

3. The chief points to be observed in preparing and spraying the mixtures are particular care to get the best quality of copper sulphate; this should be a clear blue in color, and clean. The lime should be perfectly fresh, and of a quality that will readily slacken, leaving very little sediment. The Paris green should be pure, guaranteed to stand the Government test. In preparing the mixture take as many candy or lard pails, holding each about four gallons of water, as barrels of the mixture to be used in any one day. The day previous to spraying fill these pails with water, then weigh out four pounds of copper, tie it in a thin cloth and suspend in each pail; the copper will be all dissolved by the next morning. Should it be necessary to prepare the mixture in a hurry at any time, a pail of hot water will dissolve the copper in a few minutes. Put four pounds of lime in a pail, pour on sufficient hot water to slacken it, fill your barrel two-thirds full of water, add the pail of copper solution, then strain the lime into the barrel, also adding sufficient water to fill up the barrel. To mix the Paris green put four ounces into a small vessel, adding just enough water to form a paste; add this to the barrel and thoroughly agitate before commencing to spray; and if for any cause a stop is made in spraying, the mixture must again be thoroughly agitated. This is a most important point in spraying, to keep the mixture agitated continually. The pump used should be fastened on the side of the barrel and have sufficient power to force the liquid through the nozzle so as to cut it up into a fine spray. Every part of the tree should be made thoroughly wet--even the trunk and large limbs--but not so wet as to cause it to drip to the ground. The pump should also have a good agitator, and not less than thirty feet of hose, with ten or twelve foot bamboo extension rod, with stop-cock and either two or three nozzles.

4. As to the beneficial results observed: (a) in respect to the healthiness of the trunk, limbs, and foliage, it cleanses the trunk and limbs from lichen or moss, and causes the foliage to take on a dark green, healthy appearance, and sprayed trees will also carry their foliage much longer than unsprayed; (b) there is from seventy-five to eighty-five per cent. of the fruit from sprayed trees free from scab, spot, mildew, rot or other fungous diseases; (c) spraying destroys all insect pests entirely, with the exception of codling moth and curculio, and it checks their ravages, also, to a very great extent. The second spraying of currants and gooseberries should be done with hellebore, one ounce to three gallons of water, or better still, dusted on dry while bushes are wet.

5. Where the spraying is properly done the fruit is larger and more uniform in shape and size, free from spot, and of a better quality in every respect, imparting to the fruit that keeping quality so much desired, especially in winter apples. Fruit of this class always finds a ready and profitable market.

6. I made no comparative tests in my own orchard last season, but I can give a comparison which is equally good. My neighbor's orchard, which is nearly three times as large as mine, was not sprayed last season; the result was he had no apples, and leafless trees. My orchard was sprayed, and I had a fall crop of apples and healthy trees.

7. Whenever I have had any unsatisfactory results from spraying, it has been when heavy rains have occurred soon after spraying, with continued steamy, showery weather. The development of all fungi is more rapid in this kind of weather, and it is very important that spraying be persisted in during such weather.

RESULTS OF SPRAYING CHERRY TREES FOR BLACK KNOT.

In the spring of 1899 I got permission to go into an orchard adjoining my own to cut out the black knot on a number of Early Richmond and Common Red cherry trees, which had been badly neglected. The knot was cut out in the month of April, and the trees sprayed with two pounds of sulphate of copper in forty gallons of water; the spraying was

done just as the buds were bursting. This was the only application they received, and in most of the trees there is no appearance of knot at this date. Bruce Co., Ont. A. E. SHERRINGTON.

Practical Lessons from Ten Years' Spraying.

1. I have been spraying my fruit trees for the last ten years, which consist of the apple, pear, plum, cherry, grape, currant and gooseberry.

2. The first two or three years I used London purple for the bud and codling moth, the tent caterpillar, etc., with good results; but with the advent of the Bordeaux mixture I have been able to combat successfully fungous diseases, as well as insect troubles. London purple is out of date--passed into history, while the Bordeaux mixture fills the bill, and is becoming more popular wherever used. Never spray while the trees are in full bloom, as both the bees and pollen will be injured. I spray first with Bordeaux mixture and Paris green as soon as the leaf is half-grown, or sufficiently formed to receive it, and again as soon as the blossoms fall, and repeat two or three times at intervals, from eight to fifteen days, according to conditions of the weather; more and frequent applications being required when the weather is wet.

3. The chief points in preparing and using the Bordeaux mixture are: Separate vessels should be used in dissolving the copper sulphate, lime and Paris green, and hot water is preferable to cold for this purpose. The lime when slacked should be strained, and only the best materials used, and when mixed, thoroughly agitated. For ordinary use the old formula (copper sulphate, 4 pounds; lime, 4 pounds; Paris green, 4 ounces to 45 gallons of water) is sufficiently strong, but should the tent and forest-tree caterpillar prove very troublesome and forest-tree caterpillar should be used in the place of Paris green. The mixture should be applied with an up-to-date pump, fitted with an extension rod and stop-cock, which enables the operator to completely cover the foliage with the solution whether the wind blows or not. This is an important point, and where many fail.



YORKSHIRE BOAR. WALTON ECLIPSE 2ND. First prize and champion at the Royal Show at Maidstone, 1899. PROPERTY OF SIR GILBERT GREENALL, BART.

4, 5, 6 and 7. The beneficial results from spraying are very obvious when thoroughly and intelligently followed up year by year. One should not be discouraged if the first trial does not prove entirely satisfactory; patience and perseverance will bring its reward, as the foliage will gradually take a more healthy appearance, enabling the fruit to attain a greater perfection in size, color and quality, being comparatively free from insect pests and fungous diseases. This has been my experience, and when spraying becomes universal the fruit-grower's task will be greatly lightened. During the last two years the tent and forest-tree caterpillars have been very destructive in this section of the Province, and during the last season over 50 per cent. of our orchards were defoliated, and only those who resorted to spraying were enabled to save their trees. One of my orchards was subjected to a severe test, being bounded on the north and south by the orchards of my neighbors who did not spray, and on the east by a sugar orchard which was badly infested with the forest-tree caterpillar. As soon as the unsprayed trees were stripped, they moved in large numbers to my sprayed trees, and there met death; none of the trees being injured; and as a result I harvested 1,000 bushels of fine apples, free from spot, which sold at remunerative prices, and my neighbors on either side of me did not have enough for family use. J. W. FISK.

Rouville Co., Que., Jan. 11, 1900.

It is well, during the winter months, when there is comparative leisure on the farm, to give thought to the question of seeds to be sown in the early spring, and to make preparations for securing such as are needed before the busy season comes round. Clover seed can often be bought to advantage during the winter, and if a change of seed in any kind of grain is to be made, it may be much more convenient to get the teaming done while roads are good than when they are broken up in spring. A little forethought sometimes saves a good deal of worry and inconvenience in such matters.

Importance of Pruning and Good Cultivation in Connection with Spraying.

To the Editor FARMER'S ADVOCATE:

SIR.--I have had for many years a full belief in the efficacy of spraying to help us out of many difficulties connected with fruit-growing, although I have not sprayed extensively till the last two years. Before that time I had sprayed in a small way, particularly the berry bushes, strawberries, etc. During the two last years my orchard trees, which, though still young, are getting a considerable size, demanded attention, chiefly on account of the ravages caused by the codling moth. I have not had any black spot to contend with, perhaps because I did not plant Fameuse, St. Lawrence, or any of the sorts considered liable to be infested with that pest. I have not attempted to grow Northern Spy, Baldwin, and other fine sorts so largely grown in Ontario, which are subject to the attacks of the black spot, because none but the very hardiest varieties have the smallest chance of being successfully grown in this locality--north of the Ottawa River, midway between Ottawa and Montreal. I have planted largely of a few kinds, although I have experimented somewhat extensively, principally with the newer Russians, and have in orchard over a hundred kinds, of many of them only one or two trees, however, and quite a number of these are not worth the space they occupy. In the course of time they will be top-grafted with more desirable kinds. A few of the newer Russians have shown signs of the black spot, but not many of them. Amongst the most promising of them, the Lords, perhaps identical with the winter Arabka, and the Switzer, seem to be threatened with it. The sorts that we have planted pretty largely of, and have relied on for our markets, are: Wealthy, Duchess, Yellow Transkets, are: Strawberry (of Montreal), and Peach (of parent, Strawberry of Montreal), and Peach (of Montreal). These have not hitherto given us any trouble, unless, perhaps, occasionally the Peach. The few McIntosh Reds, Fameuse, St. Lawrence, and Alexanders planted are so subject to it that we have no desire to extend our plantations of them. One object in spraying would, naturally enough, be to keep this enemy out. To counteract the effect of the black spot I would always spray at least twice; the first time immediately on the fall of the blossoms, and again about three weeks later, and, possibly, with a view to its total eradication, again about the beginning of July, or when the foliage is fully grown. Hitherto I have not sprayed oftener than twice, but I am convinced that it will be necessary to do it at least four times in most orchards, and if it were universally so done for a few years, the probability is that some of the pests we now have to contend with would cease to give us trouble, or would only occasionally require attention. In making the Provincial collection of fruit for the Paris Exposition I made some observations that may be of value to orchardists, and that I may mention here:

The summer of 1899, in this Province (Quebec), was remarkable for the fine crop of Fameuse, and for the beauty of the fruit--in many cases, if not in most--in spite of the fact that no spraying was done. While the black spot was observable in almost all the orchards, it was only slight, and did very little damage, but in those orchards that had been thoroughly sprayed the fruit was unusually fine. In one or two orchards, where the spraying was partial, its good effects were very remarkable on the well-sprayed parts, the fruit was larger and brighter, and would, consequently, command a much higher price, though almost all the fruit-growers were satisfied with the prices obtained.

One of the great defects in most of the orchards visited was neglect of pruning; that and the oyster-shell scale will probably prove to be the ruin of many orchards. The finest fruit seen in the course of the summer was in a small orchard of large, well-pruned trees. The trees were remarkably clean, and the fruit unusually large and fine, although no spraying had been done.

Dense, unpruned trees, whether sprayed or not, were all more or less infested with the black-spot fungus, as the foliage plainly showed, and even those who believe in the efficacy of spraying do not seem to have discovered the necessity of spraying the under side of the leaves. The fine spray should undoubtedly be driven with force on the foliage from beneath to accomplish the best results.

With regard to the treatment of the oyster-shell scale: A year ago a gentleman in Montreal showed me where his trees had been entirely cleaned, perhaps unintentionally, from the mid-summer spraying with the Bordeaux mixture. The trunks and branches of the trees had been well covered with the mixture, and the result the next season was clean trees. But a most striking example was in a large orchard where the trees had been whitewashed with the view of retarding the growth in spring. While the whitewash had not retarded the rise of the sap in spring, it had thoroughly done away with the scale.

It is very regrettable that so many fine orchards are overrun with the scale, and that the owners are so untroubled about it. They either do not notice the damage done, or they do not think it of any importance. At the same time, they allow that apple trees are not so productive now as formerly. I would sum up the needs of the orchards generally in this way: More cultivation, more manure, more pruning, and thorough spraying. If the spraying is omitted many orchards will end by becoming barren.

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Table with 2 columns: Bbls. and Culls. Rows include values like 160, 133, 200, 40, 340, 15, 300, 20, 375, 30, 390, 15, 130, 30, 460, 10, 420, 10.

F. McLEAN.



1st. I have sprayed two seasons, orchard trees—apples, pears, plums, and cherries.

2nd. I have used the Bordeaux mixture and Paris green twice in the season; first on the fall of the blossoms, and second, three weeks later.

3rd. The chief points to be observed: to use fresh material, especially the lime, and to strain it thoroughly, especially the lime, so as to keep grit and other substances from getting into the spraying apparatus and stopping its effectual working; and in spraying, to get the spray onto every part of the tree—leaves (both sides), branches and trunk, and to drive it with force onto the under side of the leaves. This is essential in combating the black-spot fungus.

4th. Where the spraying was thoroughly done with the mixtures mentioned, the trees were clean and vigorous in leaf, branch and trunk, as well as in fruit; free from black spot and similar fungous pests. The fruit was also perfect in form and free from worms.

5th and 6th. Thorough spraying always results in the highest quality of fruit—large, clean, bright, and of perfect form, with a very small average of culls; in many cases practically none, particularly so where the trees are kept well pruned. I think it needless to say that such fruit always commands a ready sale, and frequently at double the prices of the fruit from trees not pruned and sprayed.

7th. The only unsatisfactory result was in the russetting of some of the fruit, from, perhaps, too abundant Bordeaux mixture. This, however, was hardly appreciable.

To make the spraying effectual, orchard trees require to be well pruned. Dense, unpruned trees retain too much moisture upon the foliage in the interior and lower parts of the trees after rains, and daily after heavy dews. When the moisture cannot be carried off by an hour or two's sun it is harmful. Trees in open, breezy spots are not so badly affected by black spot, summer blight, or by insect enemies, as are trees planted thickly or allowed to carry too much foliage, or otherwise too much sheltered.

ROBT. HAMILTON.

#### Early, Prompt and Thorough Spraying Pays.

1. I have been spraying more or less for about seven years, principally as follows: Apples, grapes, plums, currants, raspberries, cherries to some extent; also potatoes, melons, squash, and tomatoes.

2. Paris green and water in varying proportions was used for all insects feeding on the foliage; also in connection with the Bordeaux mixture when fungous diseases were to be treated or prevented. Coal-oil emulsion for sucking insects, such as the aphid, etc. Hellibore for the currant worm.

3. The principal thing to observe in preparing the mixtures is to get the proper proportions, and having done that, to have the ingredients well mixed and then applied with a very fine spray in a thorough manner.

4. In spraying apples for the scab, grapes for the black rot, currants and raspberries for the worms that feed on them, and for anthracnose in raspberries, have had good results with the Bordeaux mixture and Paris green solution when applied in time and vigorously followed up. Do not think spasmodic or intermittent work of much account. "An ounce of prevention" in this case "is worth a pound of cure"—better not wait until the currants and raspberries are stripped of their foliage, and the apples and grapes are disfigured and mined by the scab and rot, before commencing treatment; but I believe, whenever there is reason to suspect the presence or ravages of these various pests, the work of treatment should commence early in the season, be thorough and faithfully followed up, and notwithstanding the many pressing duties, better neglect something else and "spray your fruit."

5. In almost every instance the improved appearance and size of fruit from sprayed trees was such as to command a more ready and profitable sale, to a marked degree.

6. Have no exact data at hand of comparative tests as between sprayed and unsprayed fruit, but the difference in favor of the former was quite noticeable.

7. Have sometimes found difficulty through unsatisfactory working of spray pumps when using Bordeaux mixture, which is somewhat difficult to put through ordinary pumps in a fine spray. Care must be taken also to have in sufficient lime to neutralize the injurious effects of the copper sulphate, which will burn the foliage if not fully neutralized.

In conclusion, would say that spray pumps have been much improved of late, and I now believe it is possible to procure Canadian pumps the equal if not superior to any foreign pump made, both in power and ease of working and efficiency, and while there may be some slight doubt as to the exact efficacy of spraying for the curculio and the codling moth, owing to the difficulty of complying with the exact conditions required, still I believe no progressive fruit-grower can afford not to avail himself of the vast benefits to be derived from a thorough and systematic spraying of his fruit trees, vines and plants, in accordance with the bulletins and methods prescribed by the experimental farms and colleges.

WM. H. BUNTING.  
Lincoln Co., Ont.

#### Six Years' Experience Tersely Described.

1. We have sprayed for about six years, apples, pears, plums, and small fruits, such as currants and gooseberries.

2. Till this year we used a mixture of Paris green, lime and water. This year we got a new Spramotor with brass fittings, so that we could use a mixture consisting of four pounds copper sulphate, four pounds lime and one-quarter pound Paris green to fifty gallons of water. The first time we sprayed just before the buds opened, with mixture of four pounds copper sulphate, four pounds lime and fifty gallons water. The second time just after the blossoms had fallen, using now the three ingredients in the mixture. Spraying continues after this every two weeks or ten days until the fruit is well grown.

3. We take a certain number of quarts of water, say one quart to a pound of copper sulphate. Measure in the same proportion according to the amount wanted. It is best to be kept hot while dissolving. The Paris green we dissolved in the ratio of about one pound to four quarts of water. The lime is given a gallon of water to one pound. A barrel containing fifty gallons takes four gallons of this mixture. Pour in the water first into the barrel, then add the prepared mixture.

4. (a) The trees sprayed in this manner present a very healthful appearance. The foliage is kept fresh and free from blight. (b) One or two apple trees, the fruits of which had always been rendered useless by scab, one side being entirely withered, this year produced fruit as sound and smooth as could be desired. This is the first year these apples have been salable. One pear tree infested in the same manner was also cured by spraying. (c) The apples were for this year remarkably free from worms, especially the fall fruit. One quite old plum tree never bore fruit till this year. The younger trees were well loaded also. No other precaution against curculio, aside from the spraying, was used. The currant bushes were just sprayed along with the trees. This kept the foliage entirely free from worms, while it did not injure the fruit crop in the least.

5. The packers all say they like to get the fruit of orchards which have been sprayed.

6. The year before we started to spray we had about two hundred barrels of apples, and only about one hundred and twenty-six were taken by the packers. Since spraying we have had only about one quarter the quantity of culled apples.

7. The past season the winter apples were wormier than the fall apples. We attributed this to the fact that we stopped spraying about the first of July. The fall apples were about half-grown by that time, while the winter apples were, of course, not so far advanced. This left the winter apples a prey to the codling moth, resulting in wormy apples.

Middlesex Co., Ont. JOHN GOVENLOCK.

#### Orchard Culture.

BY G. C. CASTON.

##### LACK OF HUMUS IN THE SOIL.

Many of our orchards are unproductive on account of lack of humus, or vegetable mold, and fertilizer in the soil. The importance of humus is not sufficiently appreciated, perhaps, by fruit-growers. In our forests, as they are in their natural state, we find the ideal conditions so far as the soil is concerned. There is an abundance of humus from the decayed leaves, wood and vegetable matter. Humus in the soil prevents the escape of moisture by capillary attraction, and the importance of this should not be overlooked, as our trees suffer in dry seasons from lack of moisture, preventing their growth and the proper maturing of the fruit. Humus also has an important effect on the temperature of the soil. During cold, backward weather the temperature is higher in soils that are rich in humus. And during severe weather in winter when there is little or no snow on the ground, it plays an important part in preventing injury to the roots of the trees.

Then it also retains plant food in the soil. A soil rich in humus is in a position to not only retain the plant food and prevent its leaching away, but it presents the conditions under which plant food becomes available to the trees. Such a soil is in the best mechanical condition. There is warmth, moisture, and access of air, so that the processes of nature go on to best advantage. Humus is usually rich in plant food. And we should always aim to keep the soil supplied with this important material. Humus and fertility, therefore, are two very important factors in the growing of orchard fruits. And how to supply these plentifully and cheaply is a question of great importance to the fruit-grower.

The important elements of fertility, nitrogen, potash, and phosphoric acid—elements necessary for the growth of plants, trees, and fruit—if not present in the soil in sufficient quantity, must be supplied in some way or the trees will be starved to the extent that these requirements are not supplied. Many of our orchards are starved. Planted on soil that has been already exhausted by a long-continued cropping of grain, they cannot be expected to thrive unless supplied with the necessary food. In my own practice, I have found the growing of clover to be the cheapest way to supply nitrogen. When trees are in full bearing they should have the ground to themselves. They require it. It is a mistake to take crops of grain or hay and expect a crop of fruit from the same ground. This

practice will not succeed long. I find it a good plan to cultivate for one season (always shallow cultivation) and then sow to clover. The soil will be in good shape to secure a good catch. The clover may be sown at any time before the summer drought sets in and while the soil is moist. Cultivate well up to the time of sowing, and the soil will not suffer from drought. The clover makes a good cover crop for the protection of the roots in winter. The next year when the clover is in bloom, plow it under and surface-work the soil. If the trees are well laden with fruit it will not be practicable to continue cultivation throughout the season, but sufficient can be done before the limbs bend down to leave the soil in a good condition to retain moisture and facilitate the manufacture of plant food. By this plan we add a large amount of humus and nitrogen to the soil.

One of the most important elements of fertility is potash. Without this we cannot have a growth of good, healthy wood tissue and foliage, or a satisfactory return in the shape of fruit of the best quality. The cheapest form of potash is in hardwood ashes, where they can be purchased at a reasonable price, say anywhere from five to ten cents a bushel, and they are usually sold for about or between these figures. Great quantities of them are sent out of the country every year, and we are allowing one of the most important and cheapest forms of fertilizer to be sent away that ought to be kept at home. We should turn the potash and phosphoric acid in our ashes into the finished product in the form of fruit before it is sent out, and thus secure the greatest profit from it. Some people say, "Put an export duty on hardwood ashes," but it is the fault of the people themselves that they are sent away. Hardwood is used more than anything else for fuel all over the Province. In towns and villages the ashes are an offal to be got rid of, and are almost given away. If farmers and fruit-growers would look after this valuable fertilizer and pay those who collect them as much as they can get for them, F. O. B., the export of ashes would be stopped. But it is time we woke up to the importance of this matter. Here is one of the most important elements of fertility for the growth of fruit and fruit trees going out of the country in large quantities every year. "Where does it go to, and for what purpose is it used?" It goes to the Eastern States, and is bought there by gardeners and fruit-growers, while our own orchards at home are starving for want of it. There are other forms of potash, such as muriate and sulphate, sold as commercial fertilizers, but they are more expensive. But we must have these elements if the soil is in need of them. And if the cheaper forms, such as ashes, are not to be had in sufficient quantities, we must use the commercial article. I have used a Canadian-made fertilizer, called "Bone and Potash," and it has given excellent results. It supplies the potash and phosphoric acid in an available form, and does well for use in conjunction with clover as an orchard fertilizer.

And now to sum up. We must feed our trees. They cannot go in quest of their food. If not supplied to them they must starve when the natural supply in the soil is exhausted. To make growth they must have nitrogen. If we cannot get sufficient manure to supply this, we can supply it by plowing in clover. To make good, firm, healthy wood, foliage, and good fruit, they must have potash and phosphoric acid, and the cheapest way to supply it is in hardwood ashes, if they can be bought anywhere under 25 cents per bushel. If these are not available, we must supply these elements in the commercial form. Potash we must have. It is all-important. It retains moisture. Trees well supplied with it will not drop their fruit prematurely during dry seasons, and we cannot get fruit of the highest quality and flavor unless the trees are supplied with it. There is a large amount of inert plant food in the soil. We can make a large amount of this available by proper cultivation. But with this I shall deal in a future issue.

#### Prizes to O. A. C. Boys at the Dairy Convention.

Last year the Cheese and Butter Association of Western Ontario offered \$200 in prizes for essays on cheese and butter making, four prizes of \$50, \$25, \$15, and \$10, for each. Of these prizes, the Ontario Agricultural College boys took the first and second for cheese and the first for butter, amounting to \$125 out of the \$200.

On Cheesemaking—C. G. Campbell, who took the dairy course at Guelph last year, received the first prize (\$50), and A. J. Wagg, of Manitoulin Island, in the regular course at the College, the second prize (\$25).

On Buttermaking—J. M. Livingstone, of Sarnia, now in the regular College course, was awarded the first prize (\$50), and W. F. Baskerville, of the Western Dairy School, Strathroy, the third prize (\$15).

#### Study the Cows.

Let me urge every dairy farmer to study his cows closely; learn their individualities and needs; supply such needs, tempered by judgment; seek by careful selection and coupling and by skillful handling and feeding to make the daughter better than the mother; and they will prove not only a pleasure to you, but the most profitable bank account you can have.—Valency E. Fuller.



## DAIRY.

## Cheese and Butter Association of Western Ontario.

The thirty-third annual convention of the Cheese and Butter Association of Western Ontario was held in Stratford on Jan. 16th, 17th and 18th, in the beautiful new City Hall just opened. There was the usual large attendance of dairy farmers and cheese and butter makers, including a good proportion of ladies.

**President's Address.**—President Harold Eagle, in his opening address, referred to the past season's trade in cheese and butter exported, which amounted approximately to \$18,000,000 for cheese and \$5,000,000 for butter, which is a substantial increase in the output of butter. The output of cheese was somewhat reduced from the previous year, but the considerably increased price yielded a greater financial return. Owing to the accustomed lateness in the season at which the annual report had been issued by the Government, the President recommended that the Association issue reports of the practical papers and discussions at an early date, so that factorymen could study them before commencing the season's work. It was also recommended that the name of the Association be changed to its previous designation, "The Western Dairymen's Association," as the name was more comprehensive, and avoided conflict with the name of the Cheese and Butter Makers' Association.

**The Directors' Report** showed that James Morrison, C. P. Lutton, Geo. McDonald and Arch. Smith had been appointed as instructors and inspectors of cheese factories and creameries for the past season. Grants had been paid to various fair boards as prizes for dairy products. It was also decided to appropriate \$200 as prizes for essays on cheese and butter making, which brought out not less than sixty-seven essays on the two subjects. The finances of the Association are in a satisfactory condition.

**Treasurer's Report.**—Mr. Geo. Hatley, secretary-treasurer of the Association, read his report, which showed that the receipts had been \$4,999.95, and the expenditures \$3,962.58, leaving a cash balance of \$1,037.37 on hand.

**Instructors' Reports.**—The gist of the instructors' reports was to the effect that too many making rooms and curing rooms are defective. About one-third of the former were classed as good, one-third as fair, and one-third as unsuitable for the making of a first-class product. Bad floors and poor drainage are the chief defects in cheese factories. The majority of curing rooms were reported to be not only poorly insulated, but without provision for meeting the conditions of extremely warm or excessively cold weather. Sub-earth ducts and ice boxes were referred to as being used in a few factories with good results. A large number of samples of milk were tested with the lactometer and Babcock tests, which led to prosecution of a number of patrons for tampering with milk by skimming, watering, etc. Too many patrons take home whey in the milk cans. When this is done, without due regard to keeping the whey tank clean and thoroughly cleaning the cans, trouble occurs in the way of bad flavors in the cheese. The instructors reported an improvement in the cleanliness of factories and utensils, and also in the general quality of cheese.

Mr. Smith, Instructor for Creameries, reported that creameries are not being improved as much as they should be, particularly in the way of equipment, sanitation, and the providing of suitable storerooms for storing butter till shipping time. The butter made at cream gathered creameries, as a rule, was not as good in quality as that made in separator creameries.

**Addresses by Past Presidents.**—Hon. Thos. Ballantyne, who has been intimately associated with the progress of dairying in Western Ontario since its introduction, referred to the early history of the Association. From the first he had felt that all engaged in dairying should be willing to communicate of their knowledge to others, and to do all possible to improve the quality of dairy goods, as poor goods diminish the price and injure the reputation of Canadian dairy products abroad. While New York State dairying many years ago held an advanced position, many valuable lessons were taken from them, until we surpassed them at the Centennial in 1876. Since then we have kept the lead, not only by improved pure goods, but by abstaining from making any other sort, which has done much for our reputation.

Mr. A. F. McLaren, M. P., a former president of the Association, in the opening remarks of his address, expressed regret that more farmers do not attend conventions of this character, where so much valuable information is dispensed. He then went on to say that cheese as well as every other product of the farm should be put on the market in the best possible condition, in order to withstand the keen competition with other countries. He then referred to our great agricultural resources, which annually reach in Canada about \$600,000,000 in farm crops, live stock, etc. This sum, while enormous, could be much increased by improving the quality, as consumers will pay a higher price for better quality of produce. Patrons of factories can increase their incomes by keeping better cows, feeding them better, and then delivering their milk in the best possible condition. A number of important details in

the business were referred to at considerable length. Another matter which Mr. McLaren wished to see discussed and dealt with vigorously by the Association, was the needed reduction in freight rates for agricultural products. He remarked that one could get almost as cheap a rate from Chicago to Montreal as from Stratford to Montreal, which he considered a hardship and an injustice.

**Sanitary Inspection.**—Dr. Bryce, Toronto, of the Provincial Board of Health, spoke of the relation of the medical health officer to the sanitary condition of the Province. After pointing out that the health of the Province was neglected through the lack of proper inspection of cheese and butter factories, he outlined a plan of inspection by having appointed an inspector for every county, as public school inspectors are appointed. He should be a thoroughly competent man, who is a skilled bacteriologist, and be well versed in sanitary science. His duties would be to see that factories have proper drainage, that the floors were good and substantial. He could condemn unwholesome surroundings. His appointment should be sufficiently permanent that he would have no fear to take action. He could insist on a proper disposal of refuse and all organic filth. As a result of Dr. Bryce's address and the discussion which it elicited, the following resolution was adopted:

"That in view of the fact that the agricultural returns show that in 1898 75,000 patrons supplied milk to 1,230 cheese and butter factories in Ontario, the value of whose combined output was some \$12,000,000; that in view of the fact that the four inspectors of this Association continue to report annually that milk from many of these patrons is sent to the factory in a condition as regards quality and cleanliness which materially decreases the value of the output of the factories; further, that inasmuch as the annual report of the inspectors show the sanitary condition of a notable number of the factories to be such, in the matter of construction of floors, curing rooms, etc., and in the disposal of the sewage and whey, as to cause a notable depreciation of the manufactured products; be it therefore resolved,—That this Association does hereby affirm as its opinion that the time has come when at least

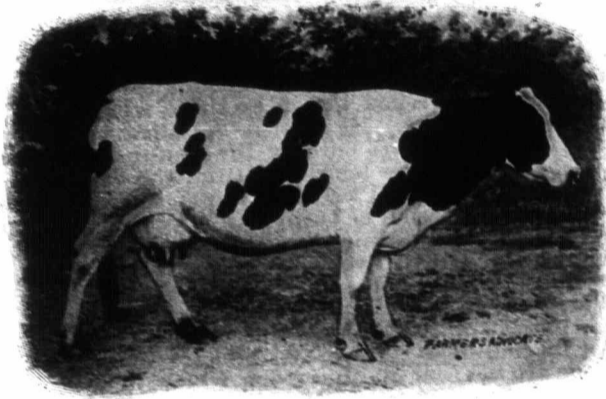
body, and this could only be produced in a factory with a proper curing room.

**Farming Outlook.**—Mr. Andrew Patullo, M. P., Woodstock, gave an eloquent and thoughtful address on the farming outlook from the standpoint of an observer. He referred to past depression which led many farmers to almost despair. That condition was contrasted with the satisfactory improvement that is being felt, which is rapidly approaching the brightest days of prosperity. While half a million acres more land were plowed in the Northwest Provinces last year than heretofore, land values in the older provinces had materially increased. The outlook for live stock had considerably improved, especially in Ontario, because of the lower freight rates secured on railroads for pure-bred animals at a time when the Northwest Territories are needing better stock. The rapidly growing swine industry was referred to, as well as the increased business of the Canadian hen. The American duty on Canadian eggs had the good effect of forcing us to find a way of placing eggs on the British market in good condition. Prof. Robertson's chicken-feeding stations, one of which is located at Woodstock, are having wonderful effects in teaching farmers how to get more money out of their poultry. Mr. Patullo referred to a Woodstock man who had fattened a turkey according to the plan laid down by the feeding station, and when he shipped it, along with others, to England, he tied a tag to its foot, stating that it cost the producer \$2, and asking the person who purchased it for the table to write him what it cost. In a few weeks the card was returned from a lady stating she had paid a guinea for the turkey, and that someone between them must have stolen a good profit. This shows the possibilities of the poultry business when properly conducted. Reference was made to the constantly improving condition of the Canadian butter trade, and to the continued hold we have on the cheese trade, which will grow in proportion to the extent in which we raise the general quality of our goods. Mr. Patullo regards the careless patrons as the weak link in this chain. The speaker regarded the industrial war between nations for supremacy in the markets of the world just as keen as the campaign that is raging in the Transvaal Republic, and, like it, the fittest will survive. Two other points dealt upon by Mr. Patullo were the hopes that lie in cheaper and more rapid transportation, and in the constantly improving education of the people by means of the agricultural press, agricultural colleges, farmers' institutes, dairy associations, and the several other agencies whereby men learn from each other.

**Dairying and Road Reform.**—Mr. A. W. Campbell, Provincial Road Commissioner, maintained that the time had arrived when changes in the manner of roadmaking should be inaugurated; that the County Councils should maintain the main roads, while the other roads should be attended to by the Township Councils, and that the Legislature should to a certain extent assist by money grants. He assured them that the present imperfect roads were not the result of the lack of money spent, but rather the result of a faulty way of making the roads. The statute labor system was characterized as inefficient, extravagant, incompetent, and entirely out of date. Each year 1,100,000 days of statute labor are put in in Ontario, while \$3,500,000 is spent annually on the roads in grants; therefore during the last ten years equal to \$45,000,000 has been expended on the roads in grants and statute labor, while the roads have not been improved. This sum spent during the next ten years under the direction of a proper system of roadmaking would macadamize every rod of road in the Province. Mr. Campbell outlined his general plan, which was first to have the roads classified in three classes, namely, main roads, by-roads leading to these, and the back roads, or those little used. It would be specified what width each of these should be. The leading roads should be done first, and the others follow in natural order.

**Prize Essays on Cheesemaking.**—The Association generously offered \$200 in four prizes for essays on cheesemaking and buttermaking, divided as follows: 1st, \$50; 2nd, \$25; 3rd, \$15; and 4th, \$10. In all some sixty-seven essays of varying value were submitted for judgment. The rules of the competition excluded teachers or instructors in dairy schools, or employees of the judges, and all who were not actively engaged in factory or creamery, cheese or butter making. Through a misunderstanding on the part of some, through imperfect instructions, very good essays were contributed by farmers' wives and daughters which had to be barred out of the competition. The successful cheese essayists were: 1st, Colin A. Campbell, Stratford; 2nd, A. J. Wagg, O. A. C., Guelph; 3rd, F. H. Brooks, Lynden; and 4th, Thos. E. Nimmo, Ripley; while the butter essay awards were won by J. M. Livingston, St. Mary's; Wm. Waddell, Strathroy; W. F. Baskerville, Strathroy; and T. B. Marshall, Tiverton, in the order named. The essays were exhaustive, and therefore too long for our space in this issue. The first and second prize cheese essays and the first-prize butter essay were read before the convention, and many points were criticised and discussed by the audience and the essayists. The eight essays were printed and circulated among the members of the Association present, to be taken home and studied.

**The Effects of Lime Solutions in Cheesemaking.**—Prof. H. H. Dean, after making some valuable general observations on dairying, gave the results



HOLSTEIN COW, ELECTRA NO. 4, N. B. H. B.  
First-prize cow and champion female and one of the first-prize herd at the International Exhibition at St. John, N. B., 1899.  
PROPERTY OF D. W. M'KENZIE, NEREPIS STATION, N. B.

one scientific medical health officer, trained especially in bacteriology and sanitary science, should be appointed in each county of the Province, whose whole time shall be devoted to the oversight of the public health of his district, and especially of farm premises whence come these milk supplies, and all the factories where they are manufactured into butter and cheese; and to this end does hereby instruct its Executive to bring this important matter before the Provincial Government with a view to having amendments to this end made in the Public Health Act at the next session of the Legislature."

**Address by Mr. Daniel Derbyshire,** Brockville, President of the Eastern Ontario Cheese and Butter Association. After congratulating the Association on the excellence of their work, Mr. Derbyshire went on to show how easy it was to dispose of first-class produce, and how difficult it is to sell poor material. He pointed out that while Canada's output of dairy produce had increased by \$2,000,000, the American exports of these goods had dropped off \$3,000,000, largely on account of fraud and dishonesty. He referred to many of the factories in Western Ontario as appearing to belong to an industry that is not permanent. A greater confidence in the industry is needed, which will lead to permanent improvements in all branches of the calling. The great difficulty seemed to be to know how to make the weak men change their ways of getting their milk to the factory, and to improve the condition of the factory to which it is brought. Speaking of the economy derived from having a factory fitted up properly, Mr. Derbyshire cited Prof. Dean's experiment, showing that a factory of 3,000 boxes a year would save \$330 in shrinkage and \$200 in quality of cheese by having a properly-fitted curing room, while the room itself would cost only \$250 to have it put into proper condition, thus saving its cost in one year. It was all very well to send men to the dairy schools, but if the factories were not up-to-date, comparatively little good would be derived. What the British market wanted was not the old-fashioned cheese, but cheese mild in flavor and rich in



of a series of experiments with the use of lime solutions in cheesemaking. Without going into the details of the experiments, we give the conclusions arrived at by the Professor.

1. An ordinary lime water solution when mixed with rennet for 10 to 12 hours before the rennet is added to the milk destroys the action of the rennet, but such an effect does not result if the rennet and lime water be mixed shortly before renneting the milk.

2. Calcium chloride solutions, so far as we have observed, do not affect rennet action adversely.

3. The yield of cheese was slightly greater in several instances where the lime solutions were used, but this difference in yield may or may not have been due to the use of lime compounds in the milk.

4. There was little difference in the quality of the cheese, so far as we have yet observed, though many of them are too green at this time to judge of their quality.

5. In the case of pasteurized milk the lime solutions did not restore the texture and body of the cheese, although there appears to be a slight improvement in the quality as the result of adding a chloride of lime solution to pasteurized milk for cheesemaking.

Our results are tentative at present and require further work to settle the question of the effects of lime solutions in cheesemaking.

In the discussion that followed, Prof. Farrington, of Wisconsin University, observed that so far as he had learned, cheese made from limed milk did not improve with keeping, and that further experiments are needed to learn the real merits of adding lime to milk for cheesemaking.

**The Known and Unknown about Buttermaking.**—Mr. E. H. Farrington, Professor of Dairy Husbandry at the University of Wisconsin, and one of the best informed men of the day on scientific dairying, read a helpful and suggestive paper on the above subject. At the outset he observed that the unknown would fill by far the greater volume, which makes it necessary for every would-be buttermaker not to be satisfied with his present knowledge, but be constantly ready to learn. The trouble is not in making good butter with good raw material, but one has to be able to deal with milk and cream that is not in proper condition, perhaps through the ignorance or neglect of someone else. It was set down as a general rule that ignorance is the cause of poor butter. The poor buttermaker should be sent to all dairy conventions, should read good agricultural papers, and if these fail, he should put in three months at hard labor in a dairy school. To make good butter, pure milk is necessary, and much of the success of making good butter lies in the maker's success in keeping weeds of bad bacteria out of the cream. Airing milk and scalding vessels must not be neglected, and when from any source failure occurs, the maker should not cease to search until the cause of failure has been discovered and removed. In the United States only about 25 per cent. of butter produced is first-class, so that there is a great field for teaching and learning that which is known before the product of the cow is turned into the most profitable channels. Since good butter is made, it is all the proof that is needed that it can be made. The difficulty seems to be in getting the correct information into the heads of the people. In the Professor's opinion, the man at the factory must be the chief informer among his patrons who will not learn in any other way.

**Bacterial Content of Cheese.**—Mr. W. T. Connell, M. D., Director Pathological Laboratory, Queen's University, Kingston, dealt exhaustively with this subject in a paper read at the Eastern Cheese and Butter convention, a summary of which appears elsewhere in this issue.

**Insects Attacking Fodder Crops** were dealt with by Prof. Jas. Fletcher, Entomologist and Botanist at the Central Experimental Farm, Ottawa. Corn, which is becoming our leading fodder crop, has few insect enemies, the chief being cutworms, which occasionally give trouble in spring after a grass meadow has been plowed down. The best remedy is late fall plowing and leaving the ground free of weeds, etc., on which the eggs are laid in the autumn. *Pea Weevil* is becoming a serious pest in many sections, as it has almost ruined the pea-growing industry in many districts. The remedy given was to treat the seed with carbon bisulphide. A simple way of doing it is to fill a coal-oil barrel with peas, which will take five bushels. Now pour three ounces of the chemical into a soup plate, set it on top of the peas, and cover the barrel with two coarse sacks dipped in water to make them airtight, and put on boards. This left two days will kill all the bugs in the peas. Prof. Fletcher referred to this advice having been given in the FARMER'S ADVOCATE every spring for a number of years. It is wise to apply this treatment in the fall or early winter, before the seed has been much eaten. *The Pea Aphis* has made pea-growing unprofitable in Maryland. It is being found, however, to have many natural enemies, which are our chief hope. *The Pea Moth* has been abundant in New Brunswick and Quebec, and is working towards Ontario. The best remedy is prevention by sowing very early in spring—as soon as the ground can be worked at all well. *The Army Worm* may not occur again for years, or it may be abundant before long. During the last attack the best combative measure was found in plowing a deep furrow, turning it over against the army of worms, which will crawl over into the hollow, where they meet the

perpendicular face of soil. This leads them to travel lengthwise of the furrow and into pits, which should be dug every few rods. When the pits become filled the worms should be killed by coal oil and thrown out over the ground. Good results were also secured by spraying ahead of the worms with Paris green solution. *Clover Cutworms* frequently attack mangels and turnips. Spraying with Paris green is the remedy. A little soap mixed with the solution makes it more tenacious to the leaves. *Clover Midge* is best met by pasturing off or cutting the crop before the third week in June.

**Soiling Cows in Summer.**—W. C. Shearer, Bright, Ont., gave a practical address on the crops best suited to soiling cows in summer. In the first place the land should be well manured and worked up into shape. Sow a bushel of peas mixed with a bag of oats some time between the 1st and the 10th or 11th of May. Then as early as possible plant about two acres of corn, which does best if planted in drills. This ought to be ready to use from about the 1st to the 15th of August. One benefit of sowing these grains mixed is that it may be cut as hay and used during the next winter. In this way a person provides against drought. A great benefit of this method of sowing part of the ground for pasture was that it cleaned the land and it would be off in time to put in a fall crop. Two instances were here related of two men who each possessed a hundred-acre farm, but the one man did not pay much attention to the best method of feeding his cattle, while the other did. Both sent their milk to the creamery, and with an equal number of cows the good dairyman sent 6,007 lbs. of milk, while the other could only send 2,032 lbs. The one with the good cows received \$49 per head for their milk, while the other only received \$18. Taking nine of these cows, the poor man's brought him an average of \$2.55, while the other man's averaged \$7 per head per month. The fault causing this great difference was in the man himself. The one prepared against the long drought which was experienced during the summer by planting fodder crops for his cattle, while the other did not.

**Influence of the Butter and Cheese Maker over his Patrons** was the subject of a bright and thoughtful address given by Miss Laura Rose, head of the home dairy department of the Guelph Dairy School. Every one has some sort of influence on those with whom he or she comes in contact. It may be slight or deep and lasting. Integrity in a factoryman is necessary if his influence is to count for anything. Honesty has a reflex action on those whose principles are defective. He must be a skilled workman, and quite up-to-date both by the results of his own discoveries and by benefiting from the discoveries made by others. Punctuality was referred to as being the very soul of business. A loiterer is never respected. Promptness creates an atmosphere of briskness. Hurried workers work without system, and lose many opportunities and best results. A cheese or butter maker to have the best influence on his patrons must be hopeful and have enthusiasm for his business. Honesty, industry, energy, and hope are the four qualifications which make it possible for any person to surmount almost any difficulty. A man should have courtesy and take an interest in the patron's welfare, and be able to instruct him wisely in the care of milk, etc. A factoryman should present a clean appearance at all times, and keep his factory and utensils in the same spotless condition. The man who possesses all these qualities will be a power for good in the community in which he resides.

**Sub-earth Ducts.**—Mr. J. N. Paget, Canboro, with the aid of a chart, gave a clear description of the construction and advantages of a sub-earth duct in connection with cheese-curing rooms. His opening remarks were to the effect that the temperature of a curing room must of necessity be controllable by the cheesemaker if his cheese are to go out in fine condition. Sub-earth ducts are valuable aids to this, but a well-made curing room is also important; in fact, it should be so insulated that the only air that enters should come in by way of the duct. In constructing a sub-earth duct, dig a suitable drain about three feet wide at the top, two and a half feet wide at the bottom, and about six feet deep. In the bottom put four rows of 5-inch tile, two upon two. At the in-take end of duct build a wall of brick about three feet across. On the top of this construct an in-take pipe or stand pipe about 40 feet high. Have the pipe three feet wide at the bottom and twenty inches wide at the top. On the top of the pipe place a cowl on a pivot, with a tail at back, which will cause the mouth to always face the wind. Then the air will pass down the pipe and into the curing room by means of the duct. The drain should be a good length; the longer it is the cooler will be the air when it reaches the room. Mr. Paget's sub-earth duct is 150 feet long. The duct should enter the curing room through the floor by means of a stone box up from the tile. In the roof of the curing room leave a good opening for ventilation. Raise it well above the ridge of the roof, and cover with a little roof to keep out rain. In the speaker's opinion, inside of five years most of our cheese-curing rooms will be cooled with sub-earth ducts. In the discussion which followed it was emphasized that a drain should be constructed alongside the duct to carry away surplus water, which would be present at some seasons. It was also brought out that a good sub-earth duct can be constructed at from \$60 to \$80, under ordinary circumstances.

**Windsor Salt Co. Awards.**—Occasion was taken at the convention to present the prizes donated by the Windsor Salt Company for cheese and butter

at the Industrial and Western Fairs in 1890. The winners at the Industrial Fair were: For creamery butter, Isaac Wenger, Ayton, \$50; for dairy butter, Mrs. Wm. Dobson, Alloa, \$30; for best display of cheese, the decision was not made. At the Western Fair: For butter, Isaac Wenger, and for cheese, Moses Knechtel.

#### RESOLUTIONS PASSED.

"That this Association memorialize the Ontario Government to make a grant to the Industrial Association of Toronto towards the erection of a new dairy building on the Toronto Exhibition grounds during the present year."

"That this Association, realizing the vast importance of good roads to the country generally, and especially to the dairying interests, is of the opinion that this improvement can be brought about in a more perfect and economical way by the placing of the main roads of the counties in the jurisdiction of the County Councils, and would recommend that the Legislature be asked to take such steps as may be deemed advisable to bring about this change."

"That whereas the building wherein the exhibit of cheese, butter and dairy utensils at the Industrial Fair is held is altogether unsuitable, both from its construction and position, in which to display exhibits of cheese and butter, and for the convenience of the public to inspect the exhibits; and whereas the method of making the entries and of receiving the exhibits is faulty, causing much confusion in the arrangements of the exhibition and making it most difficult for the judges to satisfactorily do their work; therefore be it resolved,—That this Association would request the directors of the Industrial Association to appoint a committee to confer with a committee to be appointed by the Board of Directors of this Association with a view to making more perfect arrangements for the management of the dairy exhibit."

"That in consideration of the fact that the interests and objects aimed at by the Cheese and Butter Makers' Association are identical with the objects of this Association, we beg to recommend that representatives be appointed by this Association to meet representatives from the Cheese and Butter Makers' Association for the purpose of discussing the advisability of the union of the two societies."

**Officers Elected.**—Honorary President, Hon. Thos. Ballantyne; Honorary Vice-President, John Prain, Harriston; President, R. M. Ballantyne, Stratford; First Vice-President, A. Wenger, Ayton; Second Vice-President, James Connolly, Porter Hill; Third Vice-President, J. N. Paget, Canboro. Directors—G. H. Barr, Sebringville; Geo. E. Goodhand, Milverton; Robert Johnston, Bright; A. F. McLaren, M. P., Stratford; M. Morrison, Harriston; John Brodie, Mapleton; Harold Eagle, Attercliffe. Auditors—J. C. Hegler, Ingersoll; J. A. Nelles, London. Representatives to Industrial Fair—Harold Eagle and R. M. Ballantyne; to Western Fair, T. C. Miller and I. W. Steinhoff.

#### Annual Convention of the Eastern Ontario Butter and Cheese Association.

The twenty-third annual convention of the above Association was held at Madoc, Jan. 10th, 11th and 12th. The large hall, seating about 800, was crowded during the sessions, and those present united in proclaiming it one of the most successful conventions ever held by this flourishing organization.

President D. Derbyshire, of Brockville, opened the first session of the convention with a vigorous speech; in which he complimented the citizens for the splendid reception tendered the Association. The necessity for cheaper production was referred to; also the need for improved transportation facilities. The thanks of the Dairymen are due to Hon. Sydney Fisher, Prof. Robertson, Hon. John Dryden, and President Mills, for their hearty assistance and co-operation in grappling with the transportation problem.

In the afternoon of the first day, Prof. Gridale delivered a practical address on the "Development of a Dairy Herd." The ideal dairy cow was described as one having a long, deep barrel, showing large stomach capacity. She should have a large mouth and large milk veins and a big udder. He spoke of the importance of selecting foods to meet the requirements of this type of animal, on account of the heavy drafts made upon her by the production of milk. Ensilage and roots were advised to furnish succulence during winter. Along with these should be fed rich nitrogenous foods, such as pea meal, linseed meal, cotton-seed meal, bran, and well-cured clover hay. The herd should be systematically weeded out, and the dairyman should direct every energy towards securing the best type of animals possible.

Mr. Hart, of the Kingston Dairy School, spoke of the importance of pasteurization and the use of pure cultures in buttermaking. Pasteurization would enable our Canadian creamery butter to beat the Danish on its own ground, as fully 95 per cent. of the creameries in Denmark pasteurize either the whole milk or cream. Many questions were asked in regard to the effects of pasteurization upon the quality and grain of the butter, the efficiency of separation and the keeping quality of the skim milk. In our domestic markets the pasteurized goods are rapidly replacing the raw-cream



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butter, and the difference in value would be more and more marked in the future.

At the evening meeting, the reeve of the town, Mr. Dale, acted as chairman. He spoke of the power that dairying had displayed in paying off farm mortgages in Hastings County.

Prof. C. C. James, Deputy Minister of Agriculture, gave a most interesting and valuable address on "The Romance of Agriculture." Agriculture was shown to be far more important than any other industry in the Province. In 1898 the value of all the gold produced in the world was two hundred and eighty millions of dollars, while the produce of the farms of Ontario was equally as valuable.

Thursday morning was Cheesemakers' session, Mr. G. G. Publow, of the Kingston Dairy School, and Mr. J. W. Newman being the leading speakers. The numerous pitfalls into which the cheesemaker stood in danger of falling were spoken of, and it was only by shrewd management, based upon knowledge and experience, that he is enabled to avoid them. Mr. Newman dealt with the curing of cheese, and described in particular an outfit he had in operation during the past season. By it the air was compressed with a Westinghouse air compressor, driven into a tank outside the factory, from which the heat was radiated, thence let into the curing room, where the cooled air reduced the temperature.

In answer to a question, Mr. Publow stated that the yield of cured cheese could be approximated by multiplying the percentage of fat in the milk by 2, the result being the number of pounds of cured cheese produced from 100 lbs. of milk. The number of pounds of milk taken to make a pound of cheese is no gauge of a maker's ability.

In the afternoon, Prof. Connell read a carefully-prepared paper on "The Bacterial Contents of Cheese." Contrary to the results obtained at Wisconsin, it had been found that the cheese contained the greatest number of germs immediately after coming from the press. The germs present in largest percentage were the lactic acid germs. Others were there in such small proportions that they had no appreciable influence upon the curing process. Some samples of open cheese examined had contained one gas-producing organism to 50 lactic acid germs. As cheese grew older the germs lost their vitality. In speaking of the commercial value of cheese cured at different temperatures, Dr. Connell stated that the cheese kept in the room where the temperature was regulated at between 60 and 65 degrees had been better in every case, while the shrinkage was less, corroborating the results obtained in the Dairy Schools at Guelph and Kingston.

At the conclusion of the session, President Derbyshire stated that, through the liberality of the Windsor Salt Co., represented by Mr. Henderson, the Association was able to offer prizes for competition by the cheese and butter makers of Eastern Ontario, members of the Association: \$50.00 will be given for the best essay on "Cheesemaking." The Association gives a prize of \$25.00 for the second best essay on the same subject. The Windsor Salt Co. will also give \$50.00 for the best essay on "Buttermaking," and a second prize of \$25.00 will be given by the Association.

The newly-appointed Commissioner of Live Stock for the Dominion, F. W. Hodson, was present, and ably reviewed the work of the Fruit Growers and Live Stock Associations. He spoke of the educational value of the annual Fat Stock Show, in which the animals are killed and dressed and their good and bad points pointed out by experts. The great work now accomplished by the Farmers' Institutes was also reviewed.

A stirring address was given by the Mayor of Belleville, upon the great transportation facilities of the Dominion.

Professor Dean was then called upon for an address. The Professor had just returned from attending the annual meeting of the Vermont Dairymen's Association. He stated that the Vermont Dairymen almost unanimously approved of corn silage. It was used for summer feeding as well as in winter. A State law has been passed making it compulsory for a man to take out a license before being allowed to run the Babcock test. All Babcock glassware used in the State must be tested at the State Experiment Station. In this small rocky State there are about 200 creameries and 50 cheese factories in operation. The St. Alban's creamery is probably the largest in the world. A flourishing Ladies' Auxiliary, managed entirely by the ladies, exists as a part of the Vermont Dairymen's Association.

Prof. James held the attention of the large audience while he delivered an address upon "Our Province and Our People."

A sumptuous banquet, tendered by the citizens of Madoc and vicinity, was given the Association. The speeches and songs were bright, entertaining and patriotic. Telegrams were read from many of our prominent men, regretting their inability to be present.

The reports of the Inspectors and Instructors employed by the Association were read on Friday morning. Mr. Bensley stated that he had tested 5,100 samples of milk, had found that 13 had been tampered with, and that in these cases the patrons admitted guilt and were fined. The leading defects in the cheese were carelessness in finishing and a

weakness in body in the cheese caused by over-ripening the milk. Mr. Howie stated in his report that the principal difficulties he found in his district were the bad quality of the milk furnished the factories and poor buildings and equipment. He advised better shipping facilities, and warned cheesemakers not to bind themselves to be responsible for faults over which they had no control.

Mr. Ward, the Inspector of the district surrounding Peterboro, stated that he had found 91 cases in which milk had been tampered with. The principal difficulties with which the cheesemaker had to deal were the late delivery of the milk and the return of the whey under existing conditions. He recommended paying by test, and that a copy of the law on "Milk Adulteration" be furnished every factory patron. In many cases makers did not receive living wages for their work. He noticed there was a tendency to put in too many small butter plants that could not make returns on the capital invested. He advised central creameries and skimming stations wherever necessary.

Inspector Purvis, Maxville, stated that the quality of the cheese was improving in the district visited by him. He said that 50 new factories had been built, fitted up for the making of both butter and cheese.

Inspector L. A. Zufelt stated that the principal sources of loss in his district were caused by poor milk and poor curing rooms.

Inspector Lowery recommended that the Instructor should try to reach the farmers, and spoke of the good results that had attended meetings of the patrons he had held.

Inspector Publow read his twelfth report as an employee of the Association; \$1,270 was reported as having been collected from parties who had adulterated their milk. He strongly condemned the shipping of cheese that were too green.

The election of officers was then proceeded with. All the officers were re-elected. Mr. A. F. Wood, ex-M. P. P., who was presiding, called attention to the danger of the election becoming a mere formal proceeding, and understood that the report of the nominating committee was submitted because, in its opinion, the men chosen were the very best obtainable for the position.

A very valuable lecture, illustrated by charts, was delivered by Commissioner Hodson—subject, "Growing Pork in Connection with Dairying." He spoke of his experience in feeding corn, clover, rape, lucerne, and milk, called by packers the most objectionable foods, as they were said to produce soft pork. Pigs fed entirely on these foods had killed well and come through the salt in the very best of shape. "Brains," stated the Commissioner, "would produce good pork from almost any food." "Softs" were evident when pigs went back in condition before being killed.

On Friday afternoon Professor Dean described some interesting experiments being carried on at Guelph in the manufacture of cheese.

After a hearty vote of thanks to the citizens of Madoc for the manner in which they had entertained the Association, the proceedings were brought to a close by the singing of the National Anthem.

## APIARY.

### The Hive—Historical and Practical.

BY MORLEY PETTIT, ELGIN CO., ONT.

Nowhere is nineteenth century development more manifest than in the habitation of the honeybee domesticated. It has made equal and almost similar, though largely independent, advancement in the old world and the new, the all-important improvement—the invention of movable frame hives—being made simultaneously by Rev. L. L. Langstroth, the American "Father of Bee Culture," and by Baron Von Berlepsch, in Germany.

The earlier hives were cross-sections of hollow trees, straw or willow skeps, and pottery hives. The latter were earthenware tubes placed horizontally, with ends closed by movable wooden discs. These are still in use in Asia and Africa. In the Islands of Greece they were sometimes built transversely into stone walls erected for the purpose, or the walls of dwelling houses. As bees would store honey at the back of such a hive, the disc inside the house could be taken out and honey removed without danger from flying bees.

In using the straw or box hive, beekeepers, learning that honey was stored at the top, added a cap or super, replacing the hive ceiling by bars with spaces between. The hives were later divided into several horizontal sections called "ekes." These are mentioned by Butler in 1634. In 1750, Palteau advised perforated ceilings to be placed at the top of each section, and in 1821, Radouan replaced these by triangular bars, to which the bees attached their combs. Chas. Soria, in 1845, used these bars at both top and bottom of each section, leaving bee space, so that the ekes were not built together with combs, but could be manipulated separately.

There are several requisites in the construction of a complete hive which cannot be overlooked. The first of these is accurate workmanship, and material of such a nature as to render the hive impervious to dampness, extremes of heat or cold, and sudden changes of temperature. Second.—The entrance to the hive and through the brood chamber to the super should be such as to require not one

unnecessary motion of a single bee. No part of the interior should be lower than the entrance, and the floor should slant towards the entrance to enable the bees to easily remove refuse. There should be one and only one entrance, the full width of the hive, and capable of being enlarged or contracted at the will of the apiarist. Third.—The hive should permit the free manipulation and interchange of all the combs and other parts without cutting combs or crushing bees. All joints should be close-fitting, but free from bevels or hinges, as the busy workers will make all tight with propolis.

We have sketched the history of hives with immovable combs, which culminated in Chas. Soria's "ekes." Let us turn our attention to those which fulfil condition number three. In 1790, Della-Rocca, a Greek beekeeper, wrote of having his bees attach their combs to movable top-bars; but they had to be cut loose from the sides of the hive, and, for example, if the tenth comb was to be removed the first nine had to come out. Dzierson, in 1838, revived this hive, improved it, and made many valuable discoveries in the habits and physiological structure of bees by its use. About the time of Della-Rocca's invention, Huber devised the leaf-hive, which consisted of twelve frames hinged together so that they formed a hive which could be opened or shut like a book. The modern "closed-end Quinby" frames are similar to these.

In 1851, Mr. Langstroth invented "the top-opening movable-frame hive," which is most widely used in America to-day, and is known as the "Langstroth hive." In it the combs are built within movable frames, "so suspended in the hives as to touch neither the top, bottom nor sides; leaving between the frames and the hive-walls a space of from one-fourth to three-eighths of an inch, called bee space." The dimensions of the Langstroth frame are 9½ in. by 17½ in.

The principal parts of a modern hive are:



HIVE WITH COVER AND CUSHION REMOVED.

1, floor; 2, brood chamber; 3, This may be used for queen bar; 4, extracting super; 5, top of frames; 6, cloth; 7, brood-chamber or extracting board; 8, entrance block; 9, light-tracing super as desired.

Movable frames, containing worker combs, which compose the brood-nest.

Queen bar, or excluder, of perforated zinc, which covers the brood chamber, admitting only worker bees to the super.

Super, for comb or extracted honey.

Cloth, of hard, white cotton duck, resting on frames.

Two-inch cushion, of fine hay and wheat-chaff. Cover, which should be watertight, broad enough to partly shade the hive, and so heavy that the strongest wind to which the locality is subject cannot blow it off.

Blocks for adjusting size of entrance and alighting board.

## 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. Enquiries must in all cases attach their name and address in full, though not necessarily for publication.]

### Veterinary

#### THICKENING OF MUCOUS MEMBRANE OF THROAT.

S. W. B., Petitcodiac, N. B.:—"I have a mare, 14 years old, who raised a colt this year; quite well except for a slight hacking cough, which she has had for years; but about three months ago it got worse, and whenever she eats anything dry it seems difficult for her to swallow. While eating oats or drinking water she will cough and scatter the oats out of her mouth, and after drinking, the water will run from her nose. She is not broken-winded, and there are no signs of heaves. Please tell me what to do for her?"

[This is the result of a common cold, and the chronic cough shows that the internal lining membrane of the nostrils and throat is thickened. In many cases a nasal or pharyngeal polypus forms, which is attached to the internal membranes of the guttural pouches. This gives rise to the cough and return of the water when drinking. Owing to the irritation of the membranes, medicine is difficult to administer. Give boiled food for a few weeks, and the following: Powdered belladonna, 2 ounces; powdered digitalis, 2 ounces; powdered muriate of ammonia, 2 ounces; powdered aniseed, 4 ounces. Make into 24 powders, give one night and morning.]



## GREASE IN YOUNG HORSES.

J. A., Bruce Co., Ont.:—"I have a pair of Clyde horses, rising four years old. One has large cracks just above the fetlock, the other very itchy in hind legs; he will stand and rub one leg with the other. I am rubbing the cracks with the lotion prescribed in your paper Sept. 1st, page 490. I also got a bottle of Fowler's solution of arsenic, but the druggist told me I would have sick horses if I gave them that quantity. I thought it might be a misprint, so I did not give it to them."

[It is a well-known adage, "When doctors disagree, who shall decide?" So that you must not hold me answerable for the reply referred to. My treatment for grease is on somewhat different lines from that recommended above. In our opinion, washing the legs of hairy horses such as the Clydesdale and Shire is the cause of all the mischief, so do not wash the legs with water any more than absolutely necessary. When they become covered and clotted with mud wait until quite dry and brush off with a stiff brush. To get the sores and cracks to heal is often a very difficult business, but the application of powdered charcoal, if very large and running sores, or if only slight cracks the application of a strong solution of Little's Patent Fluid, advertised in the FARMER'S ADVOCATE, which is not only a disinfectant, but checks the formation of foul-smelling odor that comes from these wounds, are advisable. There is nothing very remarkable in the dose of Fowler's solution of arsenic for the horse, but we would recommend only half the dose.]

WM. MOLE, M. R. C. V. S.]

## OBSTRUCTION OF MILK DUCTS.

T. B.:—"We have a fine heifer which has something wrong with her teats. This is the first summer she has milked. Some time in September there were little ulcers or something came in her teats (three of them, the two left and the right front), about an inch or less up from the point, on the inside. When one would commence to milk her, small clots of blood would stop up the hole in end of teat till forced out by a heavy pressure. Her teats seem to be pretty sore now when milking, as she is uneasy and sometimes kicks. Her mother is troubled every spring with something in her back teat on left side, which causes it to swell up and become inflamed and caked. I commenced feeding clover in June, and continued till some time in July, when I commenced to feed corn, which was continued up to the present time, except when green oats were fed, since the winter set in. I also fed a liberal quantity of roots (sugar beet), commencing about the second week of September. Am not feeding roots now. From this description can you give me a remedy? Please answer in your next issue and oblige."

[The growths of which you speak are not ulcers, but fibrous growths in the milk ducts. At least, from the description you give, I presume that the obstruction is in the duct. If so, a small lump can be felt by gently pressing the teat between the thumb and finger. These growths appear without apparent cause, and may be situated in any part of the duct, the nearer the point of the teat the less serious. They are not caused by the food nor general care of the animal. The predisposition appears to be congenital. I have frequently known a large number of the cows of certain families to become affected, some after the first calf, some after the second or third, or even later. In cases where the duct is not entirely occluded I do not think it is wise to interfere, but simply have patience in milking, and endeavor to manipulate the teats as carefully as possible. The cause of the blood is the irritation to the small blood vessels (capillaries), some of which become ruptured from mulsion, and a few drops of blood escape. It is probable that at the next calving this animal will be blind in one or more teats, the growth having increased during the inactivity of the gland until it entirely occludes the duct. If so, an operation by a competent man with a concealed bistoury (an instrument used especially for the purpose) will probably, in this case, where the growth is near the point, be followed by a partial cure. This operation requires to be carefully performed in order to not cut any healthy tissue. The habit of forcing knitting needles, goose quills, etc., up the milk duct cannot be too severely condemned. I do not think it wise to breed from this heifer, she already having three diseased teats, which will probably become worse, and her female progeny will inherit the predisposition to the same trouble. Therefore I would advise her preparation for the block as soon as the present period of lactation ceases.]

J. H. REED.]

## COW VOMITING.

A. M. F., Elgin Co., Ont.:—"I have a cow that is fed well on hay, straw, corn, clover, pulped roots and chop. When she swallows, the food comes up again and fills her mouth so full that it runs out. What can I do for her?"

[The cow may be suffering from indigestion, or her throat may be abnormal, perhaps from injury by some instrument to relieve choking; or it is possible that she has an irritating body in her stomach such as a piece of bone, wire, or nails. We would recommend a physic, consisting of 1½ pounds of Epsom salts, ½ pound brown sugar, and 2 table-spoonfuls of salt. Mix in a quart of warm water and give as a drench. If this does not give relief, try raw linseed oil, 1 pint; spirits of nitre, 1 ounce; and common soda, ½ ounce. Give in a drench every second day for a week, and if this fails, it would be wise to call in a veterinary surgeon.]

## Miscellaneous.

## MANGELS OR TURNIPS FOR HOGS.

S. H., Dundas Co., Ont.:—"If you can tell, I would like to learn through the ADVOCATE the relative value of Purple-top swede turnips and mangels as hog feed for making pork. I know they would sooner have mangels, but they will eat turnips if not fed many mangels."

[So far as I can learn, there seems to have been no experimental work performed relative to the comparative values of mangels and swedes for hog feeding. In point of composition and digestibility the two foods are very similar on the whole. Owing to the fact, however, that hogs generally appear fonder of mangels than turnips, the mangels usually seem to give better results, though the difference is no doubt small.]

O. A. C. Guelph. G. E. DAY, Agriculturist.]

## DILUTING MILK.

H. B., Middlesex Co., Ont.:—"1. Can a farmer or any other person dilute his milk with water for the purpose of separating cream without using a patented gravity cream separator? 2. Can a person use common creamers with water to separate, and not infringe on their right?"

[1. Yes. 2. Yes.]

## MARKETS.

## FARM GOSSIP.

## North Leeds and Grenville Farmers' Institute.

Owing to some misunderstanding on the part of the management, there were no provisions made by the Superintendent to supply speakers for our supplementary meetings. We were fortunate, however, in securing the services of Mr. and Mrs. Joseph Yuill, of Carleton Place. Afternoon and evening meetings were held at the following places: Easton's Corners, Frankville, Burre's Rapids, Kemptville, and Bishop Mills. The meetings were largely attended. Mrs. Yuill appeared to be the drawing card, her subjects being: "Raising Young Turkeys," "How to Produce Eggs in Winter," "Fattening Poultry for the British Market," "Dairying and Housekeeping in Its Different Aspects." Mrs. Yuill is a plain, practical farmer's wife, well acquainted with her subjects. Mr. Yuill, who is a very successful farmer, and who has had a large experience in institute work, spoke on the following subjects: "The Bacon Hog," which he illustrated with a chart showing the value of the different parts of the side of bacon in England, and advising people to raise the pig which was heavy in the most valuable parts. He thought buyers did not discriminate enough between the typical bacon hog and the old-fashioned, short, chunky hog. Mr. Yuill also spoke on "Care and Management of a Dairy Herd," and gave a thorough, detailed description of how his own dairy herd was managed. He also told how to enrich an impoverished farm, and how to maintain the fertility of a rich farm. He gave a list of the chemical ingredients and their value that went with the different kinds of produce that we sold off our farms; also the value of the liquid manure of the different kinds of stock, and concluded by saying that farmers should save every particle of solids and every drop of liquid manure made on the farm, and if that was not enough, then, and not till then, would he advise investing in artificial manures.

The President, R. Nicholson, Secretary J. B. Arnold, and B. Mosher, visited all the meetings. Mr. Mosher and the President entertained the meetings with a thoroughly detailed account of each other's failures, which proved very amusing to the audience, if not to themselves. We were well supplied with local talent. At Easton's Corner we had B. Mosher and Wm. Nicholson; Frankville, H. E. Eyre, Wm. Eaton, and E. Soper; Kemptville, Dr. Ferguson, B. Mosher; Bishop Mills, Wm. Morrison and Arthur Farnsett. The meetings were the best attended and the membership the largest we have had.

## Kent Co., Ont.

Up to the present we have had an exceptionally open winter, an almost ceaseless round of rain, mud, and slush, with, practically speaking, an entire absence of snow. For the two weeks following Christmas we did have some cold weather, which enabled us to secure our summer supply of ice. The constant freezing and thawing, along with the absence of snow, has been rather injurious to the fall wheat, but to what extent it is impossible to say as yet.

Farm stock are in excellent condition, and owing to the mild weather are wintering on much less feed than usual. Coarse feed is in abundance, and hay and grain is plentiful, as will be seen by the fact that the former is selling at from \$5.50 to \$7.50 per ton, and oats, 23c. to 21c. per bush.; barley, 75c. per cwt.; corn, shelled, 31c. per bush. Wheat remains at 65c., but beans are getting back to the good old three-figure prices again, and bring \$1.25 and \$1.30 per bushel.

Milk cows are more plentiful, but prices still rule high, at from \$35.00 to \$50.00 each. Live hogs bring \$3.80 per cwt.; dressed, \$4.75 to \$4.85 per cwt. On the local market butter and eggs retail at 20c. per lb. and per doz., with creamery butter 2c. higher. Poultry plentiful, but varying in price according to size. Potatoes sell at 65c. to 75c. per bag.

Fuel in these parts is rapidly becoming our most expensive necessary. Our wood supply will soon be exhausted, and coal is gradually becoming dearer. This year hardwood sells at \$4.50 per cord, and coal \$8.50 per ton. As a result people are looking about for something cheaper. One of our neighbors bored for gas, and struck it rich, consequently his cost of running furnace, cook stove, and lighting is mere nothing. A syndicate has also been formed to develop the peat beds about 15 miles south of us. They cover thousands of acres, and the Government expert who examined it first-class. They expect to begin operations next spring, and claim that they can lay it down to the consumer at \$3.00 per ton. It is further claimed that a ton of it will go nearly as far as a ton of coal. If such be the case there will be very little coal sold in Kent next winter.

W. A. M.

## Lanark County, Ont.

We are having a very pleasant winter so far. We have had good sleighing since Xmas, except for a few days after a little thaw. More snow has fallen now, so farmers that have hauling to do are having good opportunity. The farmers around here are feeling the benefit of the good prices, especially for cheese. Our factory did not close until the 20th of December. The milk from August to the close averaged over a cent a pound, which counts all right. Our factory distributed over \$22,000 to the patrons last season. Some of us would be glad to see the price of pork keep pace with that of beef. Pork is about \$5.10 per cwt., and beef \$5.00 and \$6.00. There are not very many cattle of the beef breeds kept in this section, therefore the quality of beef is not usually No. 1. There are not nearly so many horses for sale in this district as there were a couple of years ago, but what few are sold bring a good deal better prices than then.

R. K. J.

## South Perth, Ontario.

On the whole we are having a very mild winter so far. December gave us a cold snap, with a previous heavy snowfall, which the proverbial January thaw has just about dissolved; consequently heavy teaming has slackened, and inert produce remains on the farms. Wheat, which after all got a good start last fall, is showing up nice and fresh, but fears are entertained for its safety around the fences, where the snow still lies deeply on an unfrozen soil. A few of the enterprising are attempting to manure drawing, but it is a soft job, as there is no frost to support the sleigh. Apples, which have become latterly a more dependent crop in this section, have suffered much from decay, supposedly caused by lack of maturity, but I think the temperature of cellars and other depositories during the mild weather had considerable influence. Many shippers lost heavily, having had considerable influence. Even some farmers are miffed, and none are offered on the market. Potatoes have been only a fair crop except where they received extra care and cultivation during the dry spell, but are of pretty uniform quality. The drought has even extended into the winter. Up to the present I know of some farmers having to drive their cattle to water. This has led to the sinking of artesian wells, of which not a few are in existence. Many farmers are drawing on their reserve of wood to keep pace with the growing time, and a good deal of coal in consequence is being burned throughout the country. Others are expecting much from the newly manufactured turf in the vicinity of Stratford.

Hay, straw, and roots are rather scarce, and perhaps that accounts for the decrease in the supply of milk to the winter creameries. Hay is selling from \$7 to \$8 per ton, and good home dairy butter at 16c. to 17c. The cheese-men are inclined to smile as a result of last summer's prices, as they suited the farmers better than those of butter, between which two products there is now considerable rivalry. Our sheep industry is practically nil, owing partly to increase of cereal crops and advent of dairying, but more immediately to lack of proper fencing, the kind universally adopted (a combination of rails and plain wire) being insufficient to restrain them after having once learned the habit of getting through. We think this a mistake, as a flock of good sheep on a farm is invaluable for keeping down fowl weeds and checking increase of insects by cleaning up fence corners and waste places. However, we expect the higher price of wool and mutton will soon restore the old order of things, especially as the old fences are rapidly giving place to the new woven wire.

Although our methods of farming are essentially mixed (and some of them hopelessly so), with a tendency toward factory dairying, yet there now seems to be a general desire for larger farms, better stables, and consequent increase of stock of the cattle kind. In the train of this comes the silo, with a likelihood of the wooden being displaced by cement or building stone. 'Tis true that hogs and milk are having their innings, but we have never really lost hold of the general purpose cow. Our best farmers want a good big calf, even if it does reduce the amount of the milk cheque a little. Cattle buyers have been active the last two weeks, exports holding well at 5c., although butchers' have now dropped slightly. Hogs have risen from \$4.10 to \$4.25, which is about what we consider the minimum paying price. We have had no clover threshing yet, and I think the amount done will be less than ever. A few years ago alsike was a dependent crop, but for some reason it failed to mature seed, and now is scarcely ever sown.

The New Year's meeting of the Blanchard Township Council was crowned by an act which will doubtless be a turning point for good in agriculture, and of far-reaching importance to every branch of the community, viz., the abolition of the statute labor system. Strange enough it was carried unanimously, and so far I have not heard of one dissenting voice among the ratepayers. We will push on for better crowning of the road, and wider tires. J. H. B.

## Chatty Stock Letter from Chicago.

FROM OUR OWN CORRESPONDENT.

Following table shows current and comparative live stock prices:

| prices:           | Extreme prices now. | Top Prices     |        |        |
|-------------------|---------------------|----------------|--------|--------|
|                   |                     | Two weeks ago. | 1899   | 1898   |
| Beef cattle.      | \$5 40 to 6 80      | \$5 00         | \$5 40 | \$5 40 |
| 1500 lbs. up.     | 4 75 to 6 50        | 6 50           | 5 85   | 5 50   |
| 1350 to 1500 lbs. | 4 40 to 6 40        | 6 55           | 6 00   | 5 25   |
| 1050 to 1200 lbs. | 4 00 to 6 25        | 6 25           | 5 85   | 5 15   |
| 900 to 1050 lbs.  | 3 90 to 5 90        | 5 80           | 5 30   | 4 80   |
| Hogs.             |                     |                |        |        |
| Mixed             | 4 45 to 4 80        | 4 57½          | 3 87½  | 4 00   |
| Heavy             | 4 45 to 4 85        | 4 60           | 3 90   | 3 97½  |
| Light             | 4 40 to 4 75        | 4 50           | 3 82½  | 3 85   |
| Pigs              | 3 75 to 4 50        | 4 35           | 3 65   | 3 85   |
| Sheep.            |                     |                |        |        |
| Natives           | 3 50 to 5 00        | 5 00           | 4 50   | 4 75   |
| Lambs             | 4 75 to 6 50        | 6 25           | 4 65   | 6 00   |
| Western lambs     | 5 50 to 6 40        | 6 25           | 5 00   | 5 80   |

A report is current that the Government had figured the country had 3,000,000 head less of hogs than in 1899, or about 36,750,000 head. The result has been a bullish feeling in provisions, and the price of live hogs has improved accordingly.

T. W. Tomlinson has returned from the Fort Worth convention. He reports weather fine and everything flourishing. He says comparatively few cattle trades were made during the convention, partly on account of the high prices, but more particularly because cattlemen are not anxious to sell, as they figure the future market will be good, especially with supplies so much smaller than usual, as they are at present.

The condition of the cattle trade has been very unsatisfactory lately. Receipts have been liberal and the weather very unfavorable for handling fresh meat. Since a week or two ago, medium to pretty good steers have declined 25c. to 40c. The best cattle have remained nearly steady, and the poorest grades have not been seriously affected.

The lack of boats, due to the impressing by the English Government of several liners, has handicapped the export trade considerably, and has had an indirect bearish effect on the market.

Our last advices quoted best steers at London, 12½c., dressed weight.

The demand for sheep and lambs keeps up remarkably well, and prices now are the highest since last August, and \$1.50 higher for lambs than a year ago at this time.

Good selected feeding cattle have met with a better demand, and prices show a small advance over two weeks ago. In round numbers, beef stock in the United States has decreased about 30 per cent. within a decade, against an approximate increase in population of 30 per cent. It is not difficult to see the finish unless something is done to arrest this remarkable decrease. The Australian drought several years ago threw the burden of supplying Europe with beef upon this country. The Boer war has now added to the foreign demand for meats.

P. E. Sherlock, the well-known sheep-man of La Fox, Ill., was here with sheep. Mr. Sherlock has just returned from the south-west, where he found the range in good condition and sheep-men inclined to hold back on account of the high price of wool. He thinks the number of sheep and lambs on feed at present is not over 60 per cent. of what it was a year ago.

Last week hogs sold as high as \$4.80, and this week reached \$4.85, or within 15c. of the top for 1899, 5c. above the top for 1898, 20c. above the highest price paid in 1897, and 40c. higher than the top for 1896, which was \$4.45. The average price last week was \$4.60, or 90c. above the low day last November, and 55c. higher than the average the corresponding week last year. The average weight last week was only 225 lbs., the lightest average in nearly a year, or since the week ending February 11, 1899. Judging from the steady falling off in the average weight, it would seem as though the trade will be disappointed in receipts for the next thirty or sixty days. There is undoubtedly a shortage in the country of matured hogs with anything like weight.

Several consignments of export sheep bought lately at \$4.50.

See page 73 for Toronto Markets.





**Three Little Dogs.**

Three little dogs were talking,  
As they trotted along the road;  
And the subject of speech,  
With all and with each,  
Was what bad folks were abroad.

Said the first: "You would hardly believe it,  
But I can assure you it's true,  
A man with a pall  
Threw suds on my tail!  
Now I think that's cruel, don't you?"

Said the second: "That's very atrocious;  
But a worse thing happened to me;  
A boy with a stone,  
Almost broke my backbone!  
Now, what think you of that!" said he.

Said the third: "My fate was the hardest.  
And I can prove it just now;  
A man knocked me flat  
When I looked at a cat!  
Wasn't that too bad? Bow-wow!"

But the three little dogs did not mention,  
The first, that he'd stolen some sprats.  
The next that he ran  
At a poor blind man;  
And the third, that he'd hunted a cat.

Thus, three little dogs were talking,  
And many small folk do the same;  
They tell of a story  
That redounds to their glory,  
But forget where they merit the blame.

**Obedient Service.**

An Eastern king was once  
in need of a faithful servant  
and friend. He gave notice  
that he wanted a man to do a  
day's work, and two men came  
and asked to be employed. He  
engaged them both for certain  
fixed wages, and set them to  
work to fill a basket with water  
from a neighboring well, say-  
ing he would come in the even-  
ing to see their work. He then  
left them to themselves, and  
went away.

After putting in one or two  
bucketfuls, one of the men  
said, "What is the good of  
doing this useless work? As  
soon as we put the water in on  
one side, it runs out on the  
other."

The other man answered,  
"But we have our day's  
wages, haven't we? The use  
of the work is the master's  
business, not ours."

"I am not going to do such  
foolish work," replied the  
other; and, throwing down  
his bucket, he went away.

The other man continued  
his work till, about sunset,  
he exhausted the well. Look-  
ing down into it, he saw some-  
thing shining at the bottom.  
He let down his bucket once more, and drew up a  
precious diamond ring.

"Now I see the use of pouring water into a bas-  
ket," he exclaimed to himself. "If the bucket had  
brought up the ring before the well was dry, it  
would have been found in the basket. The labor  
was not useless, after all."

But he had yet to learn why the king had  
ordered this apparently useless task. It was to test  
their capacity for perfect obedience, without which  
no servant is reliable.

At this moment the king came up to him; and  
as he bid the man keep the ring, he said:  
"Thou hast been faithful in a little thing, now I  
see I can trust thee in great things. Henceforward  
thou shalt stand at my right hand."

**Wishing and Working.**

The boy who's always wishing  
That this or that might be,  
But never tries his mettle,  
Is the boy that's bound to see  
His plans all come to failure,  
His hopes end in defeat;  
For that's what comes when wishing  
And working fail to meet.

The boy who wishes this thing  
Or that thing with a will,  
That spurs him on to action,  
And keeps him trying still,  
When efforts meet with failure,  
Will some day surely win;  
For he works out what he wishes,  
And that's where "luck" comes in!

The "luck" that I believe in  
Is that which comes with work,  
And no one ever finds it  
Who's content to wish and shirk.  
The men the world call "lucky"  
Will tell you, every one,  
That success comes not by wishing,  
But by hard work bravely done.

**Mr. Dooley on the New Woman.**

"Molly Donahue have up an' become a new woman!"

"It's been a good thing fr ol' man Donahue, though, Jawn. He shtud ivrything that mortal man cud stand. He seen her appearin' in th' road wearin' clothes that no lady shud wear an' ridin' a bicycle; he was humiliated whin she demanded to vote; he put his pride under his ar-rm an' marched out iv th' house whin she committed assault-an'-bathry on th' piannah. But he's got to th' end iv th' rope now. He was in here las' night, how-come-ye-so, with his hat cocked over his eye an' a look iv resolution on his face; an' whin he left me, he says, says he, 'Dooley,' he says, 'I'll conquer, or I'll die,' he says.

"It's been comin' fr months, but it on'y bust on Donahue las' week. He'd come home at night tired out, an' ather supper he was pullin' off his boots, whin Mollie an' th' mother begun talkin' about th' rights iv females. 'Tis th' era iv th' new woman,' says Mollie. 'Ye're right,' says th' mother. 'What d'ye mean be the new woman?' says Donahue, holdin' his boot in his hand. 'Th' new woman,' says Mollie, 'll be free fr th' opprision iv man,' she says. 'She'l wurruk out her own way, without help or hinderance,' she says. 'She'll wear what clothes she wants,' she says, 'an' she'll be no man's slave,' she says. 'They'll be no such thing as givin' a girl in marredge to a clown an' makin' her dipindant on his whims,' she says. 'Th' women'll earn their own livin',' she says; 'an' mebbe,' she says, 'th' men'll stay at home an' dredge in th' house wurruk,' she says. 'A-ho,' says Donahue. 'An' that's th' new woman, is it?' he says. An' he said no more that night.

half. He's that stubborn he'd've stayed in bed all day, but th' good woman weakened. 'Come,' she says, 'don't be foolish,' she says. 'Ye wudden't have th' ol' woman wurrukin' in th' mills,' she says. 'Twas all a joke,' she says. 'Oh-ho, th' ol' woman!' he says. 'Th' ol' woman! Well, that's a horse iv another color,' he says. 'An' I don't mind tellin' ye th' mills is closed down to-day, Honoria.' So he dhressed himself an' wint out; an' says he to Mollie, he says: 'Miss Newwoman,' says he, 'ye may find wurruk enough around th' house,' he says. 'An', if ye have time, ye might paint th' stoop,' he says. 'Th' ol' man is goin' to take th' ol' woman down be Halsted sthreet an' blow himsilf fr a new shawl fr her.'

"An' he's been that proud iv th' vichtry that he's been a reg'lar customer fr a week."

**Musk Ox, Monarch of Canada's Earliest North.**

This fine fellow must not be allowed to go in amongst the general cattle department. He is more than cattle, he is a veritable beauty. We here quote his physical description.

"The shaggy specimen herewith portrayed represents a native of the Canadian Arctic regions, and is claimed by zoologists to be the connecting link between the ox and the sheep, and is found only in North America. It measures from five to six feet from nose to the root of tail, it is covered with a glossy flowing brownish-black coat of hair, more or less grizzly, which is highly valued for sleigh robes and the like. The musk ox has a solid body, weighing about eight hundred pounds, which is supported on stout legs; it inhabits barren, rocky districts, feeds on grass and lichens, and is frequently captured by hunters in the neighborhood of the Mackenzie River."

But we want our readers to understand that he is a beautiful picture as well as an ox, so we've saved him for the home department.

**Recipes.**

**CORNED MUTTON.**

Corned mutton is a dish which seems to be known to comparatively few housekeepers. Have your butcher put a nice leg of mutton in the pickle for you just as he does beef, to corn, leaving it in about a week. Then boil it thoroughly and serve with drawn butter and caper sauce.

**KIDNEY OMELET.**

You have probably eaten a kidney omelet, but try one made after this fashion and see if its exquisite delicacy is not something new. You may use sheep or lamb kidney; for best results, however, you must have a veal kidney. Trim off all fat and cut it in tiny dice; put a teaspoonful of butter over the fire in a small saucepan, and when very hot, fry in it a half-teaspoonful of minced onion until golden brown, but it must not be allowed to scorch. Put in the minced kidney and a little parsley, and stew for about eight minutes, shaking and stirring carefully. Should it be too dry, add just enough water or broth to keep it moist. Make plain omelet of four eggs, and just before it is ready to fold, place the above mixture in the center.

**GINGER PUDDING.**

One cup of flour, one cup of bread crumbs, one cup of dark molasses, two ounces sugar, one teaspoon ginger, one quarter pound finely chopped suet. Mix well together and place in a buttered basin, tie down with a cloth and boil for three hours, or steam. Serve with sweet sauce.

**KIDNEY TOAST**

Out in pieces four veal kidneys with half a pound of calf's liver, and see to it that both are of the freshest. Make a little butter hot in a frying-pan, and toss them until cooked, but not overdone. Remove from the fire, add the beaten yolk of one egg, and a seasoning of salt, pepper and lemon juice. Have ready some squares of hot buttered toast, spread with the mixture and serve with stewed potatoes and hot corn-meal muffins.

**FRIED APPLES (TO BE EATEN WITH SAUSAGES).**

Cover the bottom of a granite pie-plate with butter, about two tablespoons, and melt it. Lay in apples (quartered, pared and cored), enough to fill the dish. Sprinkle one-half cup of sugar over them and cook slowly in the oven till tender. Turn it out on a hot dish and serve with sausages.

**Another Way—Sausages and Fried Apples.**—Prick the sausages, and bake in hot oven till brown and cooked through. Core tart apples and cut across the center in half-inch rings. Cook in sausage fat till soft and slightly brown.



MUSK OX, MONARCH OF CANADA'S NORTH.

"But th' nex' mornin' Mrs. Donahue an' Mollie come to his dure. 'Get up,' says Mrs. Donahue, 'an' bring in some coal,' she says. 'Ye drowsy man, ye'll be late fr ye'er wurruk.' 'Divvle th' bit iv coal I'll fetch,' says Donahue. 'Go away an' lave me alone,' he says. 'Ye're intruptin' me dreams.' 'What ails ye, man alive?' says Mrs. Donahue. 'Get up,' 'Go away,' says Donahue, 'an' lave me slumber,' he says. 'Th' idee iv a couple iv big strong women like you makin' me wurruk fr ye,' he says. 'Mollie'll bring in th' coal,' he says. 'An' as fr you, Honoria, ye'd best see what there is in th' cupboard an' put it in ye'er dinner-pail,' he says. 'I heerd th' first whistle blow a minyit ago,' he says; 'an' there's a pile iv slag at th' mills that has to be wheeled off before th' sup'rintindint comes around,' he says. 'Ye know ye can't afford to lose ye'er job with me in this delicate condition,' he says. 'I'm going to sleep now,' he says. 'An', Mollie, do ye bring me in a cup iv cocoa an' a poached igg at tin,' he says. 'I ixpect me music teacher about that time. We have to take a wallop out iv Wagner an' Bootoven before noon.' 'Th' Lord save us fr harm,' says Mrs. Donahue. 'Th' man's clean crazy.' 'Divvle's th' bit,' says Donahue, wavin' his red flannel undershirt in th' air. 'I'm the new man,' he says.

"Well, sir, Donahue said it flured thim complete. They didn't know what to say. Mollie was game, an' she fetched in th' coal; but Mrs. Donahue got nervous as eight o'clock come around. 'Ye're not going to stay in bed all day an' lose ye'er job,' she says. 'Th' ell with me job,' says Donahue. 'I'm not th' man to take wurruk whin they're industhrees women with nawthin' to do,' he says. 'Show me th' pa-apers,' he says. 'I want to see where I can get an eighty-cint bonnet fr two and a

**Chicago.**

Comparative live stock

Top Prices

| Weeks | 1899   | 1898   |
|-------|--------|--------|
|       | \$5 00 | \$5 40 |
|       | 5 85   | 5 50   |
|       | 6 00   | 5 25   |
|       | 5 85   | 5 15   |
|       | 5 30   | 4 90   |

|  |          |          |
|--|----------|----------|
|  | 3 87 1/2 | 4 00     |
|  | 3 90     | 3 97 1/2 |
|  | 3 82 1/2 | 3 95     |
|  | 3 65     | 3 85     |

|  |      |      |
|--|------|------|
|  | 4 50 | 4 75 |
|  | 4 65 | 6 00 |
|  | 5 00 | 5 80 |

had figured the man in 1899, or about a feeling in provid accordingly.

Fort Worth con- thing flourish- we made during the ices, but more par- us to sell, as they ally with supplis resent.

ing by the English the export trade rish effect on the ondon, 12c., dressed

ups up remarkably e last August, and is time.

net with a better ver two weeks ago. United States has decade, against an per cent. It is not e done to arrest this ough several years with beef upon this the foreign demand

man of La Fox, Ill., t returned from the gond condition and of the high price of d lambs on feed at as a year ago.

id this week reached e above the top for 1897, and 40c. higher e average price last last November, and ing week last year.

225 lbs., the lightest sk ending February off in the average will be disappointed There is undoubt- hogs with anything

ought lately at \$4.50.



## THE QUIET HOUR.

## Showing a Light.

"Stronger than steel  
Is the sword of the Spirit!  
Swifter than arrows  
The light of the truth is!  
Greater than anger  
Is Love, and subdeth!  
The dawn is not distant,  
Nor is the night starless—  
Love is eternal!  
God is still God, and  
His faith shall not fail us!  
Christ is eternal!"

Our last talk was on the best way of lightening our own darkness. To-day let us consider how we may show a light to other people. Some of you may be daily praying for one dear to you, saying, as Elisha did, "Open his eyes that he may see."

The young man in whom he was interested had his eyes open to the horses and chariots which were fighting against him; but the far greater host which was just as really present for his protection was invisible. Is it not so with us all? We are often discouraged and cowardly, simply because we do not realize the fact that "They that be with us are more than they that be with them." It is very probable that Elisha did not himself see, with his bodily eyes, the horses and chariots of fire which surrounded him. His faith was too strong to need the outward visible proof which was granted to the weaker faith of his servant. Miracles are not always an advantage. "Blessed are they that have not seen, and yet have believed." God may sometimes open people's eyes suddenly, as He did St. Paul's; but generally the light is let in gradually. He draws men nearer and nearer to Himself by the attractive force of love, until at last the darkness is entirely dispelled, and they are ready to acknowledge in adoring wonder their Lord and their God.

## KNOWLEDGE IS NOT ALWAYS FAITH.

In trying to convince other people of the truth of Christianity it is not wise to depend much on argument. The arguments may be quite convincing, and yet the spiritual gain may be nothing. If Christ had shown Himself to Caiaphas after the Resurrection, he must have been convinced that this Man had indeed risen from the dead; but he would probably have wished, as in the case of Lazarus, to put Him again to death. Could that kind of conviction be called "Faith"? St. James says: "Thou believest that there is one God; thou doest well; the devils also believe and tremble. But wilt thou know, O vain man, that faith without works is dead?" To be intellectually convinced of the truth of the Christian revelation does not prove that our faith is a living reality.

## INTEREST SHOWN BY QUESTION.

If anyone you love does not feel quite sure of the truths which mean so much to you, do not be despairing or unhappy. To question these things may simply show an interest which is not easily satisfied. One who is utterly careless and indifferent is not troubled with doubts. On the other hand, to submit to doubt, without an earnest effort to find out the truth, is utter folly. These things are of more importance than anything else, and we dare not leave them unsettled, if truth can be found.

## DOUBTING THE MERCY AND JUSTICE OF GOD.

We can hardly wonder that some men find it hard to believe in a loving, all-powerful God, when they see the helpless and innocent trampled on by the strong and wicked year after year, century after century. Their very virtues stand in the way of their faith. "How can God be loving and just and yet allow such misery to go on?" they cry; and they take refuge from the impossible thought of an unjust God in the other impossible idea of a universe which is self-created and self-sustained. To know and love God is not necessarily to understand His ways. A child cannot always understand his father's dealings with him, but he can love and trust him through everything. So can men trust their Heavenly Father when once they have learned that His nature is love.

## SATISFYING THE REASON.

Let us consider how our Lord dealt with doubt. In the case of St. Thomas He gave clear, undoubted proof. That doubting disciple loved his Master and was willing to die for Him. His heart was already convinced, only his reason held back. To similar doubting disciples we too can supply "many infallible proofs." Read some of the splendidly-written books, defending Christianity, which are now so cheap that they are within everybody's reach. Then there is the great book of the Universe, which witnesses for God in clearest language. We have plenty of historical and scientific proof to satisfy anyone who is willing to serve God. The Bible is in itself a miracle. Study it and see. If the proofs in our hands are not sufficient, then remember the warning: "If they hear not Moses and the prophets, neither will they be persuaded, though one rose from the dead."

## OUR STRONGEST ARGUMENT.

There is another case on record of our Lord's way of dealing with doubt. John the Baptist was shut up in prison. This was particularly trying to a young, ardent man who had lived such an active open-air life. He had witnessed for the Messiah right loyally, and was left in helpless, hopeless inactivity, when a word from the Master he had so nobly served might have released him. The account which he heard in prison of the wonderful works

of Jesus of Nazareth only made things more inexplicable. If this prophet were indeed the Messiah, why should His faithful servant be left in prison? Was He powerless to help, or did He not care?

How many a puzzled soul has passed through a like experience, when an active life has been changed for one of helpless suffering. Was it any wonder that he sent his disciples, saying: "Art Thou He that should come, or do we look for another?" Some have thought that this message was only sent for the sake of the disciples; but there is no hint of such a thing in the account given, and the answer was certainly sent back to John himself. It is not surprising if he did begin to fear that this might not be the Messiah, although he was willing to take His own word for it. Being the man he was, he could not rest satisfied until he had found out the truth.

See what answer was given. The proof that Jesus was indeed the Christ was simply that He went on doing His every-day work of ministering to the sick and needy. The blind were given sight, the deaf were made to hear, the sick were given health, the dead restored to life, the poor and neglected were educated and helped, taught that God was their Father and men were their brothers. Is not that still the grand proof of Christianity? What other religion fills men with enthusiastic zeal for the good of others? It is still the mark of a true disciple of Christ that, like Him, they go about "doing good."

The strongest argument anyone can use to convince the world that Jesus is indeed the Christ is the one He used Himself. The power and influence of a loving, consistent, whole-hearted Christian life is almost magical. Live for Christ and others will be inspired to live for Him too. Good is as infectious as evil, if not more so, and far more powerful in its influence on others than arguments.

## HOPE.

## Now.

If you have a kind word—say it,  
Throbbing hearts soon sink to rest;  
If you owe a kindness—pay it,  
Life's sun hurries to the west.

Can you do a kind deed?—do it,  
From despair some soul to save,  
Bless each day as you pass through it,  
Marching onward to the grave.

If some grand thing for to-morrow  
You are dreaming—do it now;  
From the future do not borrow;  
Frost soon gathers on the brow.

Speak your word, perform your duty,  
Night is coming deep with rest;  
Stars will gleam with fadeless beauty,  
Grasses whisper o'er your breast.

Days for deeds are few, my brother,  
Then, to-day fulfil your vow;  
If you mean to help another,  
Do not dream it—do it now.

## Puzzles.

[The following prizes are offered every quarter, beginning with months of April, July and October: For answers to puzzles during each quarter—1st prize, \$1.50; 2nd, \$1.00; 3rd, 75c. For original puzzles—1st, \$1.00; 2nd, 75c; 3rd, 50c. This column is open to all who comply with the following rules: Puzzles must be original—that is, must not be copied from other papers; they must be written on one side only of paper, and sender's name signed to each puzzle; answers must accompany all original puzzles (preferably on separate paper). It is not necessary to write out puzzles to which you send answers—the number of puzzle and date of issue is sufficient. Partial answers will receive credit. Work intended for first issue of any month should reach Pakenham not later than the 15th of the month previous; that for second issue not later than the 5th of that month. Leave envelope open, mark "Printer's Copy" in one corner, and letter will come for one cent. Address all work to Miss Ada Armand, Pakenham, Ont.]

## 1—AUTHOR IN ACROSTIC.

The fly that once "through" Tara's halls  
Went buzzing sad and "lone,"  
Now has a "myriad" of friends,  
A "family" full grown;  
And when "old" Tara falls asleep  
On each "hot" summer day,  
They "prance" on his bald pate and dance  
"Ta-ra-ra-boom-de-aye." IKE ICICLE.

## 2—SOUTH AFRICAN CONUNDRUMS.

1—Why is Kruger a tiresome person?  
2—What place in South Africa reminds us of a birthday?  
3—What are the chief roads in South Africa?  
4—What woman figures very prominently in the war?  
5—What ambitious quadruped went with the Canadian contingent? IKE ICICLE.

## 3—DOUBLE ACROSTIC.

In "pheasants all colors out there in the kraal,  
In "Sir Redvers Buller" fighting in the Transvaal,  
In "Canada's" Regiment gone away there to fight,  
For we'll all help Old England if e'er she gets tight,  
In "heavy artillery" we're going to send  
Out with our contingent to make the Boers bend,  
In "cavalry" made up of mounted police,  
Cowboys and roughriders to help make the war cease,  
In "Germany," sending now and then a few troops,  
But our cruisers are watching  
For contraband—sloops,  
In "Pretoria," the capital,  
Which, if we once take it,  
We'll dethrone Mr. Kruger,  
And an English town make it,  
In "General White," that Ladysmith man,  
He's the fellow can fight,  
And the Boers know he can,  
In "Kruger's Dorp," where the raid was defeated,  
But when the war's o'er,  
Paul mayn't feel so conceited,  
In "Kitchener," chief of Lord Roberts' staff,  
When he charges the Boers,  
They will scatter like chaff  
In "the war" which we hope  
Will end very soon,  
Substituting Om Paul and giving us room,  
If you read me up and down,  
I'll wager you a dime  
You'll find what every farmer has  
To keep up with the present time. ROLLY.

## 4—ENIGMA.

Twice ten are six of us,  
Six are but three of us,  
Nine are but four of us,  
What can we possibly be?

Would you know more of us?  
Twelve are but six of us,  
Five are but four. Do you see? F. L. S.

## 5—CHARADE.

Close by the equator in old SECOND lived a beggar,  
Daily he did ramble through the streets,  
Carrying a TOTAL who in accents very meek  
Would beg for charity from everyone he'd meet.

In old Constantinople was this TOTAL educated,  
So in Turkish accent he would speak,  
"Give me a sol, give me a FIRST, Sir,  
Allah loves the cheerful giver, Allah loves the meek." IKE ICICLE.

## 6—CHARADE.

SECOND THIRD tell you all about it,  
Said the grizzly-whiskered man,  
For I've travelled through all Europe,  
From North Cape to Matapan,  
I've climbed the Eiffel Tower,  
And have basked on Parliament Green,  
Marched through the Arch of Triumph,  
And played checkers with the Queen,  
I have oft gazed at the TOTAL,  
I've drank from a German FIRST,  
And shouted for beer and lager  
Till the bar-maid said I'd burst. IKE ICICLE.

## 7—NUMERICAL.

Whole, a wise saying quoted by our good Uncle Tom.  
My 27, 11, 2, 28 is left.  
My 21, 23, 23, 9 is a piece of money.  
My 10, 5, 22, 4, 26 a funny fellow.  
My 12, 16, 14, 1, 6, 17 is used in wars.  
My 15, 24, 3, 18, 30 is what a braggart does.  
My 7, 19, 22, 8, 13, 20 are sorrowful. "ARRY 'AWKINS."

## 8—

1—An animal.  
2—A famous explorer.  
3—A breed of sheep.  
4—A kind of fowl.  
5—A boy's name.  
6—Is performed at school.  
7—A color.  
8—The frame of a ship.  
9—Is light. L. B. FORCE.

## 9—DOUBLE ACROSTIC.

Primals and finals will give two periods of time.  
(1) Want; (2) the mouth of a tube; (3) converting into steam;  
(4) to lengthen; (5) a note; (6) part of a sleigh; (7) to make plain;  
(8) not to forget. "ARRY 'AWKINS."

## 10—BEHEMMENT AND CURTAILMENT.

Great Britain's ONE in conquering the Transvaal far away,  
Defended by his mighty Boers so few,  
The Queen is very TWO, and the Daily Mail doth say,  
"THREE Lord R. is gone to see what he can do."  
So when he gets his men, and his guns begin to boom,  
FOUR we hope that he will conquer very soon. ROLLY.

## Answers to Jan. 1st Puzzles.

1—Athlete, rioters, ringers, yelling, artists, wearies, kinship, inking, notable, sincere—"Arry 'Awkins."

2—c o n t a i n  
o r i o l e  
n i e c e  
t o c e  
a l e  
i e  
n

3—Bay, bay, bey.

4—Gnu-toe—tongue; hawk-moat—tomahawk; tar-dews—steward; rat-bite—biretta; tag-fire—frigate; ling-paw—lap-wing.

5—Epergne, apostleship, razzia, latitudinarianism, Osmanli fulguraton, do, entertain, rudd, Bolivia Younkers, Earl of Derby, Epaminondas.

6—m u s i c  
u l t r a  
s t e a k  
i r a t e  
c a k e s

## SOLVERS TO JAN. 1ST PUZZLES.

"Rolly."

ADDITIONAL SOLVERS TO DEC. 1ST PUZZLES,  
M. R. G., J. McLean, Lizzie Conner.

## COUSINLY CHAT.

"Rolly."—You did not send due to your "wise sayings, you only sent the sayings. I am afraid that puzzle will take up rather much space, but send clue, and I will see.  
"Ike Icicle."—Very pleased to make your acquaintance, Ike. Fine weather for you just now. What do you do when the summer comes? Live in an ice-house, perhaps. Come often.  
"Arry 'Awkins."—Have not had anything from you lately. Make shorter puzzles, Arry, please, but don't stop by any means.  
F. L. S.—Your "connected squares" was returned as occupying too much space. The match puzzle was also returned as one known before, but this may be a mistake.

## PRIZEWINNING PUZZLERS.

The prizes for last quarter are awarded as follows:  
For original puzzles—1st, \$1, to F. L. Sawyer, Toronto; 2nd, 75 cents, to Henry Reeve, Toronto; 3rd, 50 cents, to Mary Nagle, West Huntley, Ont.  
For solutions—1st, \$1.50, to J. McLean, Kentville, N. S.; 2nd, \$1, to H. McQueen (Diana), Salem, Ont.; 3rd, 75 cents, to M. R. Griffith, London, Ont. "Rolly" and Essex were close competitors for original work, while Lizzie Conner, "Arry 'Awkins," "Kit," "Rolly" and J. F. Lunney followed close in the wake of the solvers. Hope you will all try again. UNCLE TOM.

## The Way of Binks.

"I have observed," quoth Dr. Wagger, "that Binks is going to the dogs." "No, not really," exclaimed Von Thicky, astonished. "Fact, I assure you," continued Dr. Wagger, unperturbably. "I just met him, and he was on his way to the Kennel Show."



UNCLE TOM'S DEPARTMENT.

MY DEAR NEPHEWS AND NIECES,—
"When life is more terrible than death, then it is the truest valor to dare to live."
Some time ago we promised to have a chat upon "courage." People differ widely in their views upon this subject, some maintaining that he who dares to do any deed, feeling no fear of the result, is a brave man; others (including myself) call such a man more reckless than truly brave.

It takes more real courage to be brave in the little things that pass by unnoticed, than to do some great deed that will place one's name on every person's tongue. Faber says: "It is no uncommon thing for a man who has resisted great temptations to fall into little ones. Whenever there is dignity in an action, we can the better brace ourselves up to it—self-love likes dignity, and will go through endless pain in order to obtain it."
My ideal brave boy does not fight just because some other fellow dares him to do it, and sneers and calls him "coward" if he does not accept the challenge; he does not fight because he believes it to be wrong, and he shows his manliness by bearing silently his comrade's taunts, rather than yield his principles. I do not like a milk-and-water fellow who would not be ready to strike a blow if he saw a bully ill-treating those weaker than himself—cowardly creatures known as bullies, rarely attack their equals—for the boy who is able and willing to defend himself and his weaker friends wins respect from all.

acknowledge his fault and bear the penalty rather than sneak out of it by prevarication. I might multiply instances, but to what avail? I have said sufficient to show my estimate of true valor, and will only give you one or two extracts from our poet friends, Lowell and Proctor.

"They are slaves who dare not speak
For the fallen and the weak;
They are slaves who will not choose
Hatred, scoffing, and abuse,
Rather than in silence shrink
From the truth they needs must think;
They are slaves who dare not be
In the right with two or three."

"Glorious it is to wear the crown
Of a deserved and pure success,
He who knows how to fall has won
A crown whose lustre is not less."

These tuneful measures may remain longer in your minds than the prosy remarks of your old uncle, and if they help to make even one of my readers more truly valiant, their mission, and my purpose, will have been accomplished.

Your loving, UNCLE TOM.

DISPERSION
CREDIT AUCTION SALE

Our entire herd of pure-bred Ayrshire cattle, Standard-bred stallions, brood mares, colts, and Tamworth swine, on
TUESDAY, FEB. 27TH, 1900.
at our farms, Orchard, Ont. Ten months' credit, or 6% per annum discount for cash. We are quitting farming and must sell. C. P. R. or Grand Trunk trains met if notified. Ask for catalogue.
CALDWELL BROS., ORCHARD, ONT.
"Briery Bank Farm."

For Sale

FOR A MAN WITH SOME CAPITAL
unsurpassed for mixed farming, only 10 miles from Whitewood, Assa.; one section and a quarter good land, with creek running through it; timber to last for years for building purposes and firewood; hay lands; house and stable improvements; all fenced with numerous cross fences; post office and school within a couple of miles; 100 acres broken and more available. A bargain. For further particulars apply to—
Box 143, Whitewood, Assa., N.-W.T.



For Sale:
NORMAN
Percheron
STALLION
(imported).

L. F. SPRAGUE,

on MOUNTAIN VIEW, P. E. COUNTY, ONT.
DAVID A. MACFARLANE, KELSO, P. Q.

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.

EXECUTOR'S SALE OF
Registered Shorthorn Cattle.

There will be sold by public auction, on lot 28, in the 8th con. of
SOUTH NORWICH, CO. OF OXFORD,
2 miles west of Springford, on
Wednesday, Feb. 14th, 1900,

22 registered Shorthorn cows and heifers, 1 registered Shorthorn bull, and 18 first-class grade cows, property of the late Ephraim Monk.
Catalogues will be mailed by
J. W. MONK, SPRINGFORD,
upon application.

Conveyances will meet trains at Springford and Tilsonburg.

S. J. Pearson & Son, Meadowvale, Ont., advertise in this issue a few young Shorthorn bulls and heifers, which are said to be a nice lot, and in good condition.

Cultivating and Harvesting Machinery.—The Frost & Wood Mfg. Co. have been in business since 1839, and have made a steady advance all the way along. They have won the confidence of the agricultural public by producing up-to-date machinery of substantial character. They have just issued their 1900 annual catalogue of binders, mowers, rakes, reapers, and all kinds of cultivating machinery and implements, which is so carefully prepared with description and illustration that a clear idea can be got from it of their output for the coming season. See their advertisement in this issue, and send to the Frost & Wood Co., Smith's Falls, Ont., for a catalogue.

A New Treatise, entitled "The Sheep," by Dr. William A. Rushworth, M. D. C. V. S., Inspector Bureau of Animal Industry, has just been issued by the Buffalo Review Co. It is a short and concise treatise on the sheep in general, and more particularly the diseases they are subject to, together with a sketch of the origin and history of the principal breeds, in the preparation of which the author acknowledges his obligations to Dr. A. S. Alexander, Professor of Hygiene and Breeding at the Chicago Veterinary College, for valuable assistance. A useful feature of the work is the appendix, containing a directory of American and Canadian sheep breeders, which is very full and complete to date. The book is extra well bound, and the presswork and illustrations are very creditable.

GOSSIP.

On page 76 of this issue, John Campbell, Fairview Farm, Woodville, Ont., offers for sale a young Clyde stallion, Fairview Darnley (2588), said to be of good size and quality, with legs, pasterns and feet of unusual excellence. His breeding is first-class. Sired by Imp. Craichmore Darnley (5667), a well-known winner in Canada and Scotland, a son of the famous show and stock stallion, Darnley (232). Dam Fairview Queen (2656), by Queen's Own (7176), champion in Canada and Madison Square Garden Show, New York City; he was by Prince of Wales (673), the great Scottish champion of world-wide fame. Grandam Imp. Culmain Lass (1915), winner of several premiums at leading Ontario fairs. In this promising young stallion is, therefore, found a combination of Scotland's best strains, as he has in him the Darnley-Prince of Wales cross, which has given the land of heather champions galore. Intending purchasers will do well to look up so inviting an offer.

THE SALE OF MR. BIRRELL'S SHORTHORNS, ETC.
In our advertising columns in this issue will be found an announcement of the auction sale on March 14, of the herd of Scotch-bred Shorthorn cattle and other stock and chattels belonging to the late Mr. John E. Birrell, of Mossboro, Ont. There will be 35 head of high-class registered Shorthorns in the sale, 23 females of various ages, from heifer calves to cows in calf or nursing calves, and 12 young bulls, mostly from one to two years old, of excellent breeding and quality and nicely fitted. We hope to give further particulars in future issues. In the meantime it will be well to keep the date in mind, and send for a catalogue of the stock.

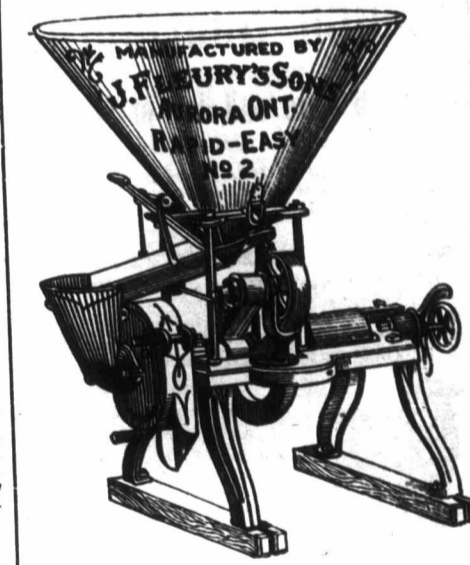
CLEARING SALE OF AYRSHIRES.
As will be seen by our advertising columns, Caldwell Bros., "Briery Bank Farm," Orchard, Ont., are closing out their entire herd of Ayrshire cattle, Standard-bred stallions, brood mares, and Tamworth pigs, as they are quitting farming and going to Manitoba in March. The herd was founded in 1887 by the purchase of the entire herd of A. P. Ball, Lee Farm, Rook Island, Que. No. 1 bulls have always been used on herd, such as Albion Chief 868, a son of that grand imported show cow, Maggie Brown of Barmoorhill, and sired by imported Royal Chief. The present stock bull is the famous Old Osborne 2425, grandson of the famous Old Osborne 2425, and sired by imported Royal Chief. The firm have never followed the big shows, but when any of their stock went they did fairly well. Ruby of Hickory Hill—3366—the heifer that won 13 first prizes in 13 shows in one year, at such fairs as Toronto, London, etc., was bred by them, and has since been sold to Hon. Thos. Greenway, Crystal City, Man. Also many others of equal merit. Write and ask for catalogue, and attend sale on Feb. 27th, 1900.

Toronto Markets.

Export Cattle.—Choice lots of export cattle sold at \$4.60 to \$4.85 per cwt., while light sold at \$4.25 to \$4.60.
Butchers' Cattle.—Loads of good butchers' and exporters' mixed sold at \$3.75 to \$4 per cwt.
Bulls.—A bull, bred and fed by Mr. R. Wales, of Carrick, weighing 2,000 lbs., was sold at \$5 per cwt. There was a fair trade in bulls at satisfactory prices, \$3 to \$3.50 per cwt. Heavy export bulls sold at \$4 to \$4.25 per cwt. Bulls for the byres sold at \$3.25 to \$3.50 per cwt.
Feeders.—There is continual enquiry for short-keep, well-bred steers weighing from 1,050 to 1,200 lbs.; they are worth from \$3.80 to \$4 per cwt. Also some enquiry for steers weighing 800 to 950 lbs. each, with prices firm, at \$3.40 to \$3.75 per cwt.
Stocks.—Yearling steers, 500 to 600 lbs. weight, in steady demand, at \$3 to \$3.25.
Sheep.—Prices steady, at \$3 to \$3.50 per cwt., the bulk selling at \$3.25 per cwt.; bucks sold at \$2.50 per cwt.
Lambs.—Prices firmer, at \$4.50 to \$4.75, the bulk selling at \$4.50 to \$4.70 per cwt.
Calves.—Very few good calves on offer. Prices steady on choice quality, at from \$5 to \$10 per head.
Milk Cows.—There were about 25 cows and springers on offer, at prices ranging from \$25 to \$50 per head.
Hogs.—Choice, \$1.75; thick fat, \$4.55; light, under 160 lbs., \$4.55; corn-fed, \$4.25; sows, \$3; stags, \$2; boars, \$1.
Dressed Hogs.—Prices firm, at \$5.50 to \$5.60 per cwt.
Eggs.—Scarce; in fair demand, at 17c. to 18c. per dozen. New-laid eggs at 25c. per dozen.
Butter.—Quoted at 19c. to 23c. per lb.; creamery, pound rolls and boxes, 25c. and 23c. per lb.
Seeds.—The market active and prices steady, as follows: Red clover, per bushel, \$6.50 to \$7; alsike, No. 2, \$5 to \$6; white clover, \$7 to \$8; timothy, \$1 to \$1.35.
Hides and Wool.—The prices of hides remain unchanged, with a disposition on the part of dealer to hold. No. 1 green steers, 10c. to 11c. per lb.; No. 2 green steers, 9c. to 9.5c.; No. 2 green cured, 9c. to 9.5c.; calfskins, No. 1, 10c. to 11c.; calfskins, No. 2, 8c. to 9c.; lambskins, each, 95c. to \$1; pools, each, 95c. to \$1; wool, fleece, 17c. to 20c.; wools, extra, 19c. to 20c.

IMPORTANT AUCTION SALE OF
Scotch-bred Shorthorn Cattle

RELONGING TO THE ESTATE OF THE
LATE MR. JOHN E. BIRRELL,
5 MILES FROM GUELPH, ONT.
AT MOSBORO STATION, G.T.R.
On Wednesday, March 14, 1900.
35 HEAD HIGH-CLASS SHORTHORNS
(REGISTERED).
23 FEMALES AND 12 YOUNG BULLS.
All Scotch bred or Scotch topped. 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. Catalogues will be ready about February 20th, and will be mailed on application to
DAVID BIRRELL, GREENWOOD, ONT.



YOU know the value of a Grinder—we need not tell you. Nor need we tell you here why it is the RAPID-EASY GRINDER. It will do more work with the same power than any other. That it is the point of interest (and profit) for you. That it does more work, therefore at less cost, is what the following letters really show. Then, we guarantee the Rapid-Easy Grinder to do as much for you as it is doing for these customers.

Walpole Station, Jan. 2nd, 1900.
I run the Grinder I got from you by a 10-horse power, using only four and six horses, and grind from 35 to 40 bags per hour of oats and from 30 to 25 bags of peas. I can recommend your Grinder as the best I have ever seen. A. G. WALFORD.
Newton Robinson, Jan. 4th, 1900.
I have run your Rapid-Easy Grinder now for over a year and can find no fault with it whatever. I have ground over a thousand bushels of grain, and used only two teams of horses. My neighbor, Mr. Fisher, bought one of these machines this fall, and I was over to help him grind. He is highly delighted with the grinder. Wm. WESTLAK.
Bordhead, Jan. 3rd, 1900.
Most of the time we have run the Rapid-Easy Grinder with two teams on a 10-horse power, doing first-class work in all kinds of grains, and having ground one thousand bushels without moving the plates. With two teams we can easily grind from 30 to 30 bushels per hour. CRAWFORD BROS.

On application we will send a beautiful lithographic hanger of the Rapid-Easy Grinder No. 2.
J. FLEURY'S SONS, AURORA, ONT.
Gold Medal for Plows, etc., at World's Fair, Chicago.

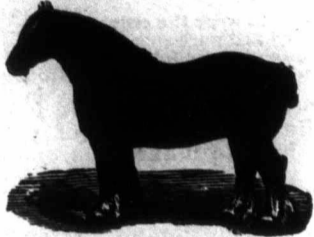
Simmers' SEEDS Grow
AND ARE ALWAYS
THE BEST THAT GROW.
SIMMERS' SEED ANNUAL FOR 1900 MAILED FREE.
A handsome New Book of 100 Pages—tells the plain truth about seeds—including rare novelties which cannot be had elsewhere. Gives practical information of real value to all who would raise the choicest Vegetables and most beautiful Flowers.
SEND FOR IT TO-DAY.
J. A. SIMMERS, Seed Merchant, Toronto, Canada.

Live Stock Breeders' Association Annual Meetings.
The dates fixed for the annual meetings in Toronto of the various associations named are as follows:
Tuesday, February 4th.—Holstein-Friesian Association of Canada, Albion Hotel, at 1 p. m.
Tuesday, February 4th.—Dominion Ayrshire Breeders' Association, at 2 p. m.
Tuesday, February 4th.—Dominion Short-horn Breeders' Association, 7.30 p. m., Albion Hotel.
Wednesday, February 7th.—Dominion Short-horn Breeders' Association, at 11 a. m. and 2 p. m.
Wednesday, February 7th.—Hackney Horse Society, 8 p. m., Albion Hotel.
Thursday, February 8th.—Shire Horse Association, 11 a. m., Albion Hotel.
Thursday, February 8th.—Clydesdale Horse Association, 3 p. m., Albion Hotel.
Thursday, February 8th.—Dominion Horse Breeders' Association, 6 p. m., Albion Hotel.
ROBT. NESS & SONS, HOWICK, QUE.
BREEDERS AND IMPORTERS OF
Clydesdale Horses & Ayrshire Cattle
Also the leading breeds of fowls for the farmers.



## 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 tests.

Terms reasonable.  
A visit to Thorncliffe will well repay you.

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

### Clydesdale Stallion

3 YEARS OLD IN MAY.

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

**JOHN CAMPBELL,**

FA'VIEW FARM. on WOODVILLE, ONT.

### DALGETY BROS.,

463 KING ST., LONDON, ONT.

"Largest Importers in Canada."

Third consignment this season of

### CLYDESDALE

stallions and mares will arrive about 25th this month (January), ages ranging from two to eight years, including several extra heavy ones. No exorbitant prices asked. Small profits and quick returns.

### A Few Durham Heifers

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

**A. J. C. SHAW & SONS,**

THAMESVILLE, ONT.

### SCOTCH SHORTHORN BULLS AND HEIFERS

HERD ESTABLISHED IN 1872.

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

**A. & D. BROWN,**

ELGIN COUNTY. on IONA, ONTARIO.

### JOHN DRYDEN.

BROOKLIN, ONTARIO.

BREEDER OF

### Scotch Shorthorns,

AND

### Choice Shropshire Sheep.

#### 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.

### Shorthorns and Leicesters.

Herd Established 1855.

A number of young bulls, cows and heifers for sale. Herd headed by imported Christopher 28839, and Duncan Stanley - 18364. Grand milking cows in herd. Also a number of Leicesters of both sexes, from imported foundation.

**JAMES DOUGLAS,**

CALEDONIA, ONT.

PLEASE MENTION FARMER'S ADVOCATE.

## ARTHUR JOHNSTON

Greenwood P. O. and Telegraph Office,



INDIAN CHIEF (17425)

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.,

on Pickering Station, G. T. R.

### HAWTHORN HERD

OF DEEP-MILKING SHORTHORNS.

We are offering 5 young bulls for sale, of first-class quality, and AI breeding.

on Wm. Grainger & Son, - London, Ont.

### 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.

on D. ALEXANDER, Bridgen, Ont.

### 4-SHORTHORN BULLS-4

For Sale.

From 5 to 15 months. A few young cows or heifers; color red; good pedigrees.

on JAMES BROWN, Thorold, Ont.

### Hillhurst Farm.

ESTABLISHED 1864.

## Scotch Shorthorns.

SIRE IN SERVICE:

### Scottish Hero and Joy of Morning.

BRED BY W. DUTHIE, COLLYNIE.

Oldest Stud of Hackneys in America.

Shropshire, Dorset Horn and Hampshire Down Sheep.

### M. H. COCHRANE,

Hillhurst Station, Compton Co., P. Q.

### 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.

### Scotch Shorthorns

FOR SALE.

100 head to select from; 23 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.

on T. DOUGLAS & SONS,

Strathroy Station and P. O.

Farm 1 mile north of the town.

### 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. on HAY, 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.

on GEORGE RAIKES, - BARRIE, ONT.

### 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.

on J. T. GIBSON,

DENFIELD, ONT.

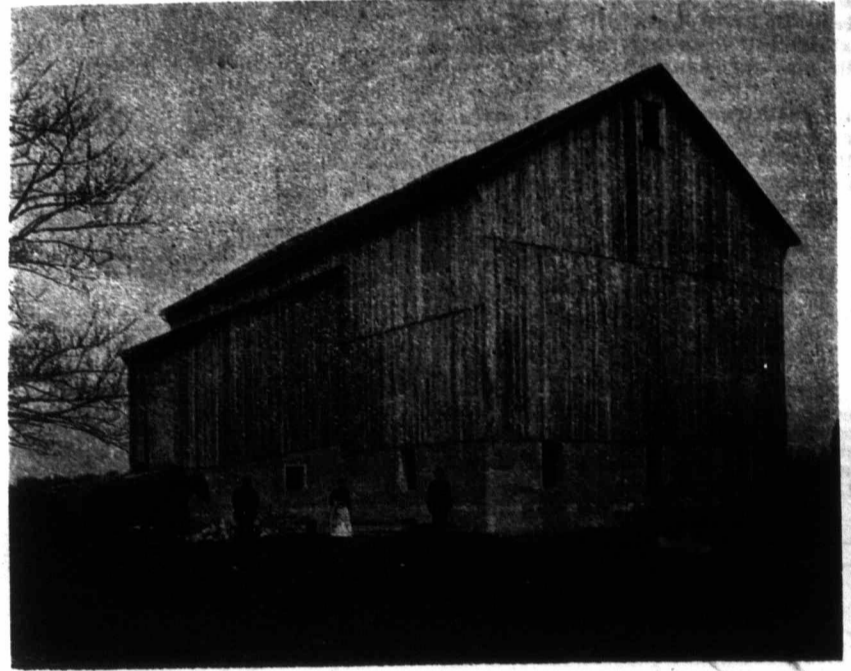
## THIS IS ANGUS MURRAY'S BARN.

SEE HIS FINE CEMENT CONCRETE WALLS  
BUILT WITH

# THOROLD CEMENT

AND THEN READ CAREFULLY HIS EXCELLENT TESTIMONIAL.

Size of Basement Walls, 46 x 76 x 10 feet high, with Root-house 14 x 26 feet.



## THIS IS WHAT MR. ANGUS MURRAY SAYS ABOUT THOROLD CEMENT:

Estate of John Battle, Thorold, Ont.:

DEAR SIRS,—It is with much pleasure that I testify to the good qualities of your Thorold Cement for building purposes. During the past summer I built a barn 46 x 76, with 14 x 26 root-house at the back walls, average 10 feet from bottom to top of wall. It took 81 barrels of Cement, and 45 days' work for one man. I have a much cheaper wall than if I had built of brick or stone.

The work was done under the management of your general agent and instructor, A. E. Hodger, a gentleman of whom you may be proud. He is a hard worker and a good manager, and a jovial fellow with his men, and I consider him a thorough master of the business. I intend to cement the floors next summer with your Thorold Cement. Ten days after the wall was finished I had the frame of the barn raised (24-foot posts and very heavy timbers), without any injury whatever to the wall.

My walls are here for inspection, two miles north of Drysdale, lake shore, Stanley Township. I recommend your Thorold Cement to anyone that intends building concrete.

November 14, 1899. on Yours truly, ANGUS MURRAY, Drysdale, 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 boars and sows of the very best breeding always on hand.

on J. W. Hartman

& SONS,

Elmhedge P.O., Ont.

### SPRING GROVE STOCK FARM

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

on T. E. ROBSON, Ilderton, Ont.

### Maple Lodge Stock Farm

ESTABLISHED 1854.

SHORTHORNS.—Exceptionally good young bulls by Caithness - 22065 = and Abbotsford - 19446 =. And choice heifers in calf to Abbotsford and our grand young imported bull, Knuckle Duster (72973). We have the best milking strains. LEICESTERS.

—The very best imported and home-bred rams and ewes for sale. Write us for prices.

on ALEX. W. SMITH,

MAPLE LODGE P. O., 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.

on Correspondence Invited.

### 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.

on G. & W. GIER, Grand Valley, Ont.

### SPRINGBANK FARM.

Shorthorn Cattle, Oxford Sheep, and Bronze Turkeys. Young bulls for sale.

on JAS. TOLTON, WALKERTON, ONT.

### SCOTCH SHORTHORNS.

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

on Shore Brothers,

White Oak, 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.

on Simcoe Co., SAMUEL DUNLOP,

Coldwater Station. Eady, Ont.

### SHORTHORNS

Two choice young bulls, 17 months old; also a number of young cows and heifers.

on A. P. 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.

on G. A. BRODIE,

STOUFFVILLE STATION, G. T. R., BETHESDA, 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.

on D. H. RUSSELL, Stouffville, Ont.

### SHORTHORNS and BERKSHIRES.

Choice young bulls and heifers for sale. Also Berkshire pigs of the most approved breeding. Meadowvale Station, C. P. R.

on S. J. PEARSON & SON, Meadowvale, Ont.

FOR SALE:

TWO CHOICE SHORTHORN BULLS.

on GAVIN BARROUR, Crosshill, Ont.



FOUNDED 1800

RN.

ENT

MONIAL.

ouse 14 x 26 feet.

OLD CEMENT:

our Thorold Cement for  
root-house at the back  
and 45 days' work for

uctor, A. E. Hodgert, a  
yer, and a jovial fellow  
cement the floors next  
the frame of the barn  
wall.

Stanley Township, I

DRAY, Drysdale, Ont.

N BULLS 8

Months.

ns, out of Bates-bred  
Lord Stanley 4th, twice  
ered Yorkshires later.

rand Valley, Ont.

K FARM.

Sheep, and Bronze Tur-

ALKERTON, ONT.

ORTHORNS.

ifers in calf to Golden  
nce young bulls.

rothers,

White Oak, Ont.

onable prices, for a short  
young registered

is and Heifers

growing condition.

MUEL DUNLOP,  
Eady, Ont.

HORNS

7 months old; also a  
d heifers.

N & SON,  
Appleby P. O., Ont.

n Bulls-25

Also a limited num-  
which are grand, thick-  
ed animals, mostly  
quick, for they will

A. BRODIE,  
BETHESDA, ONT.

STOCK FARM

ille Station, has for sale  
horn Bulls, yearling and  
Shropshire Lambs, both  
very moderate prices.

L. Stouffville, Ont.

BKSHIRES.

ifers for sale. Also Berk-  
oved breeding. Meadow-  
om

Meadowvale, Ont.

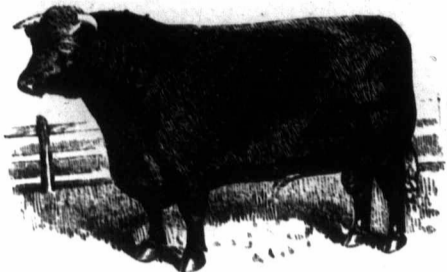
ALE:

ORTHORN BULLS.

Crosshill, Ont.

FEBRUARY 1, 1900

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



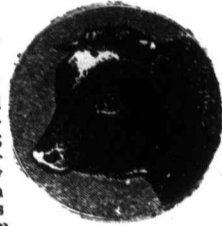
GOLDEN FARM (IMP.)—26056—(73610).

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.

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



**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 Wil-  
liam, now at head of herd.



**R. MITCHELL & SON,**  
Burlington Jct. Station, Nelson, Ont.

**Shorthorn Bulls  
and Heifers.**

Strongly tainted with the blood of the Crimson  
Flowers and Nonpareils, upon which have been em-  
ployed such sires as Indian Duke, Crimson Prince,  
etc. Write **John R. 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.

**Ingleside Herefords**

First prize herd and medals for best bull and  
best female, Toronto, London, Ottawa. Send  
for prices and illustrated catalogue.

**TAMWORTHS.**

Orders booked for spring pigs—pairs not  
akin. High quality and low prices.

**H. D. SMITH, COMPTON, QUE.**

**F. W. STONE ESTATE,**  
GUELPH, ONTARIO.

The first Hereford herd established in Canada by  
importations in 1859 of the best prizewinners of  
England, followed by repeated further importations,  
including winners of first prize at Royal Agricultural  
Show. Choice young Hereford Bulls for sale. Also  
McDougall's Sheep Dip and Cattle Wash, fresh im-  
ported, 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.

**Meadowbrook Jerseys, Tamworths.**

Bulls and Heifers for sale from herd that averaged  
\$63.10 per head for butter-fat alone last year. Sows  
that are bred and bears fit for service from first prize  
exhibition stock. **EDGAR SILCOX, Shelden.**

**GLEN ROUGE JERSEYS.**

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

**GOSSIP.**

N. M. Blain, Coldspring Farm, St. George,  
Ont., breeder of Tamworth swine, makes a  
change in his advertisement in this issue. His  
stock made a capital showing at the leading  
exhibitions in Canada last year, and are bred  
from first-class importations. Among recent  
sales, for which credit is mainly due to his  
advertisement in this paper, are the following:  
Boar, H. C. McAlphin, Aberfeldy; two sows,  
O. Collins, St. George; two sows, Samuel  
Lemon, Lynden; one sow, Joe Archer, Lynden,  
boar, D. H. Duckworth, Lynville.

**CHOICE NOVA SCOTIA AYRSHIRES.**

On another page in this issue will be found a  
good illustration of Myrnie—2065—, a repre-  
sentative Ayrshire cow in the high-class herd  
of Mr. C. A. Archibald, Bellevue Farm, Truro,  
N. S. Myrnie was the first-prize cow and  
sweepstakes female of the breed at the Pro-  
vincial Exhibition at Halifax in 1898 and 1899,  
and is a typical specimen of the up-to-date  
Ayrshire cow, carrying a large and well-  
balanced udder, with large and well-placed  
teats, and is proving a capital breeder as well  
as a heavy milker. She was bred by the late  
Mr. D. Morton, Hamilton, Ont., sired by Imp.  
Royal Chief, and out of Imp. Sprightly, and is  
nearly full sister to Mr. Stewart's first-prize  
cow, Jean Armour, and closely related to the  
other great cows which made the Morton herd  
so justly famous in its day. At the head of the  
herd stands the elegant young imported bull,  
Howie's Stamp of Hillhouse—3182—, calved in  
May, 1898; bred by Mr. James Howie, Hill-  
house, Kilmarnock, Scotland; sired by White  
Cockade of Nether Craig, by Cockie's Heir of  
Chapelton; dam Sally of Hillhouse, by Cock-  
a-Bendie of Drumjoan, and is thus own  
brother to the Scottish champion, Kohinoor.  
He was selected and imported early in 1899 for  
Mr. Archibald by that careful and discrimina-  
ting judge, Mr. F. S. Peer, of Mt. Morris,  
N. Y., and won the first prize and sweepstakes  
in his class at the Provincial Exhibitions of  
New Brunswick and Nova Scotia, at St. John  
and Halifax, 1899, and headed Mr. Archibald's  
first-prize herd at the latter show. He is a  
model Ayrshire bull of the most modern,  
approved type, stylish and substantial and full  
of quality, virtues which he has inherited  
through a long line of prize-winning ancestors,  
and which constitute him one of the most  
valuable bulls—if not the most valuable—of the  
breed in America to-day. In the same impor-  
tation, and from the same herd, there came  
out for Mr. Archibald the beautiful yearling  
heifer, Gipsy Girl of Hillhouse—3183—, by  
Traveller's Heir of Holehouse, by Traveller of  
Drumjoan, dam Gipsy of Hillhouse, by Cock-  
a-Bendie. She won second prize at the Pro-  
vincial Show at Halifax, being beaten only by  
Mr. Archibald's own fair Girta of Truro, bred  
by himself, and sired by his excellent stock  
bull, Imp. Hoover of Maple Grove—2311—, by  
Hoover's Heir of Southwick, dam Imp. Eva 2nd  
of Southwick, winner of first prize at the Pro-  
vincial Fair at St. John, N. B., 1899. The limits  
of space forbid further reference to other  
meritorious members of this exceptionally  
strong herd, which is decidedly a credit to its  
enterprising owner, as well as to the Province  
in which it is located, and which must exercise  
a powerful influence for good in a country so  
largely devoted to dairying.

**FOR  
Aberdeen-Angus Cattle**

of any age  
or sex, or  
Dorset  
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.**

**\$200 Do you want a Snap? \$200**  
Now is your Chance.

One good Jersey cow, 7 years old; one good Jersey  
heifer, 3 years old; and one bull, 3 years old; or, if  
preferred, a good yearling bull. All registered in the  
A. J. C. C. Both cows due to calve soon (in calf to  
Handsome Kicker, 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.**

**Jersey Cattle**

THAT WILL PUT  
**MONEY IN YOUR POCKET.**

**Mrs. E. M. Jones,**  
Box 324. **BROCKVILLE, ONT., CAN.**

**Deschenes Jersey Herd.**

HEADED BY IDA'S ROYER OF ST. LAMBERT 47570.  
4 young bulls fit for service—regis-  
tered. Also Tamworth swine from  
diploma herd, Canada Central Fair,  
Ottawa, 1898.

**R. & W. CONROY,**  
DESCHENES MILLS, QUEBEC.

**BRAMPTON JERSEY HERD.**

Brampton's Monarch  
(imported), Canada's cham-  
pion bull, 1898, heads the  
herd, which numbers 75  
head. Now for sale, high-  
class cows and heifers in  
calf, heifer calves, and 6  
extra choice young bulls, sired by Monarch, the best  
we ever saw. They are from tested show cows. A  
few high-grade springers.  
**B. H. BULL & SON, BRAMPTON, ONT.**

Maple offers **Holsteins** of all ages,  
of the very richest  
breeding, and  
choicest individuality, at prices  
within the reach of all.  
For prices and description, write  
to **H. HOLLERT, Cassel, Ont.**

**10 Imported Shorthorn Bulls**  
ALL SCOTCH.

**21**  
IMPORTED  
HEIFERS.  
ALL SCOTCH.



ROYAL MEMBER (94741)

**21**  
IMPORTED  
HEIFERS.  
ALL SCOTCH.

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.

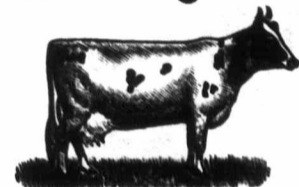
**H. CARGILL & SON, CARGILL, ONT.**  
Cargill Station and Post Office on G. T. R., within half a mile of barns.

**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, Mysles, Beauties, Lady  
Mays, Lustres, etc. The home-bred herd contains Indian Statesman—2904—, 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. Corre-  
spondence or a personal visit solicited. Catalogues on application.

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

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



**HEADQUARTERS for UP-TO-DATE STOCK**

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

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

**Pure-bred Ayrshire Imported Cattle.**

LARGEST AND MOST  
EXPENSIVE IMPOR-  
TATION IN AMERICA.



Bred for the dairy, with grand constitution, and  
champion prize records awarded them in Scot-  
land and England. Sweepstakes herd, Montreal,  
Toronto, London, and Ottawa, in 1897; also To-  
ronto, 1899. Awarded four years in succession herd  
prize at Ottawa's great exhibition, and special  
gold medal; at Montreal, herd prize and W. W.  
Ogilvie's special \$100.00 prize. Their individual  
prize records are of the same distinguished honors  
of their exhibition career. Stock all ages for sale  
and at prices in reach of all.

**Maple Grove R. G. STEACY,**  
Ayrshire Stock Farm Importer and Breeder,  
LYN, ONT. **Brockville, Ont.**  
Line G. T. R. **Box 720.**

**FOR SALE:**  
**Sir Pietertje Burkey DeKol**

THE 13 MO. HOLSTEIN BULL  
His dam, Helena DeKol's DeKol, tested officially  
368 lbs. 104 oz. milk and 12 lbs. 7 oz.  
butter in 7 days as a 2-year-old. Also Sir  
Pietertje's Pride, calved last March. Both bulls in  
prime breeding form. Maggie Keys and other  
good ones in the herd. Correspondence solicited.  
**A. D. FOSTER, HOLLOWAY, ONT.**

**Maple Glen Stock Farm.**

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

**MAPLE HILL HOLSTEIN-FRIESIANS**

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

**OH, YES!** We sell Holsteins, singly or a car-  
load. For sale now—7 bulls, over  
1 year; 7 calves, over 1 month; 15  
females, any age desired, bred to any one of our  
great bulls, Calamity Jane's Paul, Homestead Albino  
De Kol, Count Calamity Clay, three of the greatest  
bulls in America. State just what you want.  
**A. & G. RICE,**  
Oxford Co., Ont. **Currie's Crossing.**

**PLEASE MENTION FARMER'S ADVOCATE.**

**The Big 4 at Brookside**

**THEIR HOLSTEINS:**  
Netherland Hengerveld . . . Official test, 26.66 lbs.  
DeKol 2nd . . . " " 26.57 "  
Belle Korndyke . . . " " 25.77 "  
Helena Burke . . . " " 25.45 "

We want to sell 40 cows and heifers, and 20 young  
bulls, bred in the lines above mentioned. Write,  
stating exactly what you want.  
**Henry Stevens & Sons, Lacona, N. Y.**

**LYNNFIELD HOLSTEIN HERD.**

**WE HAVE PURCHASED**

a stock farm at Lynn, Ont., where we have re-  
moved our famous herd of Holsteins. We  
can give you a special bargain in the 9-month-  
old heifer, "Jone Jewel Sylvia," winner of 4th  
prize in a large class at Toronto this year.  
If you want choice cows, two-year-old heifers,  
or heifer calves, write or visit us.  
**C. M. KEELER, Lynn, Ont.**

**FOR SALE:**

**THE ROYALLY-BRED YOUNG HOLSTEIN BULLS,**  
**Regulator and Adjustor DeKol,**

combining in their pedigrees such noted strains as  
Hartog, DeKol, Pietertje, Inka and Jesse,  
and sired by Manor DeKol's Prince, a son of the  
noted Manor DeKol, with their long list of official  
records. Both straight, strong, good bulls.  
**JAS. A. CASKEY, MADOC, ONT.**

**Ayrshire Cattle and Berkshire Pigs.**

The bull Tom Brown and the heifer White  
Floss, winners of sweepstakes at World's Fair,  
were bred from this herd. Young stock for  
sale. Also Leicester sheep & Berkshire swine.  
**D. BENNING & SON,**  
Glenhurst Farm, Williamstown, Ont.

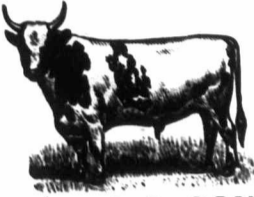


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Stop your cows kicking, increase the flow of milk by the use of  
**SORE TEAT SALVE.**  
Positively prevents chapped teats, warts, and caked bag or udder. Price, 25c., 50c., and \$1. per tin.  
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443 Bathurst St., TORONTO.

**FOR SALE: A NUMBER OF  
Choice Ayrshire Bulls**  
THE IMP. Jock Morton.

A few young bulls fit for service, and bull calves under a year. Also a few heifers and heifer calves. Barred Rock, Black Spanish and Black Minorcas fowls, and Cayuga and Rouen ducks.  
**JAS. McCORMACK & SON,**  
ROCKTON, ONTARIO.



**WM. WYLIE, 228 BLEURY ST., MON-TRÉAL, OR HOWICK, P.Q.,**  
Breeder of high-class Ayrshires. Young stock always for sale; bred from the choicest strains procurable. Breeding stock selected from the most fashionable strains and prizewinning stock of the day. Farm located at Howick, Que. 5-1-3-0



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

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

**Choice Ayrshires**  
Herd now headed by first-prize bull at Toronto and London. Females of all ages for sale. Choice stock at fair prices. Poultry: L. Brahmas, Buff and W. Cochins, Black Minorcas, B. P. Rocks, from \$1.00 to \$3.50 each. For particulars write  
**WILLIAM THORN, "Trout Run Stock Farm,"**  
Lynedoch, Ont., Norfolk Co.

**FOR SALE.**  
1 Three-year-old Ayrshire Bull; 4 Ayrshire Bulls, one year old; 3 Ayrshire Bulls, 8 months old; Bulls 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. YUILL & SONS, Props., Carleton Place.**

**Ayrshire Bull Calves of 1899**  
3 YET on hand, and more to come within the next month, from some of our best imported cows. Will sell at reasonable prices. Address:  
**ROBT. HUNTER,**  
Manager to W. W. Ogilvie. LACHINE RAPIDS, QUE.

**Maple Cliff Dairy and Stock Farm**  
Ayrshires and Tamworths for Sale:  
1 yearling and 5 fall calves, and a number of heifers. Five Tamworth boars, fit for service, and 40 fall pigs.  
**R. Reid & Co., - Hintonburg, Ontario.**

**1 YEARLING AYRSHIRE BULL** For sale. Also 4 Bull Calves (spring, 1899, sired by Douglas of Loudoun, and out of dams descended from imported Red Rose.  
**F. W. TAYLOR,**  
Wellman's Corners, Ont.

**For Sale:** Six Ayrshire bulls, ranging from 5 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 1233; females upon Princess of Menie 337 and Jess 2105 foundation. Straight, strong, typical animals. Oxford sheep, Berkshire pigs, and Black Java fowls.  
**H. J. WHITAKER & SONS,**  
Dundas Co. - North Williamsburg, Ont.

**AYRSHIRE BULL** COLLEGE CHIEF 2364, dam Oshawa Lass 111 1782, sired by Lord Derby 1150, bred by Thos. Guy, Oshawa; calved July 12, 1897, the property of O. A. College. Present owner, S. P. ZAVITZ, Goldstream P.O., Ont. Lot 8, con. 10, Lobb.

**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 hardiness of constitution adapted to all climates, whilst in the quality of  
**MUTTON AND LARGE PROPORTION OF LEAN MEAT IT IS UNSURPASSED.**  
Full information of  
**JAMES E. RAWLENCE,**  
Secretary, Hampshire Down Sheep Breeders' Association,  
SALISBURY, ENGLAND.

**W. W. Chapman,**  
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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 that 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.

**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.

**J. E. CASSWELL,** Laughton, 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. Ram and ewe hoggs were all sold for exportation. Telegrams: "Casswell, Folkingham, Eng." Station: Billingboro, G. N. R.

**HENRY DUNNING, RIBY GROVE, GREAT GRIMSBY, LINCOLNSHIRE,** has always for inspection and sale from the largest and most noted flock of pure Lincoln Longwool Sheep in the country, both Rams and Ewes of all ages. Representative specimens from this flock have secured for many years past at the Royal Shows champion and other prizes; whilst they have also at both the Paris Exhibitions, Vienna, Amsterdam, Chicago, Palermo, secured champion awards, and at all the leading shows in Australia, New Zealand, Canada, and the States. Riby sheep and their descendants have secured the highest honors. Wool is a leading feature in the flock, its quality being amply testified by the fact that wherever exhibited it has each time secured the premier prize including that at Windsor in 1889. The record of its careful breeding and consistent success is world-wide, and the present members of the flock are fully equal to any that have preceded them during the past 130 years in which it has been in existence, descending from father to son without dispersal. The flock holds the record for the highest price of 1898 (i. e., 1,000 gs.), and for the highest recorded average for an auction sale of fifty-two rams (i. e., £86 13s.) at the annual sale in July, 1898. A grand selection of yearling and other sheep on offer, sired by the most carefully selected sires obtainable, in which are contained all the best strains of the present day. Next annual sale, July 21th, 1900. Telegrams: "Dunning, Keelby."

**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.

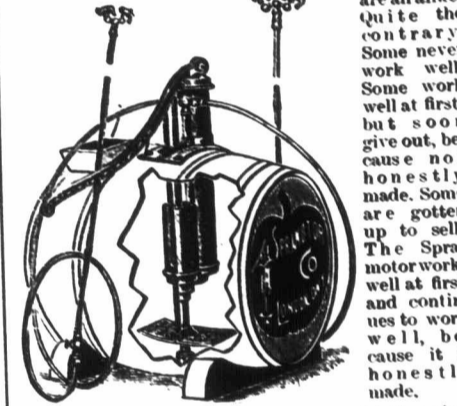
**Summer Hill Herd**  
HEADQUARTERS FOR THE IDEAL BACON HOG.



The largest herd of pedigreed Yorkshires of the large English type in Canada. Purity of breed, size, and general excellence is my motto. One hundred awards with one hundred and five exhibits at 7 shows in 1898. A choice selection of young boars and sows of all ages for sale; also boars fit for service, and pregnant sows. Fifty breeding sows, of which 25 (twenty-five) are imported; also three imported and two Canadian-bred stock boars, first prize at Toronto in 1898-99. Express charges prepaid. All stock carefully shipped and guaranteed as described. Telephone, Millgrove, Ont. Telegraph 254 Bay St. S., Hamilton, Ont.  
**D. C. FLATT, MILLGROVE, ONT.**

**NO REPAIRING**  
of fence where the Page Woven Wire is used. Page fence is made of a wire made especially for us, which does not break, stretch or rust. Our standard fence is five feet high and woven so close that stock can't get through or over it. And you can buy it for less money than you may think. Better look into it.  
**THE PAGE WIRE FENCE CO. (LTD)**  
Walkerville, Ont.

**Don't imagine that Spraying Apparatus**



We guarantee our machines in every detail against all defects that may arise, and our guarantee is good. We can satisfy you in this point. We could not afford to do this unless we did our work well. All we ask is that the Spramotor be given reasonable care. We will tell you all about these things if you write us. A 76-page copyrighted treatise on the diseases affecting fruit trees and their remedies, for the asking. We pay the postage. Address:  
**SPRAMOTOR CO.,**  
68-70 King St., LONDON, CAN.  
Agents wanted. Mention this paper.

**SHROPSHIRE SHEEP AND COLLIE DOGS.**  
200 Bronze Turkeys, the Farmers' Daughter strain. 100 White Holland Turkeys.  
**W. H. BEATTIE,** Wilton Grove, Ont.

**Shropshire Sheep.**  
Shorthorn Cattle, Tamworth Hogs, American Bronze Turkeys.  
40 Ewes imported in November last, in lamb to red SHORTHORN BULL, 9 months old, by a grandson of Abbottsford. A dozen young BRONZE GOBBLETS, weighing 23 to 25 lbs.  
**W. S. HAWKSHAW & SONS, GIANWORTH, 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.

**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.

**PLEASE MENTION FARMER'S ADVOCATE.**

**LARGE ENGLISH BERKSHIRES.**



Herd headed by five first-prize boars of large size and fine quality. Twenty-five young sows and ten boars for sale, bred from prizewinners. Pairs supplied not akin.  
**GEORGE GREEN, - FAIRVIEW P.O., ONT.**  
Telegraph and Station: Stratford, G. T. R.

**ENGLISH BERKSHIRES.**  
FOR SALE at moderate prices: Two stock boars, 2 yearling sows, and a lot of spring sows, also a few choice Shorthorn heifer calves.  
**JOHN RACEY, Jr., - Lennoxville, Que.**

**Large English Berkshires.**  
HERD headed by two imported first-prize boars. Young boars and sows from imp. prizewinning sires and dams. Write for prices.  
**H. BENNETT & SON, St. Williams, Ont.**

**Berkshires and Tamworths**  
My Berkshires were founded upon Snell, Teasdale, Coxworth and Dorrance selections, with Varna Duke and Manor Lad, the second-prize boar at Toronto last fall, standing at the head of my herd. My Tamworths have the blood of imported Nimrod, Middleton Minimus, 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.

**W. R. BOWMAN,** MT. FOREST, ONT.  
Is offering

**10 Choice Yorkshire Boars,**  
Weighing over 200 lbs., at \$10.00 each, if taken by February 1st. Also a  
**Choice Lot of Brood Sows.**

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

**Yorkshires** From Brethour and Flatt, carrying Cindarella and Haskett blood. **Berkshires** From Snell and Cox. **Tamworths** From George Lint with Baron Tamworths foundation, and tracing direct to English-bred animals and showing winners. Young stock for sale.  
**T. J. COLE, Bowmanville, Ont.**

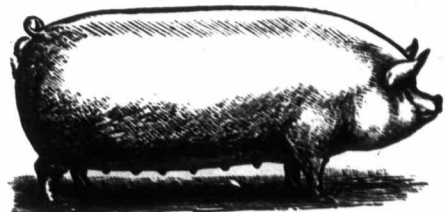
**Barred Rocks and Golden Wyandottes.**  
A few fine healthy cockerels and pullets for sale. Prices right. Write  
**JAS. ROW, AVON, ONT.**

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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.

Brethour & Saunders, Barford, Ont., Can.

WOODSTOCK

Yorkshires, Berkshires, Shorthorns



40 head of improved White Yorkshires

YORKSHIRES AND HOLSTEINS

Boars and sows, not kin, from 2 to 6 months, from prizewinners at Toronto and local shows.

R. HONEY, Warkworth, Ont.

NORTH BRUCE HERD

Improved Large Yorkshires.

Boars fit for service, sows ready to breed, and young stock ready to ship, for sale.

WM. HOWE, Pt. Elgin St., G. T. R.

Springridge Poland-Chinas

Now offering the 3-year-old sire, Blackmoore, and a few of his young females, and a few of his young males, and a lot of 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.

DUROC-JERSEY SWINE.

We have a fine lot of First-Class Stock of all ages and either sex. Address, on TAPE BROS., Ridgetown, Ont.

REGISTERED CHESTER WHITE PIGS.

Eight weeks old, at \$5.00 each. Prizewinning Shorthorn and Jersey bull calves. Prices reasonable.

F. BIRDSALL & SON, BIRDSALL, ONT.

Brood Sows.

and Shorthorns.

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.

H. GEORGE & SONS, Crampton P.O., Ont.

TAMWORTHS AND POULTRY. Pigs of both sex. Also Silver and White Wyandottes, White Rocks, Hamburgs and Leghorn cockerels, Pekin and Rouen ducks, and 2 Embden males. Prices reasonable.

R. J. & A. LAURIE, Wolverton, Ont.

PLEASE MENTION FARMER'S ADVOCATE.

Are You on a Dead Center? Are you at a standstill like the driving shaft of an engine when its force is all exerted against the axle? A start in the right direction will enable you to use the power you possess so as to do more valuable work, and gain a higher salary.

GOLDSRING HERD TAMWORTHS. Sweepstakes herd at Toronto and sweepstakes sow at O. F. S. Show in 1899, were bred at Goldspring 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, Goldspring Farm, St. George, Ont.

A Few Young BOARS yet for sale at a bargain; also two young sows (due to farrow about Jan. 20), one of them out of the same litter as the first prize (dressed carcass) Chester Whites at the Provincial Fat Stock Show, which dressed 52 pounds per 100 pounds live weight—the highest in the show. Also Dorset and Shropshire sheep. For particulars write to R. H. HARDING, THORNDALE, ONT., Mapleview Farm.

Spring Brook Herd of Tamworths. Great opportunity for choice stock. A number of choice young pigs sired by British King, first prize Toronto Industrial, 1899, and also by Royal winner, Whitacre Crystal. Pairs and trios not akin. Now is your time. Send for catalogue. Stock of all ages for sale. A. C. HALLMAN, NEW DUNDEE, ONT.

Tamworth Boars and Sows. Descended from the noted strains of (Imp.) Nimrod, Oak Hill Hugo, Countess, and Whitacre Prince; all ages. Also Berkshires, Baron Lee 4th strain, 6 weeks old. Satisfaction guaranteed. D. J. GIBSON, Bowmanville, Ont.

Tams, for Sale. Aged boar, Spruce Grove Model 707; one young boar; one March sow, bred to Starlight (imp.); 12 boars and sows 2 to 4 months, sired by Starlight (imp.), at reduced prices. JOHN HORD & SON, Parkhill, Ont.

Bargain Days in Tamworths and Yorkshires. For next 30 days we are going to sell our surplus stock of Tamworths and Yorkshires at very low prices to make room for young litters. They include half a dozen Tamworth Boars from 5 to 12 months old, most all prizewinners. Some grand sows. Also half a dozen Yorkshire Boars and Sows; all of excellent quality and breeding. Write us for prices and particulars at once. 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.

TAMWORTHS. One extra good yearling boar by Amber Luther. Boars and sows ready to mate, and fall pigs (pairs not akin). J. C. NICHOL, HUBREY P. O., ONT.

Chatham HERD OF Tamworths. I two-year-old boar, and some splendid pigs 3 months old, by Whiteacre 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 to 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 sweepstakes sow. Also a choice bunch of splendid, strong, well-covered Cotswold Lambs. R. O. MORROW, Hilton, Ont.

PLEASE MENTION FARMER'S ADVOCATE.

GOSSIP.

W. E. Wright, of Glanworth, Ont., reports that the demand for Shropshire sheep has been very good this fall, having made the following sales recently: One ram lamb to E. E. Beach, Brighton, Michigan; five shearing rams and one ram lamb to L. J. Fargo, Ashtabula, Ohio; three shearing rams and one ram lamb to A. O. Fox, Wisconsin; one aged ram and one shearing ram to W. J. Boynton, Rochester, Minn.; eleven shearing ewes to W. H. Beattie, Wilton Grove, Ont.; six breeding ewes to W. J. Weir, Cramlin, Ont.; one ram lamb to Thos. Nowbigging, Attwood, Ont.; one ram lamb to James Murray, Hubrey P. O., Ont.; one ram lamb to Henry Best, Corinth; one aged ram to Adam Nichol, Glanworth, Ont.; two breeding ewes to Donald Nequhart, Hagersburg, Ont.; two ewe lambs to Ed. Butler, Dereham, Ont.; he having purchased them for a breeder in British Columbia; ten ram lambs to Capt. T. E. Robinson, Iderton, Ont., for Mr. Ladd, of Oregon. In Mammoth Bronze turkeys Mr. Wright has also been very successful, raising some 30 turkeys. Exhibiting at the Western Fair, London, he won first prize on young gobblers, and also first prize on young pullets, beating the Toronto Fair winners; he also won two first prizes at the Ottawa Fair. The demand for Mammoth Bronze turkeys has been very brisk this season, but has twenty left for sale. They are a good, strong-boned lot. Young Toms, weighing from twenty to twenty-five pounds; pullets, from fourteen to eighteen pounds.

A STRONG HERD OF HOLSTEINS.

Prominent among the best herds of Holstein-Friesian cattle in the Maritime Provinces is that of Mr. D. W. McKenzie, of Nerepis Station, N. B., a herd that would rank high in comparison with any in the Dominion in uniformity of type and high-class quality, combined with all the indications of utility in a high degree. It is seldom, indeed, that a herd is found with such uniformly good handling quality and color of skin, and such satisfactory dairy conformation, being short-legged, deep-bodied, and showing strong constitution and vitality, together with good feeding qualities, and shapely and well-balanced milk vessels. As evidence of the character of the herd, it may be stated that Mr. McKenzie exhibited at the Provincial Exhibitions in St. John and Halifax, last September, fifteen head of his thoroughbred Holsteins, every one of his own breeding and raising (except one that was bought when it was nine months old), capturing ten first, eight second, six third, and three fourth prizes. The cow, Electra, whose portrait is given on another page in this issue, is a fair type of the whole herd. She captured two first prizes and second prize, with her dam, half sister, in the sweepstakes as best female any age in St. John. She also, captured the first herd prize in her own right, and second in Halifax. Another daughter, half sister, and two grand-daughters captured first prize for breeder's young herd in Halifax, and second in St. John. Mr. McKenzie has put at the head of his herd the well-bred young bull, Winnie Wins De Kol No. 25617, A. H. F. H. B., that he thinks will give a good bull.

WM. STEWART & SON'S AYRSHIRES, POULTRY AND SCOTCH COLLIE DOGS.

An excellent reproduction of a photograph of the typical young Ayrshire cow, Lady Ottawa, winner of first prize at the Toronto, London, and Ottawa Exhibitions in 1899 as a 3-year-old. She is a daughter of the well-known prize cow, Jean Armour, also owned by the same firm—first at London and second at Ottawa last year—and is an excellent model of the modern type of Ayrshire cows, combining beauty and utility in a high degree. Jean Armour was bred by the late D. Morton, Hamilton, and was by Imp. Royal Chief—75—, and out of Imp. Sprightly—1206—. The sire of Lady Ottawa was Donald—1718—, also bred by Mr. Morton, sired by Imp. Monarch, at the head of the Menie herd in Glanworth of Burnside 8153, by Imp. Glencairn of Maple Grove, and out of Imp. Baby Ruth. A grand lot of young stock sired by this bull is now in the herd, and several of his get scored high in the prize list at the fairs last year, as well as those by the former stock bull, Dainty Lad of Elmshade, whose progeny won for Messrs. Stewart the first prize for 4 animals, the get of one sire, at the Toronto Exhibition, 1899. This firm also breed a great variety of pure-bred fowl and high-class collie dogs. See their new advertisement, and write them for prices.

Horse Breeders' Meeting.

The 13th annual meeting of the Dominion Horse Breeders' Association was held in Clinton, Ont., on Dec. 13th. The reports of the Secretary and Treasurer show a perceptible increase in the work of the Society, and the funds in the bank reach \$900, with no liabilities. It was decided to ask the Superintendent of Farmers' Institutes to have placed on the list of speakers at Institute meetings persons to discuss and advocate the question of draft horse breeding, also to urge the Minister of Agriculture to secure for registered horses the same transportation rates and privileges as are accorded other registered stock. It was decided again that foreign-bred animals from other stock registered with the Society can only be registered as "produce" without a number, and in the case of animals in other Provinces, the pedigrees must be attested to by sworn declaration. The following delegates were appointed: To Canadian Horse Breeders' Association, Jas. Henderson and Alex. Innes; to Western Fair, D. McIntosh and J. E. Black; to Industrial Fair, John McMillan and D. McIntosh. The following were recommended to the several fairs as competent judges on draft horses:—D. McIntosh, Jas. McDiarmid, James Henderson, C. E. Mason, Alex. Innes, P. McGregor, J. E. Black, D. M. Cole, and Thomas Green. A committee was appointed to select a number of the best animals registered with the Society, which are to be photographed for publication and presentation to Agricultural Colleges. Officers elected:—President, Jas. McMillan, Constance; Vice-President, D. McIntosh, V. S. Brucefield; Secretary, Jas. Mitchell, Goderich; Treasurer, P. McGregor, Brucefield.

NO crop can grow without Potash.

Every blade of Grass, every grain of Corn, all Fruits and Vegetables must have it. If enough is supplied you can count on a full crop—if too little, the growth will be "scrubby."



Send for our books telling all about composition of fertilizers best adapted for all crops. They cost you nothing.

GERMAN KALI WORKS, 93 Nassau St., New York.

TAMWORTH BOARS AND SOWS

From Elliott, Bell and Nourse foundation. A choice bunch of Shropshire Ram Lambs for fall delivery; extra well covered; imported foundation.

CHAS. LAWRENCE, Collingwood, Ont.

Bronze, Narragansett TURKEYS.

and White Holland Also Pekin Ducks and Embden Geese; all of best strains. A number of fine collie pups and Oxford sheep on hand. ANDREW ELLIOT, POND MILLS, ONT.

Eggs.

Rose-Combed Buff Orpingtons

GRAND layers and table birds. Mine are the finest strain in England; four unrelated pens. Eggs from first pen containing cockerel 1st and special prize Buff Orpington Show, and pullet 1st and special at same show, and other first-class pullets. 21s. per setting. Other pens which contain prize cockerels, 10s. 6d. per setting.

T. G. BINNEY, Houghton Green, Plyden, Sussex, Eng.

EGGS.

It pays to get the best. We have them in L. and D. Brahmas, B. and W. Rocks, W. Wyandottes, Black Minorcas, and Indian Game, at \$1.25 per setting.

JACOB B. SNIDER, German Mills.

Barred Plymouth Rocks

Cockerels and Pullets, large, strong-boned, robust, healthy birds, well barred and bred from a pen of 24 selected hens, and my imported cock, "National Strain." For prices write

W. C. SHEARER, BRIGHT, ONT.

FOR SALE: Buff Rock cockerels (Bardeck & Scott), \$2; Barred Rock cockerels, \$1; 2 Pekin ducks (eggs from Rankin), \$3; 3 Rouen ducks, \$3.50, or will exchange for Toulouse geese, Bronze turkey hen, Buff or White Leghorns. All are good birds. Robt Steven, Petrolia, Ont.

Mammoth Bronze Turkeys

Chester White ewe. 30 Shropshire ewe lambs.

W. E. WRIGHT, GLANWORTH, ONT.

Mammoth Bronze Turkeys

S. G. Dorkings, B. F. Rocks, S. C. Br. Leghorns, Black Minorcas. Over 100 grand young birds from winning strains. Pairs and trios mated not akin.

T. & H. SHORF, WHITE OAK, ONT.

BARRED and WHITE PLYMOUTH ROCKS and WHITE WYANDOTTES.

A grand lot of young table birds of guaranteed quality, bred from prizewinning birds, at half value, to make room for our breeding pens for our egg trade. Special to farmers. Birds sent on approval. A. HILL, Spruce Dale Poultry Yards, Wyoming, Ont.

LABEL

Dana's White SHEAR LABELS stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.

A QUICK, SHARP CUT

hurts much less than a bruise, crush or tear Done with the DEMORNING KEYSTONE KNIFE

Is the safest, quick, sharp cut. Cuts from four sides at once. Cannot crush bruise or tear. Most humane method of shearing known. Took highest award World's Fair. Write for free circulars before buying.

KEYSTONE DEMORNING CO., Picton, Ont.



**COPP'S  
Farmers' Boiler**

Registered 1898.  
Nos. 36, 45 and 60.



With pleasure we draw the attention of our farmers to our

**EXCELLENT MODERN FEED BOILER,**

which is constructed on new lines. It has a strong and well-ventilated Cast Iron Front and Back, with hinged out Flue and Collar Top, so as to receive a straight pipe, which is preferable to the elbow attachment.

The sides are made of Steel plate with a band at the bottom.

The Feed Door is large and the body of the Furnace is very roomy, calculated to admit the roughest kind of wood.

The Boiler is designed to set on the ground or brick foundation.

Without doubt this is the Best, Cheapest, Most Economical and Practical Agriculture Furnace in the market. Already it has commanded a large sale.

THE  
**COPP BROS. CO.,**  
HAMILTON, ONT.



**WORTH \$50 A BOTTLE**

To This Man.  
It may be worth a life sum or even more to you....

Flagg, Huron Co., N. D., March 15, 1900.  
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 man or beast in the market. Please send me the book as you advertise it on bottle, for horse.

Truly yours,  
FRANK SMITH.

Hartington, P. O., Ontario, Mar. 6, '00.

Dr. B. J. Kendall Co.  
Dear Sirs—Enclosed please find a two-cent stamp for your valuable Horse Book. I had one but it is lost. I have used your Kendall's Spavin Cure without one failure in years, and consider it the best treatment for man or beast in the market. Please send me the book as you advertise it on bottle, for horse.

It is an absolutely reliable remedy for Spavins, Splints, Curbs, Ringbones, etc. Removes the bunch and leaves no scar. Price, 50¢; six for \$2.50. As a liniment for family use it has no equal. Ask your druggist for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," the book free, or address

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

**Cheese & Butter**

Makers of these articles, in many instances, do not pay the necessary attention to the quality of the Salt they use. Some people think that "Salt is Salt," and it does not matter where it comes from or who makes it. This is a great mistake, for it is essential that to produce the best Butter or Cheese nothing but the purest salt should be used. The number of prizes obtained by users of Coleman's or Rice's Dairy Salt at the various exhibitions is conclusive proof that these brands of salt stand unrivalled.

FOR PRICES, ETC., ADDRESS  
**R. & J. RANSFORD**  
CLINTON, ONT.  
Established 1868.

IT PAYS TO ADVERTISE IN THE  
**FARMER'S ADVOCATE**

**NOTICES.**

**The Horse Useful.**—The Kansas State Board of Agriculture has issued for their quarterly report, ending December, 1899, a very useful discussion of "The horse—his usefulness in the past—his production and uses now, and his prospects for future permanency." Many useful articles and instructive illustrations are given dealing with all phases of the horse question. Secretary F. D. Coburn, Topeka, Kansas, deserves credit for the volume issued.

**Live Stock Journal Almanac.**—Vinton & Co., publishers of the English Live Stock Journal, have issued their Annual Almanac and Live Stock Handbook for 1900. Including advertisements, it has over 350 pages of facts and discussions upon live topics to stock breeders and farmers. Practically all the British breeds of live stock are given a fair share of attention by illustrations and articles by writers qualified to discuss the situation. The volume contains many special seasonable articles of merit. It is substantially bound in pamphlet form.

**Shropshire Sheep Record.**—The American Sheep Record, Vol. XIII, is indeed a ponderous volume, indicating the popularity of this cosmopolitan breed of sheep. It contains pedigrees of sheep numbering from 95,972 to 111,413 inclusive. It is edited and compiled by Mortimer Levering, La Fayette, Indiana, the Secretary of the Association, and the work does him credit as an efficient officer. The President of this Association is Hon. John Dryden, Brooklin, Ont., and among the committeemen are Richard Gibson, Deleware, Ont.; Robert Miller, Stouffville, Ont., and J. N. Greenshields, Danville, Que.

**Education by Mail.**—The International Correspondence Schools, advertised in our columns from time to time, are reaching in a very practical and helpful way a very large class of people who have not at their disposal a college training. Their courses of instruction, covering some fifty-seven different branches of study, offer special opportunities to all who have any inclination to prepare for becoming masters of some particular line of occupation. All branches of electrical, locomotive, civil engineering, plumbing, lighting, surveying, mining, architecture, book-keeping, and many other branches for which there is a demand for special knowledge are taught by experts in a very effective manner to all who will study the work outlined. The schools now have 130,000 students who are administered to by 235 professors and assistants. It would be well for those who desire a course of instruction to correspond with the International Correspondence Schools at Scranton, Pa., who will supply circulars of information about their work.

**Skim Milk and Whey Distributor.**—Mr. Leak, of Blytheswood, Ont., has invented a machine, for which he has secured a Government patent, that is destined to fill a long-felt want. It consists of a semicircular pan divided in the center, at which point it rests on a pivot or fulcrum. The milk enters the pan through a 1/4-inch pipe fitted with a valve. When a patron is ready to go home he is given a check marked with the number of pounds of whole milk he desires. This he inserts into the machine, and when he pushes it forward with a lever, the check opens the valve. The milk flows into the end of the pan, which is tilted up to hold it, and when five pounds have run in the pan tilts over, emptying the milk and raising the other end of pan to catch the flow. At each tipping of the pan the check is carried endwise until it reaches a notch which allows the valve to close, thus shutting off the flow so that the patron can get no more milk. The machine is very simple, and so far as we could judge, very likely to give satisfaction. We understand Mr. T. B. Millar, manager of Thames Dairy Co., has already ordered one to be put into one of his factories as soon as it can be made.

**GOSSIP.**

H. Bennett & Son, St. Williams, Ont., write: "We are offering some of the best young boars and sows we ever bred. They should make prizewinners the coming season. For smoothness, quality and conformation these pigs are hard to equal. We would part with our imported boar, Norm B's Duke, at a reasonable price, as we do not need him any longer. He is a good boar and a show hog. This boar would make a herd header for any one in need. The demand for Shorthorns never was better. The four young bulls we are offering are a choice lot. They are sired by Grey Hero, a grandson of the famous Bampton Hero, and out of dams sired by Imp. Albert and Imp. Rue Ribbon. We find, with lots of ensilage and roots, we have no trouble in keeping the stock gaining. Our young bull, Duke of Richmond, -29079-, purchased from J. & W. Russell of Richmond Hill, is a model Shorthorn, and is proving an excellent sire. He is a rich red, stands straight on very short legs, is a grand feeder, and has a very mild and quiet disposition; in fact, he is an all-round good bull. We find we cannot afford to keep anything inferior, for the best is none too good for the breeder or his customers. In Berkshires we have a limited supply of choice young boars and sows of the most approved breeding."

**ISALHIGH GRANGE AYRSHIRES AND GUERNSEYS.**  
We direct attention to the prominent advertisement now running in this paper of the choice herds of Ayrshire and Guernsey cattle, and Yorkshire sows, owned by J. N. Greenshields, of Danville, Quebec, under the management of Mr. T. D. McCallum. These herds are among the largest and best of their kind in America, no expense having been spared in the purchase and importation of the best of the sires that could be secured. When representatives have been shown at leading exhibitions in Canada they have invariably scored high in the prize list. The sires in service are strictly first-class, the Ayrshires being headed by Matchless, a superior son of Imp. Glencairn 3rd and Imp. Nellie Osborne, winner of the championship at the World's Fair at Chicago. At the head of the Guernsey herd are the imported bulls, Adventurer, a first-prize winner at the English Royal Show, and Masher 2nd, winner of first prize at Toronto Industrial Exhibition, 1898. A number of young bulls of serviceable age are offered for sale, of both breeds, as well as a number of young Yorkshire boars and sows, and we are assured that the prices will be found reasonable for the class and quality of the stock offered.

**The Best Fence**

is the only fence you can afford to put on your farms, plantations or ranches. Anything less than the best means continued trouble for you.

**The Ellwood Steel Fences**

are made of spring steel especially drawn for this fence. Galvanizing and weaving are perfect, insuring longest life to the fence. Costs no more than makeshifts. Sold by our agents in every town. If you fail to find an agent in your town write to the manufacturers.

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

**Eureka Veterinary Caustic Balsam.**

Important to Breeders and Horsemen.

A reliable and speedy remedy for Curbs, Splints, Spavins, Swellings, 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 75¢ per bottle. Sold by all druggists. Prepared by THE EUREKA VETERINARY MEDICINE COMPANY, London, Ont.

**310 First Premiums**  
Awarded to the PRAIRIE STATE INCUBATOR. Guaranteed to operate in any climate. Send for catalogue. PRAIRIE STATE INCUBATOR CO. Home City, Pa.

**New Term**  
from  
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**CENTRAL BUSINESS COLLEGE**

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The largest and strongest school in Canada. Our calendar tells you why. Write for it.

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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**  
OWEN SOUND, ONT.,

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

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**NIMMO & HARRISON,**  
Business and Shorthand College,  
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Enlarged premises and increased number of teachers. Industrial instruction. Open entire year, day and evening. Call or write for free prospectus.

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Students enter any time. Increased teaching staff. The best that can be had is given. Write for particulars.

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A school offering advantages not found elsewhere in Canada. Handsome catalogue free.

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**SHEEP BREEDERS' ASSOCIATIONS.**

American Shropshire Registry Association, the largest live stock organization in the world. Hon. John Dryden, President, Toronto, Canada. Address correspondence to MORTIMER LEVERING, Secretary, Lafayette, Indiana.

**Calendar**

With illustrations of various breeds of dogs and birds now ready for 1900. Will be sent on receipt only of THREE ONE CENT STAMPS for cost of postage.

**Spratt's Patent (America) Ltd.**  
245 EAST 56TH ST.,  
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**STAY AT HOTEL LELAND**

The Leading Hotel of the West.

ALL MODERN CONVENIENCES. RATES, \$2 TO \$4 PER DAY. BUS MEETS ALL TRAINS.

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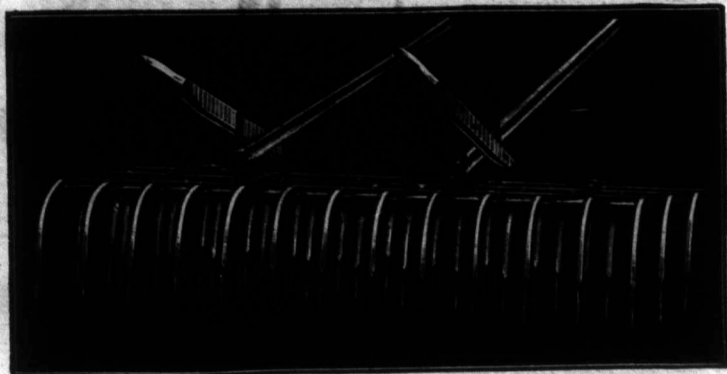
**CHURCH PENS, SCHOOL DESKS, ETC.**

PLEASE MENTION FARMER'S ADVOCATE.



# Hallock's Success Anti-Clog Weeder

More than 40,000 of our Weeders now in use. Does this mean anything? We expect our sales in the year 1900 alone to crowd these figures. Why? Listen, please: Material used in manufacture of implements has advanced fully 100 per cent. Your dealer will ask you largely advanced prices for all implements. If you doubt this, call on him.



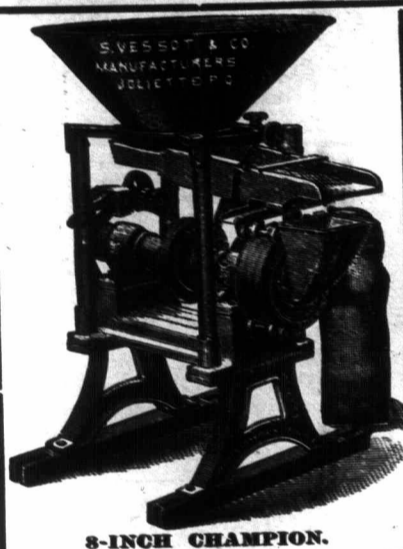
**LET US REPEAT.**—It is an absolute fact that the price of all implements has advanced from 25 per cent. to 50 per cent., but Hallock's celebrated Success Weeder will be sold at the old prices. Trade always follows where our Weeder is introduced; therefore, to get this trade, we will quote Special Price to first purchaser. Remember, we are the Weeder people, and have the price that sells.

**TAKE NOTICE**—Hallock's Success Weeder will be sold at the same old prices—not one cent advance.

More than 7,000,000 farmers in the United States, every one of which will own a Weeder in the next few years. Practically every one of them would buy in the year 1900 if they knew as much about the value of our Weeder as the 40,000 who now own one. We have decided that we may just as well have practically all of the "Weeder trade." To secure it, we have decided on prices that are bound to bring it. Just write and see if you do not think so.

**WE SOUND A NOTE OF WARNING.**  
 UNDER U. S. patent No. 600,782, issued on March 15, 1898, we have the exclusive right to make a Weeder having teeth substantially round at lower end and a flat spring yielding upper portion. This style of teeth gives our Weeder great superiority over all round-tooth weeders, and has caused it to become immensely popular. Farmers demanded of their dealers a weeder having such teeth, and the dealer in turn demanded them of the manufacturer. This led different manufacturers to assume the risk of using a similar tooth. Therefore, we hereby notify manufacturers, dealers and farmers that we have already brought suit against several, and will promptly and vigorously prosecute all similar offenders.

**D. Y. HALLOCK & SONS,**  
 BOX 823, YORK, PA.



**We Make the Best Grinder on Earth.**

Don't take our word, but read what customers say:

DEAR SIR.—Please find enclosed settlement in full for 12-inch Champion Model '99 Grinder (Sectional Plate Grinder). I am perfectly satisfied with it, and consider it worth its cost twice over, more than any solid plate mill which I have used for five years. I have ground one thousand bags before sharpening the plates and five hundred since, and they are doing well yet. Will let you know their limit when worn out. (Signed) J. S. Zsuzs.  
 Wellesley, Ont., Dec. 7, 1899.

Catalogues free. Ask for one.  
**S. VESSOT & CO.,**  
 Sole Manufacturers,  
 JOLIETTE, P. Q.

**American Patent Saw-Jointer**  
 FOR CROSSCUT SAWS.



Best of its kind. It is a combination tool. It is a saw-jointer, a side-filer and a drag-tooth gauge all in one. Every farmer who owns a crosscut saw needs this tool.

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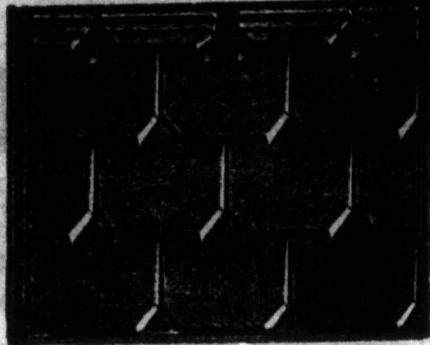
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 in all its forms—Neuralgia, Lumbago, Gout, etc. These ailments are due to the presence of Uric Acid in the Blood. The Ring—in connection with the acidity of the blood—creates an Electro-Chemical action, removing the acid and curing the disease. To demonstrate the remarkable curative properties of our Ring we will sell it on Five Weeks' Trial. Money refunded if not satisfactory. We know what our Ring has done in thousands of cases—some pronounced incurable. Price \$2, by Mail or C. O. D. Express. For size, cut hole in card that fits finger snugly. Sold only in Wooden Abrasive Case. All others are imitations. SEND FOR BOOKLET.  
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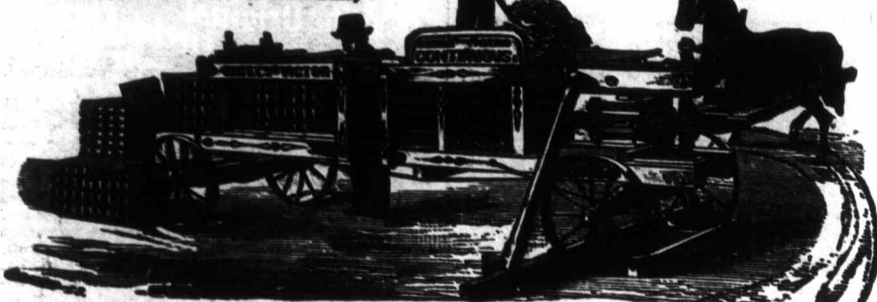
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**GOSSIP.**

Mr. W. D. Flatt, Hamilton, Ont., and his brother, Mr. D. C. Flatt, Millgrove, were booked to sail for Great Britain per SS. Oceanic from New York, February 24th. Mr. W. D. Flatt wrote this office, under date of February 22nd: "I have five young bulls at the farm, of serviceable age, for sale, which please mention in your 'Gossip' columns, as it may be taken for granted by many that I have nothing there to offer since my public sale. Mr. Jas. Smith, the farm manager, will show the cattle or answer correspondence."

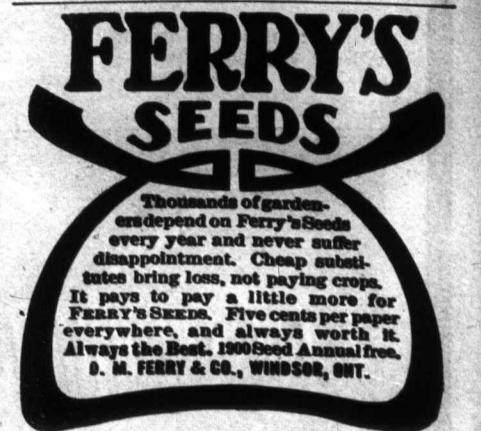
**SCOTCH SHORTHORNS FOR CANADA.**

With respect to the recent shipment, per the SS. Kastalis, of Shorthorns by Messrs. Alfred Mansell & Co., Shrewsbury, to Mr. John Miller, of Brougham, Ontario, from the well-known herd of Mr. W. S. Marr, of Uppermill, they comprised half a dozen fashionably-bred heifer calves of great promise, from some of the most noted Uppermill tribes. Mr. Miller's purchases include an Emma, by Mr. Duthie's old stock bull, Count Arthurs, Emma 25th, a daughter of the celebrated bull, William of Orange. This is a stylish, well-grown calf, exceptionally well bred. Another nice calf is the dark roan, by Spicy Monarch; but quite one of the best is an Alexandrina 24th, by Captain of the Guard. This heifer is of the same family as the American show bull, Gay Monarch, and should be a distinct acquisition to the Brougham herd. The old Mand tribe is represented by a daughter of March 31st, and sired by Spicy Robin, and the Missies have a good representative from a Scottish Archer cow mated with Captain Inglewood, one of the high-priced bulls at Perth. Another nice calf is a Goldie by Royal Fame, the sire of the highest-priced bulls at the Collynie-Uppermill joint sale this year. This is a straight, well-grown calf of much promise.

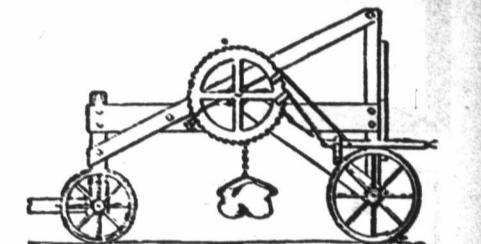
**MORE SCOTCH SHORTHORNS FOR CANADA.**

The Aberdeen Free Press of recent date says:—"That such an eminent breeder as the Hon. M. H. Cochrane, Hillhurst, Quebec, has thrown his influence into the scale in favor of the 'Aberdeenshire' or 'Cruickshank' Shorthorn is an excellent testimonial to the world-wide reputation of the Scotch blood. Mr. Cochrane has just concluded an important transaction, which transfers from Aberdeenshire to Canadian soil a very superior collection of 16 head, this important commission being placed in the capable hands of Mr. Wm. Johnston, whose expert knowledge of Shorthorns was gained at Collynie years ago. At the Collynie-Uppermill sale last month it will be remembered one of the most attractive calves in Mr. Duthie's draft was No. 5, Joy of Morning, a dark roan, possessing great beauty of shape and impressive breed type. At the sale he was knocked out to Mr. Philo L. Mills at 300 guineas, but it transpired afterwards that was purchased for Mr. Wm. S. Marr, Uppermill. By Pride of Morning, a champion Highland Society winner, and from a Scottish Archer dam, and full brother to Mr. McWilliams' Highland Society winner, Pride of Fame, Joy of Morning was one of Mr. Duthie's best calves. Mr. Johnston having arrived too late for the sale, and having seen this magnificent calf in Mr. Marr's herd, tempted the owner by the offer of a very long price to let him go to Hillhurst, and in due time doubtless he will make his debut in the American showyards, where this year Mr. Cochrane has been showing several Collynie-bred things with conspicuous success. At the same time Mr. Marr parted with the heifer calf, Blythesome XXIII, a very choice heifer calf, exhibiting plenty of substance and flesh, combined with great quality and the best color. In the herd of Mr. Moir, Waterton, Mr. Johnston picked up three pretty heifer calves—Fairy Maid, got by Prince of the Vale; Fancy Lady, a dark roan with a dash of the blood of the old Kinellar Cruickshank sire, Gravesend, which is perhaps one of the best of the heifer calves in the consignment; and Carnation, a beautifully-bred, 'blocky' roan, by Lord of the Vale, and with several excellent Cruickshank crosses in her top. Mr. J. L. Reid, Crombybank, also sold to Mr. Cochrane's agent four splendidly-bred heifers, three of them being got by the noted sire, Kinellar Cruickshank, which Mr. Reid purchased at one of the Collynie sales for 150 guineas. The heifer calf, Mary Ann VII, a red of exceptional wealth and substance, which will be heard of on the other side of the water, is by this grand bull, her dam being by the home-bred sire, Belvidere. Clarinda III, by Royal Lancaster, is a very pretty red heifer calf of perfect shape and symmetry. The other two heifers are yearlings by Morning's Cecilia tribes. Jenny Lind XI is a youngster with grand ribs upon her, and from a great breeding strain, and Cecilia XXXII is thoroughly Scotch in her descent, tracing back to the old Towie-Barclay strains, but with a combination of Cruickshank also. In the herd of Mr. Marr, Cairnbrogie, Mr. Johnston bought a very useful yearling heifer, Craibstone Beauty VII, in calf to Royal Standard; Craibstone Beauty II, a heifer of great substance and quality, likely to make a good cow, and bred in the herd of Mr. Anderson, Fingask; Rosemary bred bull, Prince Horace, and from a very old Shethin family; her full sister, Rosemary CCVIII, a very stylish roan heifer calf, which should make a show winner; Lady Dorothy XXXVI, a very pretty calf by Prince Horace, and from the Auchnagathle Lady Dorothy tribe; and Butterfly XLIX, by the same sire, which will furnish an excellent breeding dam. Several good lots were secured in the old-established herd of Mr. Shepherd, Shethin. Lycidas, which got by Mr. Gordon's Mirabeau was purchased at the Aberdeen joint sale; a by the same sire, well-bred heifer calf, Agnes, Cairnbrogie Annie tribe; and descended from the old Mirabeau, full of Sittyton blood, and tracing back to the Brucktor Duchesses; and a roan calf, Rosemary, which shows much promise, and is descended from one of the best known Shethin tribes.

**CANCER** CURED WITHOUT KNIFE OR  
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It lifts stones and deposits them 5 feet high in fences. Clear your land for reapers and mowers at a small cost, and build durable fences of the stones and stumps. The lever lifts and holds the stone in position for removal. Stone can be laid just where you want it. One man can raise a stone one team cannot draw, and do it quick and easy. Agricultural societies and farmers' clubs are buying them for sections. Price moderate.

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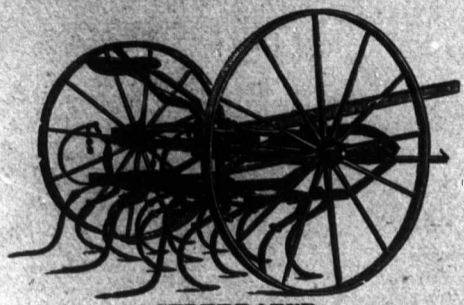
are positively warranted to last **TEN YEARS**, without repairs, and are guaranteed to **OUT-HATCH**, during three trials, any other make of incubator on the market—bar none. **THIS, OR YOUR MONEY BACK.** Used exclusively at Experimental Farms, Guelph and Ottawa; also six American Experimental Stations. Daniels, the universal provider in the Poultry Supply business, has the sole agency for the Cypthers Incubators and Brooders for Canada. Our list of Poultry Supplies are too numerous to mention here, but just drop us a line and state what you require. We handle nothing but the best. Satisfaction every time, or money refunded. Mention **ADVOCATE**.  
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Myself cured, I will gladly inform any one addicted to **Morphine, Opium, Laudanum,** or Cocaine, of a never-failing, harmless Home Cure. **MRS. M. F. BALDWIN, P. O. Box 1212, Chicago, Ill.**

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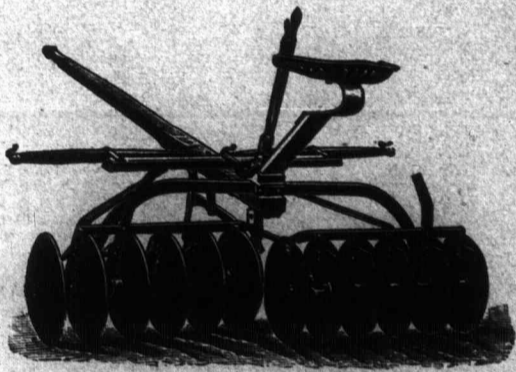


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Covered by Patents.  
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**REVERSIBLE TOOTH POINTS.**  
Interchangeable For Broad Shear Blades or Weeders.

We Manufacture Our Own Spring Teeth from the Best of Imported English Steel.



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## "GIANT"

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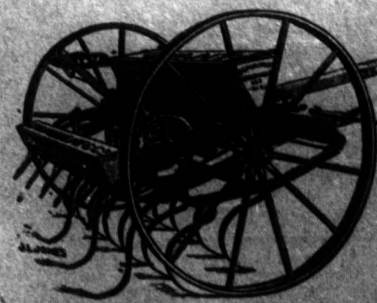
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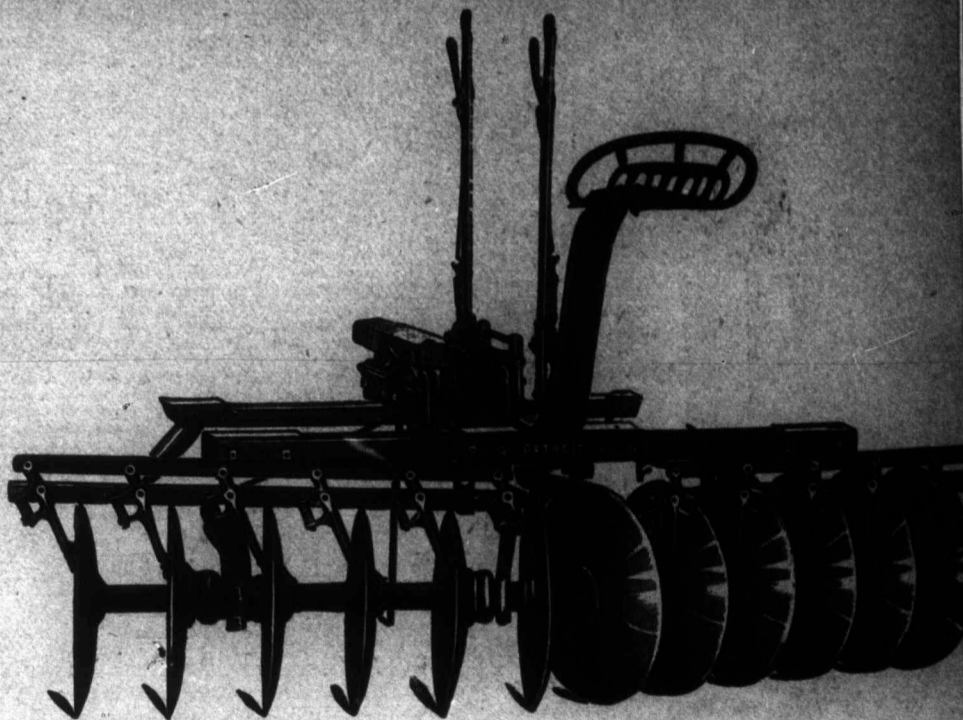
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