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THE FARMER'S ADVOCATE

AND HOME MAGAZINE

PERSEVERE SUCCEED

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

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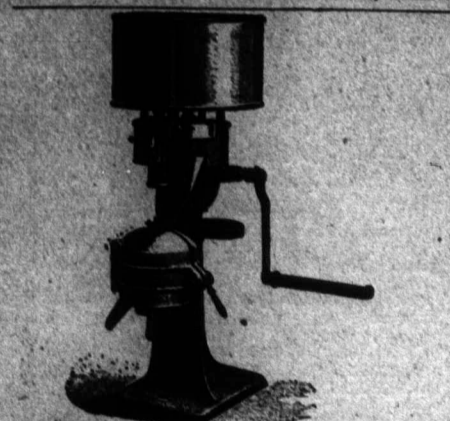
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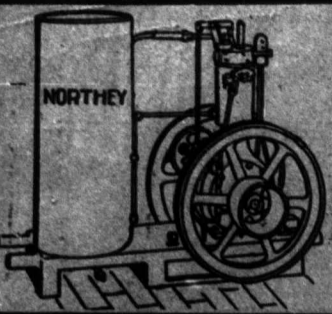
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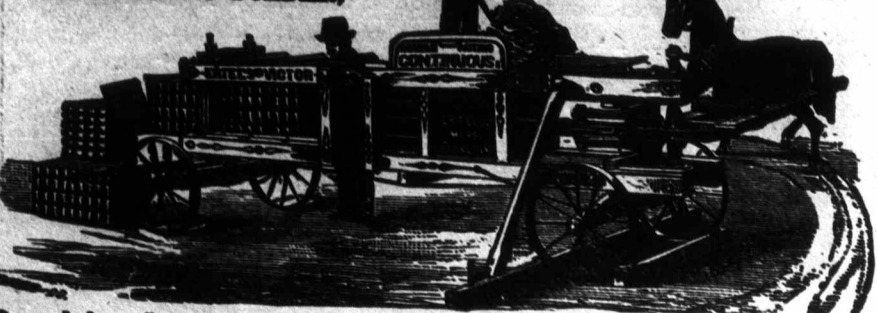


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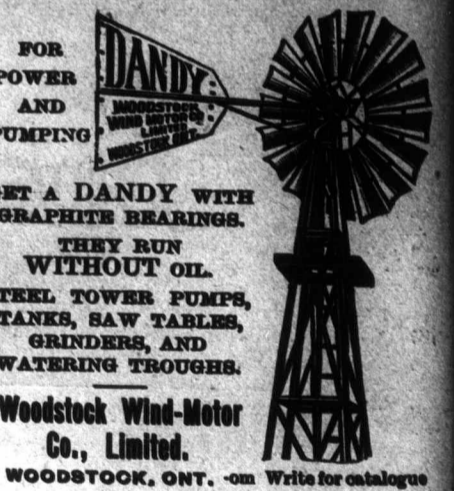
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VOL. XXXV.

LONDON, ONT., AND WINNIPEG, MAN., FEBRUARY 15, 1900.

No. 496

EDITORIAL.

The Dairy Outlook.

As evidenced by the three large Ontario Dairy Association conventions held during January and February, the manufacturers of dairy products feel that they are in a successful industry. Not only were the attendances encouraging, but the discussions that followed the various papers and addresses read and delivered indicated a general and strong determination to hold all the markets secured and gain a wider field in the face of all competition. These undertakings are to be accomplished by reducing the proportion of defective goods and extending the make of better produce. The discussions throughout were calculated to draw out ways and means of correcting faulty conditions, and a particularly hopeful sign was the frequent appeals to scientific experiments for technical information. The earnestness of the demands for information made by practical makers was particularly marked, and knotty problems were cleared up in very many cases, not only to the enquirers, but to every earnest maker who listened to the proceedings. There was an evident determination at each of the meetings, but more particularly in Western Ontario, to demand an improvement in factories and curing rooms, and also to get successfully at the careless patrons who give no end of trouble by furnishing germ-laden milk, to develop bad flavors in the whole mass into which their supply is turned. A forward step was taken in this regard in a recommendation on the part of the Cheese and Butter Makers' Association meeting at Ingersoll, to demand that the appointed factory inspectors conduct fermentation tests of milk of every patron at all factories visited, by which means the patron sending milk containing taint-producing germs will be located, so that he can be visited and helped to remove the cause of the trouble.

This increased interest may be taken partly as a result of the buoyant condition of the market for both cheese and butter throughout the season. So far as Ontario is concerned, the western portion sadly needed the good price to compensate for the extraordinary decrease in the output through the continued drought during the summer and fall of 1899. It is estimated by one of the most extensive buyers of dairy goods in Western Ontario that the make of cheese amounted to 25 per cent. less than that of 1898, and 40 per cent. less than the output of 1897; and of butter it is claimed that there was not more than 25 per cent. of that made the previous year. In Eastern Ontario, Quebec, and the Maritime Provinces, the pastures were good throughout the entire season, which of course resulted in a full make and a very profitable season. In many factories cheesemaking continued well into December, and now practically all of the make has gone forward because of the tempting figures offered, so that there is every prospect of the spring market opening firm and with bare supply. Such a state of affairs does not conduce to the best interests of the industry, as it is certain to be accompanied by an undue early make, and unless very great precaution is taken at that season our reputation will suffer as a result of defective quality. While there is always more or less uncertainty about future markets, it seems fairly safe to look for a decline in cheese prices from the present high figures as the season advances, so that it would seem wise, where a creamery plant has heretofore been patronized with satisfaction, not to desert it in favor of a cheese factory. Supply and demand at the great food-distributing centers of the world largely regulate prices, but the former is dependent to a great extent upon weather conditions affecting pasturage. At present, however, the tendency of prices for most food products is decidedly upward, as it ought to be to keep pace with the increase in

cost of what the farmer has to buy. Speaking generally, the dairy industry for 1900 opens under decidedly encouraging auspices. A noteworthy feature referred to elsewhere in this issue, in connection with the industry in Western Ontario, is the amalgamation of the recently-organized Cheese and Butter Makers' Association with the older organization, from which it is anticipated that greatly increased strength and practical advantage will accrue.

Does the War Affect Prices?

Time was when even a rumor of war had the effect of deciding the farmer to hold his wheat for a higher price, which was regarded as an almost inevitable accompaniment of international troubles. But the world's wheat field has grown so wide that a war fails to cause even a ripple on the surface of the market for that cereal, and has scarcely any appreciable effect on the prices of other grains. Occasionally a reader of the FARMER'S ADVOCATE complains that undue prominence is given in the paper to stock-raising and to stock feeding and the dairy. They claim that many farmers have not the training, the means, nor the business tact to buy, breed or feed cattle or other stock successfully, and that consequently they have to depend upon grain-growing, and mainly on wheat, for a living. Granting this for the sake of argument, a little reflection should convince these men that in advocating the feeding of stock, we are doing the best possible service to the farmer whose speciality is grain-growing. What is it that makes a profitable market, or otherwise, but the law of supply and demand. Suppose that all farmers were giving their principal attention to grain-growing, and instead of studying to raise and feed as much stock upon their farms as they can profitably, were keeping as little stock as they could possibly get along with, and that stock of an inferior class and ill-fed, many millions of bushels of the grain now fed to stock, and finding a market in that form, would be thrown upon the market as grain, and the excessive supply would have the effect of depressing prices down to figures which would be simply frightful. The large amount of grain fed to beef and dairy cattle and other live stock relieves the grain market of just that much of competition, and gives the stock feeder an outlet for his own grain at a paying price, while thousands of these same stock breeders and feeders buy largely of grain from the farmers who make a speciality of grain-growing, or if not from them, then from dealers, and thus reduce the pressure of supply on the general market.

If the war is affecting prices in any line of farm produce, it is in the line of live stock and its products. The market for horses is being sensibly helped. The demand for canned meats is encouraging the business of feeding cattle. Cheese is in very active demand, and the supply is so short that prices are evidently bound to be high, while the rush to cheesemaking will react upon the market for butter, and its scarcity will materially raise the price for it. The price of other food supplies, such as pork and poultry and their products, will be enhanced by the advance in prices for beef and dairy produce, and farmers may well be thankful that they are no longer wholly depending on so uncertain a quantity as wheat as their only hope, but have a number of strings to their bow, by which, if skillfully handled, they may yet secure a comfortable competence and leave the farm to their children with its fertility unimpaired. We do not discourage the growing of wheat, but counsel its cultivation only in a rotation of crops, and on land suited to its growth and in such condition as to justify reasonable expectations of a profitable crop.

It is a mistaken idea to think that horses can be made tough by exposure to all kinds of weather in winter. There is such a thing as justifiable exposure of colts. Ascertain what it is.

Canada Leads in Bacon.

The place which Canadian bacon is taking in the British markets, and the means by which that position has been attained, is indicated by the following extracts from the *Scottish Farmer* of recent date: "The Canadians are moving heaven and earth almost to capture our markets. Some years ago it was brought home to the Canadians that if they were to compete successfully with Ireland and Denmark they would have to make a radical change in both breeding and feeding. They have done so, with the result that Canadian bacon takes precedence of all, saving, perhaps, the famous Wiltshire brand and one or two Irish brands and the famous Yorkshire hams. So far as natural surroundings are concerned, no country is more favorably situated than Scotland for pig-rearing, and yet we neglect to take the position we ought to. Of course, we do not forget the advantage which the Americans have by combining the feeding of cattle and pigs where Indian corn is used, so far as cheapness is concerned, the pigs getting all their food out of the droppings of the cattle, with the result that their pork is of a very inferior quality. How, then, have the Canadians captured our markets? By simply breeding a class of pigs to produce more lean flesh, and feeding on wholesome food, and also keeping them in the midst of clean surroundings. Let us get rid of the old idea that an animated bladder of lard is the thing to produce, and that other idea that it does not matter about keeping a pig clean. It matters very much, as dirty surroundings have distinctly injurious effects on the delicacy of the pork. Breed a lean type of pig; use food that tends to produce lean and not purely fat; study the best methods of slaughtering and curing, and Scotch bacon may yet range up alongside of Scotch beef and mutton."

A Pair of Coincidences.

As illustrating the tendency of the times among breeders in developing an ideal type of dairy cattle, it is interesting to note that concurrently with the production of the article in our issue of Feb. 1st, on constitution in dairy cattle, and the publication in the previous issue of an article on judging dairy cattle, there appeared in the *Holstein Register* a letter from Mr. G. W. Clemons, Secretary of the Canadian Holstein Association, which we reproduce in another column in this issue, advocating the breeding of cattle of similar conformation and quality while maintaining what is known as breed type or the distinctive characteristics of the breed to which the animals belong. Before our article on constitution was off the press we received from the well-known and efficient judge of dairy cattle, Mr. F. S. Peer, an article which will also be found in this number, which ably deals with some features of the same question, and refers to some very superior herds of Jerseys in England that have been bred upon the lines we have advocated, and with very great success. It is satisfactory to know that there is coming about a more general agreement between breeders of cattle of the various dairy breeds as to the most approved type, and we are encouraged to believe that before many years there will be a uniform standard of conformation and indications of utility in all the dairy breeds, so that the ideal type may be the same in each of the breeds of that class in so far as form and quality are concerned, just as is the case in respect to the different beef breeds. The more uniformity we can secure in our farm stock for the purpose for which it is designed, and the fewer distinct standards of excellence we have to keep in mind, the better. It is gratifying to realize that in this regard progress is being made.

THE FARMER'S ADVOCATE AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN
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A Forward Movement in Domestic Science.

As was recently pointed out in these columns, a movement for imparting systematic instruction in domestic science is on foot in Toronto, and in our issue for January 15th Mr. J. J. Ferguson very forcibly put forward the idea of starting a woman's department at the Ontario Agricultural College, as has been done on an extended scale in several kindred American institutions. We understand that Alma Ladies' College has a domestic department, where practical instruction in cooking is given to the students, thus fitting them more thoroughly for the vocation of home-makers. We were pleased to notice, also, that in Hamilton, Ont., recently a new Technical Institute and Normal School of Domestic Science was opened—an institution mainly due to the heroic and self-sacrificing efforts of Mrs. A. Hoodless and other ladies associated with her. Hon. Geo. W. Ross, the Premier of Ontario; Hon. Dr. Montague, and others, took part in the formal inauguration, pointing out the importance of the movement and congratulating Mrs. Hoodless upon what she had been able to accomplish. Hon. Mr. Ross mentioned the rather surprising fact that he had, while Minister of Education, found considerable resistance on the part of the public to the introduction of domestic science. We are of opinion that it would be very much better for the future of Canadians if, by raising the domestic life and its duties to a higher plane, a strong current would now take place in its favor, checking, if possible, the alarming drift of so many girls and young women to shops, factories, and offices. A vast amount of effort is being put forth, and large sums of money expended by Governments, both Federal and Provincial, for the improvement of the man's side of farming, but little or nothing for

the betterment of the work carried on in the home—household management, cooking, etc. A very large proportion of the earnings of the farm, as well as of toilers in cities and towns, is absorbed in feeding and clothing the family, so that it becomes a serious economic question, apart from mere comfort and satisfaction, how all this work is conducted. We publish elsewhere a note from Mrs. Hoodless, dealing with the subject of women's institutes. We are satisfied that on very many farms, and in town homes as well, the success of the "head of house" is largely due to the superior and thrifty methods pursued by his "better half," and to make this general would certainly prove a consummation devoutly to be wished. Why not have a forward movement in the science of home-making?

Women's Farmers' Institutes.

BY MRS. HOODLESS.

I take this opportunity of drawing your attention to the need of trained instructors in butter-making, egg packing, poultry feeding and trussing, cooking, etc. It is all very well to raise the standard which will command high prices, but how are the isolated farmers' wives to learn how these things are done? When in England last summer I visited a Ladies' Agricultural College, where educated young women were taking these scientific courses, with a view (many of them) of going out as district teachers. What we want is Women's Farmers' Institutes established in every district in Ontario, with trained teachers to go out to the Institutes and spend sufficient time to give thorough instruction in the questions mentioned and many others. I have gone into this question with great care, and know this is the only way to raise the general standard in rural districts. Get a training school established at Guelph, where every facility is provided. It is nonsense to think farm life will look up or produce improve until the women receive equal educational privileges in scientific agriculture. I trust you will use your influence in this direction, and assure you of my heartiest support in planning any movement along these lines, by voice or pen.

STOCK.

A Criticism re "Judging Dairy Cattle."

To the Editor FARMER'S ADVOCATE:

In your issue of January 15th is reported a paper on the above subject, read by Mr. J. C. Snell at the annual meeting of the Canadian Jersey Breeders' Association, in which paper he sets forth some ideas the soundness of which I desire to call in question. Every one has a right to his own opinion, and, after all, our opinions are only *our opinions* or estimation of the facts, and these are not changed one way or the other by all the opinions in the world. But it is in the highest interests of all that the public's estimation of the facts should be as nearly correct as possible; consequently, the fullest discussion and expression of thought must be beneficial to all concerned; and I do not believe that there was ever an address delivered, or an article printed, that did not have some influence, great or small, expected or unexpected, in moulding public opinion.

Now, as to the address itself: He says, in the first place, that there are certain characteristics in a dairy cow which are a reasonably sure index to dairy quality, but a little further on he says: "It is true that among the very best producing cows have been some that were very plain in appearance, but it is fair to conclude their usefulness was not necessarily owing to their ugliness, but was quite as likely in spite of it, and probably even the advocates of the theory of angular conformation, raw bones, and the convex pelvic arch, are not seeking to breed their cattle on those lines so as to perpetuate and intensify those peculiarities, however highly they may profess to esteem them." From this sentence two things are pretty clear: Firstly, Mr. Snell evidently considers that "angular conformation," "raw bones" and a "convex pelvic arch" are features of ugliness. I am not quite sure what he means by raw bones, but presume he means a general loose-jointedness and sparseness of flesh—indications of high-producing power and persistent milking qualities. And, secondly, he evidently considers these points aforementioned not to be indications of usefulness. Now, my observation, agricultural education, and reason, lead me to disagree with him. The first is mainly a matter of taste, and mine instinctively discounts in the dairy an animal with a straight back and blocky, beefy conformation. But coming to the second objection, I think there is less room for argument, I think there bred for a large development of the organs (and more particularly the functions) of maternity, and as these organs are situated in the rear part of a cow's body, the need for plenty of space here is obvious. This would naturally tend to give a sort of angular conformation, but right here lies a danger which it will be well to heed. This wedge-shape should be obtained not by reducing the size of the fore part of the body, but by an especially full development of the rear part, else we are likely to discount constitution.

Mr. Snell also says that a specialty utilitarian is an unsafe man to have in a ring, because such a one will look at useful indications alone to the exclusion of beauty and constitution. As for "beauty," see-

ing this is a rather indefinite and uncertain quality in a cow, he would be foolish to be swayed by it. But no true utilitarian will disregard evidences of constitutional vigor and nervous energy, as evidenced by a good depth of chest, a large, well-sprung barrel, a strong, prominent backbone, and a good, wide, high forehead. A cow without a good constitution is like a barn built on a foundation of quicksand, and she cannot be permanently useful as a producer of milk and butter, or as a progenitor of stock with this capacity. We must have constitution first in any class of stock, and after that we want a pronounced tendency to some special line of work. We often find cows with good constitutions that are not extra performers at the pail or churn, but we never find permanent usefulness in any capacity without a fair degree of constitution. A judge who would give a preference to a cow with an ideal wither and a small chest over one with a good heart and lung space, but a little extra weight of shoulder, is not a utilitarian, he is a faddist. There is a wide distinction between the two, but Mr. Snell seems to have got them a little mixed. Utility is usefulness in its fullest sense, and its first requirement is constitution, but it does not require "beauty" of Mr. Snell's type. Faddism consists in giving undue importance to one particular point or to several such, either to a fancy point, such as a certain turn of the horn or gait in walking, or else to a slightly more excusable one, such as a minor indication of usefulness. "One swallow does not make a summer," to repeat his own quotation, and one point does not decide the superiority of a cow. We must take all the points together, and we must give constitution an important place, but we cannot afford to allow many points for such an inconsequential thing as cow beauty.

The subject of Mr. Snell's address is one affording wide room for discussion, but for fear of trespassing upon your space, I will leave the subject here to the pens of more experienced men.

Lincoln Co., Ont.

W. D. ALBRIGHT.

[REPLY.—There is really not so much difference between Mr. Albright's ideal type of a dairy cow and that advocated in the paper he criticises as would at first sight appear. It should be borne in mind that the subject of the article was the judging of dairy cattle in the showing by inspection with a view to establishing uniformity of breed type, and at the same time combining utility and handsome conformation. There is no greater stickler for constitution, first, last, and all the time, than the writer of the paper referred to, and a careful reading of the same will reveal that beauty in the dairy cow is only championed when combined with the indications of a high degree of constitutional vigor and also of usefulness as a producer of milk and butter, and that the idle or incompetent beauty is relegated to the butcher's block. Mr. Albright puts it well in the sentence in which he says "wedge-shape should be obtained not by reducing the size of the fore part of the body, but by an especially full development of the rear part." It is the short hind quarters and steep, drooping rump which spoils the beauty of the cow afflicted with it, of any breed, and does not enhance her usefulness, even if she be a good producer. She is that in spite of the hump on her rump, and the wasp waist which too often accompanies it. Intelligent breeders of all the breeds are seeing eye to eye on this subject, as indicated in the excellent articles on breeding dairy cattle published in this issue from the pens of such competent authorities as Mr. Peer and Mr. Clemons, which will well repay reading.—J. C. S.]

Dogs and Sheep.

To the Editor FARMER'S ADVOCATE:

In your issue of Jan. 15th I notice an article under the heading of "Sheep and Dogs," by W. J. W., of Victoria Co., Ont., and said article agrees with what was at one time practiced in the township in which I live, and I believe is still practiced in some places, but I must say that I do not approve of the system for the following reasons: By passing a by-law such as W. J. W. suggests, the municipal council would be insuring every sheep in the township against damage by dogs, by all owners of dogs paying an equal amount irrespective of the number of sheep that each man owned. Now, is it fair that a man owning say fifty sheep should have them insured for the same amount that a man owning five would have his insured? Then, again, there is only a small proportion of the dogs owned in a township that kill sheep. Now, why should I be taxed to pay for sheep worried by dogs, if my dog is innocent, any more than an honest man should be required to pay money into a fund to pay for losses caused by thieves? From what I have written I do not want anyone to infer that I am in favor of having dogs free from taxation. I am in favor of taxing them heavily, but put the money raised in that way into the general funds of the township, for we have to raise yearly a certain amount of money, and it is as well to raise a goodly share of it by dog tax as any other way, and it will likely help to decrease the number of useless—nay, more—injurious curs; and if sheep owners want to have their flocks insured against loss by dogs, let them have them insured in much the same way as mutual fire insurance companies are managed, namely, in case of loss let each insured party pay to make up the loss in proportion to the amount that each is insured. Thanking you for so much of your valuable space and expecting to be criticised,

Wellington Co., Ont.

ALEX. McCAIG.

Care of the Ewes and Lambs.

Lambing time will commence on many farms early in March. The ewes should have a little more generous feeding as that season approaches. Good clover hay, if it is in storage, is a staple sheep food. A light feed of oats and bran daily, with a few turnips or magels, will give the ewes strength and provide the necessary milk to support the lambs when they come. A few light hurdles about 6 feet long and 2 1/2 feet high should be prepared before the lambs come, and when a ewe has lambed, she and her lamb may be enclosed for a day or two in a small pen made by the placing of two of these hurdles in a corner of the sheep-pen, securely tied at the corners with rope or strong twine. When the ewe and lamb get a little acquainted, it will be better, if the lamb is strong, for both to have the room of the larger pen for exercise, and the stimulus of competing with the other sheep for her share of the feed will be good for the mother if the feed of the flock is fairly liberal; if not, she should be put in her own little pen once or twice a day and given a little extra feed, and when a few ewes have lambed they should have a pen to themselves apart from the rest of the flock, so that they may have the generous feeding they need in order to keep their flesh and give sufficient milk to keep the lambs improving. When the lambs are three weeks old, one end of the pen should be fenced off for their special use, with a "creep" in the hurdles so they can go through, while the ewes cannot, and if a bit of sweet clover hay be placed in a little rack, and a mixture of bran and chopped oats is kept in a low trough in the lambs' pen, the little fellows will soon learn to eat enough to help their growth and lessen the demand upon their mothers' strength. The lambs will soon learn to eat sliced roots also. Docking the lambs' tails should be attended to when they are from two to three weeks old, as the danger from the operation increases with every week after that age. Castration should be effected at the same age, if it is not a pure-bred flock and ram lambs that are not to be kept for breeding purposes. An occasional case of difficult parturition will occur. When a ewe has been in trouble for more than an hour it is well to make an examination to learn if the presentation of the lamb is normal; if so, another hour had better be given nature and the ewe to work out her own deliverance before interfering further. Many a good ewe has been ruined by over-officious meddling. If the presentation is wrong, put it right by as gentle means as possible, using warm water and oil on the hand, and when the lamb has been brought into proper position give nature another chance to do her work before hastening the work.

Live Stock Prices.

"The prices for all kinds of farm stock have been suddenly advanced, and horses, fat animals, both cattle and sheep, have increased in value, and are likely to do so for some time to come. Here in Dublin we have an advance of one penny in the pound for fresh meat, and a further increase is expected immediately. In London the same thing has taken place, and this week the retail prices will be increased considerably. If these prices are retained there ought to be a good time in store for owners of young cattle and sheep, as although the prices for these, in a fat state, show an upward tendency at present, the values are likely to go higher, and store stock will be sought for eagerly by those who follow the business of fattening. It should therefore be the aim of owners of store stock to turn them out for sale in as good a condition as possible. It is only when the first-class animals are disposed of that any inquires are likely to be made for the indifferent or poorly-fed animals. Many of our farmers have realized good prices for horses which they never dreamed of as being fit for military purposes, but for the needs of the present war the small, stout, active horse is considered the best. The present demand for these animals will remain as long as the war lasts, so that those having horses to dispose of can get remunerative prices for them. We strongly advise farmers to be most careful in the management of their flocks and herds during the spring months, and to see that all breeding animals have due attention in the matters of shelter and feeding."—*Weekly Irish Times.*

Trim the Bull's Feet.

The neglect to trim the overgrown feet of a bull makes him walk awkwardly and look ungainly, and may cause his legs to grow crooked. To look and feel his best he should stand straight and comfortably on his feet. The following plan of trimming a bull's feet is recommended by an experienced herdsman: Take a fine saw and saw off the point of the hoof as far back as is safe without touching the quick; then saw under the hoof, commencing just under the horn on upper side, and saw back towards the heel, sloping downward so that the saw will come out at the lower surface of the heel. A chisel may be pushed under to cut the piece away if the saw does not cut through the soft part at the heel. This will throw the animal's weight forward on the front of the hoof, and give him an easy and natural appearance. A rasp may be used to round the points of the hoofs. If the animal is nervous and liable to kick, a sack thrown over his head to blind-fold him may have the effect of quieting him, and if by scratching his head or shoulders his attention be attracted from the operation, it may prove helpful.

Jerseys in England.

BY F. S. PEER.

A LESSON IN BREEDING.

During my last trip to England I had the pleasure of visiting some of the principal herds of Jersey cattle in that country; i. e.: Mr. J. H. Shore's, at Whatley; Sir James Blyth's, at Stansted; Lord Rothschild's, at Tring; Lord Braybrooke's, at Audley End; and the Queen's herd, at Windsor. Of course, a detailed description of these herds in reasonable space is out of the question. I will therefore confine myself to the general impression I received in going about. Mr. J. H. Shore is a man of very pronounced ideas in regard to breeding, and such men are most useful, for they usually demonstrate to others, if not to themselves, that they are decidedly right or decidedly wrong. Mr. Shore has a herd of eighty or more. He lays great stress on color, richness of skin, and ears. Our attention was called to the inside of more ears than I have looked into in years. Mr. Shore is particularly fond of broken-colored Jerseys, principally, I believe, because where the hair is white you get a better view of the gold. He is very fond of ruffing up the hair on his spotted beauties to exhibit the color of their hide. Mr. Shore seems to rely upon color so much as an indication of richness that I did not have the heart even to ask him if he had not discovered that color went and came, or that an animal often showed higher color while improving in condition than when she reached or passed her full bloom. It seemed too bad to sow seeds of unbelief among a breeder's pet theories. We have, most of us, had to go through the same old theoretical mill—color and dimples, a corrugated spine, tortuous milk veins, and lastly, the rudimentary fad, which of all the signs I have mentioned is about the most nonsensical hobby of the lot, but like all the others, it seems bound to be ridden to a standstill. Mr. Shore

shows have made two classes, one for Island and one for English bred cattle. This amounts practically to an acknowledgment that the poor peasant farmers of Jersey are more successful breeders than many of the learned gentlemen of England. I am not now referring to Sir James Blyth's herd, but English breeding of Jersey cattle in general.

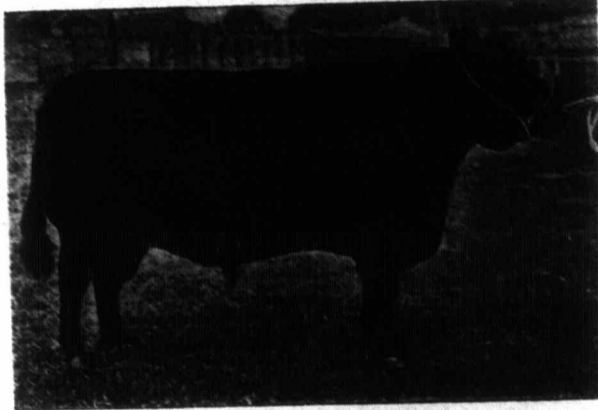
Our next visit was at Tring Park, the beautiful country seat of Lord Rothschild. This herd and the herd of Mrs. Greenall, at Warrington, are by common consent considered the two best Jersey herds in England. They have merited this distinction by having the largest number of very high-priced cattle. There may be small herds equally as good in proportion. We had a royal day at Tring Park. I never saw so many really high-class cows together, not even at our largest annual exhibitions. There were something over a hundred head, and not a weed or cull in the lot. The farm manager, Mr. Richardson Carr, was expecting us. I may say right here it is never considered the proper thing in England to go to visit any farm or stud without giving due notice of your coming, and arranging the date and hour of your arrival. Americans cause much confusion when they first go to England by not conforming to this custom of the country. Five minutes after our arrival a dozen men with as many white web halters were leading out as many cows at a time for our inspection. They were paraded around us in a circle, first one way, then the other, and finally halted in a line for more minute inspection. The cattle were in the pink of dairy form and in little short of prize-ring condition. Lord Rothschild makes a public sale every two or three years and sells without reserve all the yearlings and two-year-olds of the herd of his own breeding. Not an animal, however attractive, is retained or bid in. This kind of sale of horses and sheep as well as cattle is very popular all over England and Scotland, and the stock bring exceptionally good prices. It is too bad that the A. J. C. C. will not permit Americans to avail themselves of these rare opportunities to select high-class animals for outcrosses on their herds. The English breeders, as a rule, leave us behind in breeding for style and quality.

TESTS OF ENGLISH COWS.

The English breeders never have gone in for making butter records until lately, and although but few breeders have been induced to try it, they have demonstrated that their cattle are producers as well as pictures. Records so far, I believe, have been confined mostly to single-day tests at exhibitions. The highest record to date is 3 lbs. 6 1/2 oz. of butter, made last summer at the Tring Exhibition by Lord Braybrooke's cow, Sundew 4th. I haven't the least doubt but that there are many others equally as good. All they need is a Yankee to stuff the feed into them. Look at the three cows imported by C. A. Sweet, of Buffalo. Fourteen pounds is an exceptionally good record on the Island of Jersey, but Mr. Sweet in a year after importation makes the three cows produce 16 lbs. 10 oz., 19 lbs. 8 oz., and 21 lbs. 3 oz. per day. These were considered simply good fair dairy cows on the Island. There is hardly a man on the Island who would believe these cattle capable of doing over 14 lbs. I believe it would have been better for the Jersey interest if 22 to 25 lbs. a week had been the limit reached by our Jerseys. I well remember in the seventies, when we were all trying for 20-lb. cows, and Mary Anne of St. Lambert jumped the record up to 36 lbs., this seemed so far beyond what anyone had dreamed of that testing from that time on for years had a great setback. Englishmen, for the same reason, I believe, who have made tests and find their cows are only capable of doing 16 to 20 lbs. a week or at that rate, do not relish publishing their tests in comparison with 30 and 40 lb. records. Therefore, they do not "go in" for testing.

We saw at Lord Rothschild's a three-year-old cow, called Tulip, that is without question the most beautiful Jersey cow I ever saw. She is English bred, but her ancestry traces on all sides to Island-bred cattle. The price of this cow was 200 guineas (over \$1,000). This cow and a two-year-old heifer, called Twinkle, imported from the Island, captivated both Mr. B. M. Hawks (my visiting companion) and myself. These two animals are prizewinners and performers as well, and Tulip, at least, has not an equal in America, but she would be worth no more in this country than an ordinary animal, simply because the A. J. C. C. decline to admit an English-bred or even an Island-bred Jersey that is owned in England to be registered in this country. I am sure this is a great mistake, which I hope the Society will not be long in correcting. Let us buy our Jerseys anywhere in the world where we can find them that are an improvement on our own.

But I must hasten on to show you what I consider the best breeding establishment of Jerseys in England. I refer to Lord Braybrooke's herd, at Audley End. Of all the Jersey herds I ever saw, I never found one that comes up to such an ideal standard or exemplifies the art and science of breeding as does this Jersey herd of Lord Braybrooke's, which was founded in 1811 by importations from the Island. The former Lord Braybrooke was a very noted Shorthorn breeder. The Shorthorns were disposed of at public auction in 1885 at an average of \$540 per head, and this leads me to say that most English and Scotch breeders, who are to the manor born, have a great advantage over American breeders, who, as a rule, are thoroughly inexperienced in the handling and breeding of pure-bred stock. The present Lord Braybrooke, like hundreds of other breeders in England, has had the



ABERDEEN - ANGUS BULL, EQUESTRIAN 9953.
Winner of H. R. H. the Prince of Wales' Gold Medal, Highland Society Show, 1899.
THE PROPERTY OF MR. GEO. SMITH GRANT.

is a great believer in the "Fountain" family, which originated with Mr. J. W. Laby, of Jersey. And a very grand family they are and always will be in Mr. Laby's hands, for he is a most careful breeder, and selects his outcrosses with the greatest care; but I fear Mr. Shore, who seems to be going on a theory so often practiced in the States—i. e., that you cannot have too much of a good thing—will find that in and in breeding produces more weeds and rubbish than extraordinary animals. At least, this has been the lesson that many of us in the States have learned. This desire to get 100 per cent. sires that make such attractive-looking pedigrees is an experience which in most cases has cost the breeder dearly.

At Sir James Blyth's we found a herd of fifty or more. The animals of his own breeding were a very even lot, but, like many English Jerseys, they looked a little too growthy to suit our ideas of dairy type. It seems to be a universal fault in England that the stud bulls get too much growth. English breeders go to the Islands and buy a calf or yearling, which, if left on the Island, would never have exceeded 1,000 lbs. The English breeder feeds them so much better that some of the aged bulls turn the scales at 1,500 and even 1,800 lbs.

If I am more positive about one thing in breeding than another, it is against the use of large bulls on small cows. It is almost certain to be followed by a lot of coarseness in the offspring. Both observation and experience confirms me in the statement that large sires on small dams get size with coarseness, and that small sires on large dams generally produce size with quality. I have seldom seen a 1,500 or 1,800 lb. sire but that spoils most of his get with coarseness. There are, no doubt, notable exceptions. I believe that here lies the difficulty in keeping quality in some of the English herds. When this process goes on for a few years and such a bull's get are outclassed in the showing, the owner goes back to the Island and repeats the process, and this I believe is the principal reason why it happens that year after year the Island-bred cattle come to England and run off with the majority of the prizes. This thing has become so universal that some of the

experience of several generations before him. He has demonstrated, as I shall attempt to show, that he has been a thorough student in the art and has been led by the lessons his animals have taught him, rather than trying to force upon them ideas of his own. Here lies the great secret of successful breeding. Beginners are so apt to have either no notions at all or exaggerated ones that are antagonistic to the fixed laws of breeding. Since 1888 there has been no female bought into this herd, and only a few bulls to avoid in and in breeding. This is a herd of purely English-bred Jerseys, not an imported animal having been brought into the herd for many years. The beauty of it is, these cattle have all the style and quality of the Island cattle. There is not a sign of coarseness anywhere in this herd of nearly one hundred head. Possibly they would run a size larger than Island cattle, but His Lordship has demonstrated one thing that so many English breeders of Jerseys contend cannot be done—i. e., that Jerseys in England can be bred with all the style and quality of the Island cattle.

Lord Rothschild and Mrs. Greenall have equally as large and just as fine a herd as Lord Braybrooke, but they are mostly Island-bred cattle or their immediate descendants. In Lord Braybrooke's herd there is not a female, and hasn't been for years, but that was born on the place. In this herd you can see the results of the most successful breeding for improvement. There is probably not another Jersey breeder in the world that can show such wonderful results. When you consider the enormous improvement that has gone on in the breeding of Jersey cattle since 1850 on the Island, and see here a single breeder who, starting forty years earlier than this, has been able to keep the pace not only in respect to improvement in style and beauty and symmetry of form equal to the Island cattle and the highest standard of showing merit in England, but has produced the highest butter records from this herd of any in England with his cow, Sundew 4th, already referred to—i. e., 3 lb. 6½ oz.—we must acknowledge Lord Braybrooke to be master of the art and science of cattle breeding. I have forgotten the best daily record at an American exhibition. I think this is nearly if not quite as good as anything we have accomplished on this continent under like conditions.

Other English breeders have attempted the same thing, but, like some breeders in the States, they have produced a lot of coarse, ungainly-looking brutes that have only one thing left about them to suggest a Jersey, and that is their color. Lord Braybrooke has not only demonstrated what I have stoutly maintained could be accomplished—i. e., the production of a Jersey cow with the highest development in symmetry of form, style and beauty—but at the same time has also carried on the improvement of the utility part to the highest degree.

Here also we see a man who has successfully accomplished the best possible results in breeding, and has done it with the material he had at hand. Great bulls, fashionable pedigrees, great cows in other breeders' herds, have come and gone. Lord Braybrooke has never chased after a single one, he has done as I have often advised breeders in America to do—"hewn to his own line." A phenomenal cow is liable to spring up here and there, but that signifies nothing. We have been led astray time and again in this country by chasing after this and that blood, and lost sight entirely of the art and science of developing as good an animal from our own herds. We seem to forget, many of us, that great cows are born, not made. And no one can say by the looks of a tabulated pedigree where she is to come from.

Lord Braybrooke was offered 200 guineas for his cow, Sundew 4th, and like a sensible man sold her, although she has the highest butter record in England. What have we done in America when a phenomenal cow is produced? I will tell you. We make one grand rush for her blood, buying up all her daughters and granddaughters, her cousins and her aunts, her ancestors as well, cornering the blood if we can, then booming it for a hundred times more than it is worth. We breed in and in, in and in, to get a tabulated pedigree that shows the name of Sundew 4th in it as many times as possible, on the principle that if her name once in a pedigree enhances the value of an animal, the more times it is shown the better.

Lord Braybrooke recognizes that such a phenomenal yield signifies little or nothing except that Sundew 4th is a very artificial animal and that his chances of producing another 3 lb. 6½ oz. cow is quite as likely, if not more so, to come from some other source in his herd as that Sundew 4th will ever be able to reproduce herself. He wants no in-bred son of hers at the head of his herd to magnify her faults and with the increased danger of his descendants "throwing back" to some common inferior ancestry, such as the Jerseys of 1811 must have been.

When American breeders get past the days of fads and fashions that have caused many to breed backwards, and have graduated from the school of mistakes and failures incident to beginners, and which everyone must seem to learn for himself, there is no reason why we should not produce as fine and beautiful cattle as can be found in any other country. As it is, we have developed the dairy qualities of our Jerseys beyond all expectation. Now let us turn our attention to breeding for improvement in form, symmetry and beauty, style, carriage and all that goes to make our Jerseys as beautiful as they are great.

The Importance of Breed Type.

BY G. W. CLEMONS.

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

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

FARM.

Farmyard Manure—Its Value and Application.

TO THE EDITOR FARMER'S ADVOCATE:

SIR,—Your article on "The Making and Application of Farmyard Manure" is certainly deserving of favorable comment, and allow me to fully endorse the same by a few lines from my pen. Here on Annandale Farm, where we carry 150 head of cattle, 300 hogs, and 11 horses, the care and handling, with economy of labor, of manure is certainly of great importance to the proprietor, Mr. Tillson, who is well versed in the system of keeping up the fertility of the soil by clover, manure, and thorough cultivation of the land, and from a sandy soil we are able to reap excellent results. We have in our modern barn and hog-pen—fully illustrated in a former issue of the *ADVOCATE*—concrete floors and gutter (water-tight, of course) to catch all liquid, and same is carefully absorbed with solids and drawn out direct to field and spread on most level parts of farm. Team and wagon drive behind cattle, and manure is loaded in barn from gutter. When we consider that cows give somewhere near 20,000 lbs. solids and 8,000 lbs. liquid, and how many ignore the latter, the carelessness is appalling.

In hog-pen, Mr. Tillson has a water-tight floor and wall of concrete, where—when teams are busy—the manure is stored, loose excreta mixed with litter, oat hulls, etc., to act as an absorbent. Being much in favor of hauling manure direct to field, I quote your own words as striking the nail on the head: "The true policy is to grow clean crops and there will be no weed seeds to germinate," thus doing away with the chief argument against the above system. At the Guelph Dairy Convention last year I was much struck with Professor Shutt's splendid address re his experiments with manures, and I see, in referring to my notes, that it is the same you—in abbreviated form—put before us. Our Government bulletins and leading agricultural papers (*ADVOCATE* in front) give us farmers such excellent instruction that the man who will not read and act is certainly standing in his own light. Every tiller of the soil knows how manure deteriorates under the eavestrough, and still we find it there on many farms. If conditions necessitate the exposure of manure in the yard, an occasional distribution of land plaster will enhance its value.

From experiments made by reliable parties, we learn that nitrogen and potash are lost in larger proportions than phosphoric acid, and that dry earth is suggested as a help to retain these. We should note the large loss of the manurial constituents of manure under careless exposure in yards, and hasten to draw direct from stable to field. In this way it helps as a winter mulch, and in spring supplies food to growing plants. Cut straw makes a finer manure, and much benefit accrues from putting same on sandy land, as coarse manure is

naturally detrimental to a porous soil. Have a systematic rotation of crops, and arrange the placing of manure accordingly. I may here mention that I do not consider it economical to spread large quantities of manure per acre, as is sometimes done on fields near and handy to barn.

On this farm Mr. Tillson found lime to be beneficial in supplying plant food. We know that it unlocks unavailable phosphoric acid, potash, and nitrogen of the soil. On sour land lime is of great value. In closing, let me emphasize the actual necessity of every successful farmer looking well after the excrement of all animals, and the careful reading of your last article on this subject.

JOHN D. MACLEAY, Manager.

Annandale Farm, Oxford Co., Ont.

Farmyard Manure and its Application.

TO THE EDITOR FARMER'S ADVOCATE:

I am pleased to notice, in your last issue, your editorial upon this question, it being one of the vital problems with which farmers have to deal in their yearly operations upon the farm.

There is a great difference of opinion as to when, and in what manner, manure should be applied to the soil. In discussing this question we must understand that in keeping manure in the barnyard we certainly cannot increase its fertilizing elements, and great loss is often sustained by their escape during the process of decomposition. Prof. Roberts, of Cornell, found by experiments that horse manure piled up for four or five months loses one-half, while cattle manure lost forty per cent. We are also told that the liquid portion of manure, if allowed to lie in our stable gutters for twenty-four hours without being fastened, will ferment to such an extent that one-third of the nitrogen it contained will have passed off into the atmosphere. The first requisite in the making of manure is to have water-tight (concrete) stable floors, in order that the liquids, which are the more valuable portion of manures, may be held and absorbed by litter of some kind.

Our method in making manure is to keep our animals, with the exception of milk cows and work horses, in loose boxes, using for litter sufficient cut straw or sawdust to absorb all the liquids. These loose places are cleaned out every two weeks, the manure being hauled directly to the fields and spread upon the land. I believe this to be the best and most economical method of applying manure. Labor is a considerable item in the handling of manure. All labor expended upon manure certainly adds to its cost, but it does not add with the same certainty to its value. Therefore, I am content to let it alone until it is hauled directly to the field and spread. This system has many advantages. Under it manure of the very best quality is made. It is a time-saving method. It is handled in winter, when wages are lower and time not so precious. The land is never tramped, baked or cut up, as with the wagons in summer. During the decomposition of manure there is always a considerable degree of heat generated, and it is much better to have the generation of this heat going on in the soil rather than in the barnyard, where it aids in pulverizing the particles of heavy clay, assists in the solution of mineral matters, thus liberating plant food and making it ready for the plants to use.

Some farmers think there is great loss through evaporation by this method of application, but scientists tell us that there can be no escape of the valuable elements of manure without fermentation. Fermentation cannot be produced without a certain degree of heat, and this degree of heat can never be attained after the manure is spread broadcast upon the soil.

Then, again, we are told that in case of heavy snows the valuable elements of the manure are washed out and carried away by the spring rains as the snow is melting away. My opinion regarding this is, if the land is well drained (as it must be in order to receive much benefit from manure), by the time the water begins to flow off there is already sufficient surface soil thawed and softened to absorb any fertilizing elements that may have been washed from the manure.

The objection is also raised, that by applying the fresh manure to the soil noxious weed seeds will thus be allowed to germinate and grow. Our system of rotation should be such that, after the land has been plowed in the fall, the manure should be applied as a preparation for corn and roots, etc., the year previous to being seeded with grass seeds and clover with the following grain crop. When spring comes the manure should be worked in and incorporated with the surface soil—never plowed under. By carrying on a perfect system of surface cultivation during the growth of the corn, roots, etc., and just working upon the surface for the following grain crop (seeded also with clover and grass seeds), we are thus able to destroy all weed seeds which the fresh manure may have contained. Some farmers haul their manure to the field in winter, leaving it in small heaps till the frost goes out of it in the spring. I consider this a mistake, as the frost is a long time in getting out, and if we have a wet spring, much of the fertility will be in the soil under the piles of manure. Others, again, haul it out into large piles in the field, which causes double labor, and allows the manure to heat and ferment, and thus valuable ingredients must certainly escape.

Huron Co., Ont.

THOS. McMILLAN.

A Maritime Province Farmer's Method of Handling Manure.

I think it is settled beyond question that the greatest benefit is derived from manure when it is put on the land soon after it is made. For a long time I would not be convinced of it. It seemed to me that fermentation was necessary in order to render the plant food available, and if it had to take place in the soil it would of necessity be slow; but in view of the results obtained by experiments and the experience of others, I can no longer doubt, but I still question whether it is the best method to pursue in all places, and especially this part of Nova Scotia. Our land is hilly and our spring is wet, and I am afraid a great part of the manure would be lost by washing before the ground was thawed enough to retain it. My own practice is to collect the manure at the barn, using plenty of litter in the stables, and spreading the horse manure in the gutters back of the cattle. By these means the liquid manure is all saved, and the horse and cattle manures are intimately mixed. As the stables are cleaned every day the manure is added to a large, deep, square pile in the yard, and its own weight presses it very firmly. I don't like the plan of spreading it out in thin, flat piles, as it presents too much surface to the weather, and is unable to absorb all the moisture which falls upon it. During the winter and early spring this manure is hauled to the fields and again put in large piles, from which it is spread just before cultivation begins. A large part of my manure is made in box stalls, where it is necessary to use plenty of litter in order to keep the cattle clean, and this manure is hauled directly from the stables to the pile in the field. I have always been taught that it is good practice to keep the manure as near the surface as possible, but on account of the quantity of long straw, I have to plow it down; while for root crops it is spread in the bottom of the drill. No doubt I lose something by my way of handling manure, but I do not think it is much. I do not see much signs of heating, nor do the piles shrink much in size. The straw is somewhat broken up, but not much decayed, while the manure looks fresh and is full of moisture. The greatest fault I can find with this way of handling manure is that it is laborious, and the spreading has to be done at a time when time and labor are most valuable.

JOHN GREGORY.

Antigonishe Co., N. S.

Gleanings from Farmers' Institutes.

HELPFUL POINTERS BROUGHT OUT.

The Superintendent has been visiting some of the Institutes in the various parts of the Province during the month of January. All of the delegates interviewed say that they have never seen so much interest manifested in the meetings, nor such active discussions entered into. Where meetings were not so largely attended as they ought to be, the fault could almost always be traced to the officers themselves. Usually the advertising had not been thoroughly done. Most Secretaries have done well, and all are to be commended for what they have accomplished, but in a few instances the rules were barely complied with. The Secretary who works up the best meetings is not content with publishing and distributing bills and programmes, but he also keeps the local papers supplied with notices for some weeks beforehand. He also keeps his directors at work, and, in fact, talks "Institutes" everywhere, and all the time.

In the Kingston district, Mr. A. P. Ketchen and Mr. A. M. Campbell addressed some splendid meetings, and, it being a dairy district, they devoted a good deal of their time to this branch of agriculture. They were given good assistance by Mr. Jos. Haycock, ex-M.P.P., and Mr. D. D. Rogers, M. P. The benefits of the Kingston Dairy School are very evident everywhere, and the Superintendent and instructors are doing a good work for the dairy interests of the east.

In Prince Edward and Hastings Counties, Mr. J. E. Orr is talking fruit and orchards, and has given some practical object lessons by pruning specimen trees in orchards near the place of meeting. These will stand for the neighbors to see and imitate on their own farms. Mr. N. G. Somerville, of Lanark, discusses dairy matters, and he finds the Hastings County farmers are very much alive and earnest in all branches of dairy farming. Some of the herds were visited in their own stables, and the general impression left on the delegates seemed to be that the dairy farmers of the east were rapidly culling out their poor cows, and by careful selection and the use of thoroughbred bulls whose pedigrees were right, were bringing their herds up to a splendid standard of excellence.

MEETINGS MORE HELPFUL.

In Victoria County, Mr. T. G. Raynor and Mr. H. R. Ross were having successful meetings. Mr. Raynor says: "The farmers are getting more good out of the meetings than ever before. They are freer in discussions, and the kind of questions asked indicates that they are putting into practice the good ideas they have received at former meetings and from the publications issued by the Ontario Department of Agriculture." Continuing, Mr. Raynor said that at the evening meetings the best results were obtained where the programmes did not contain too many items of a frivolous or purely amusing variety. Good music was always appreciated, and it acted as a condiment to season the more substantial food supplied by the speakers on agricul-

tural matters. There was a tendency for some Institutes to employ local talent to assist in rendering entertainment only, expecting the delegates to do all the speaking on the topics relating to the farm. Mr. Raynor says this is a mistake, for a local man knows the needs of his neighbors, and by introducing subjects of vital interest, and leading the delegates to devote most of their time to the discussion of these subjects, the very best good is accomplished, and one of the objects for which the Institute system was started is attained.

Mr. Ross, in his talk on "Breeding Types," laid stress on the fact that a good conformation and other apparent excellent qualities were not in themselves sufficient to warrant the selection of a sire for the dairy herd. "In choosing a bull for our herd," said he, "we look first at the record of his mother. Then we make sure that he is strong in those individual points where our cows are weak. He must also be distinctly active and masculine in every feature. We injured our herd by using a bull one season who, though scoring high in a standard scale of points, lacked strong masculine qualities. The calves in every instance were lacking in nervous force."

IMPROVING THE LAND.

Mr. John I. Hobson and Mr. W. C. Shearer are in Peel, York and Ontario Counties. Meeting Mr. Hobson in Peel, his first remark was: "I have been doing Institute work now for about twelve years, and I have never seen such enthusiastic audiences as we have had this year." "Mr. McCulloch is a great secretary," said Mr. Shearer. "The halls are always well lighted and heated, the meetings are started on time, and the whole thing goes off with a snap and a vim that means business right from the start. Peel will have over 500 members this year, and Mr. McCulloch will see to it that each one gets his money's worth. He has engaged my ser-



SAMPLES OF GRAIN GROWN IN LAT. 58°, 45'.

Vermilion, Peace River, seven hundred miles north of Edmonton, Alta. Gathered Aug. 26th, 1899. By Mr. Lawrence (standing amongst it). His height is 5 feet 9 1/2 inches.

vices for one other meeting," continued Mr. Shearer, "and I understand that Mr. Duncan Anderson and Miss Laura Rose have also been secured. He knows the dairy business, too, and helps us not a little by his pertinent questions and practical suggestions."

"Is rye not as good as clover to plow under for green manuring?" someone asked Mr. Hobson. "No, sir," came the reply. "But suppose your land will not grow clover?" "Then grow peas. Peas and clover take nitrogen from the air and store it in the soil. Other crops can then be grown, feeding upon this new supply of nitrogenous material." "I have improved my land," said one, "by plowing under turnips, yet we are told that turnips contain little else besides water." This was explained by the statement that any vegetable matter turned under would improve the mechanical condition of some soils, and that decayed vegetable matter made humus. Humus in turn made it possible for certain minute organisms to carry out their work of rendering available for plant growth food material already present in an insoluble form in the soil.

PIGS NEED MORE ROOTS.

"In my opinion," said Mr. John McMillan, M. P., to the farmers of Essex, "we are not feeding roots enough to our hogs. In South Huron many of us feed ten pounds of mangels a day. We start with the pigs even before they are weaned. At five or six weeks old they take to roots eagerly, and during their entire growing period they can be fed with profit." Mr. F. M. Lewis, of Burford, who accompanied Mr. McMillan, says: "I still find too many orchards in grass. We are willing to accept one crop in the shape of grain, hay or roots off the rest of our fields, but expect our orchards, without cultivation, to give us each year an abundant harvest of fruit and a crop of hay besides. More cultivation, better cultivation, and more manure have got

to be supplied before we can get the best results from our fruit trees." Mr. Lewis thinks the regulation of "soil moisture" is one of the problems Ontario farmers have to solve. "All plant food taken from the soil by the plant must be in a state of solution. How can we best preserve in the soil just the proper degree of moisture for plant roots to do their best work?" This question Mr. Lewis discussed most intelligently, and the consensus of opinion seems to be that rolling after sowing on most soils is beneficial, but where the land is not stony it should be lightly harrowed afterwards.

GROW MORE CLOVER.

Duncan Anderson says to the farmers of Division 4: "Grow more clover. You can take off a good harvest of this crop, and yet leave your land richer than it was before. Take off your crop of clover hay, and with a stubble four inches long and a root growth of from 12 to 24 inches, as we find it in the red clover, you have left in actual manurial value \$30 per acre. Three things," continued Mr. Anderson, "we must do to get the best out of our soil:

"(1) We must grow leguminous crops to restore and maintain fertility.

"(2) We must cultivate and pulverize well to provide the roots with a loose soil in which to spread themselves.

"(3) We must always prepare our seed-bed well, and keep the manure near the surface, that the young plants may get a good start.

"Stunt a plant or an animal," said Mr. Anderson, "and no amount of food or attention afterwards will obliterate the effects of the bad start."

UNDERDRAINING NECESSARY.

Mr. A. W. Peart, of Burlington, says that some lands can never be brought into a proper state of cultivation without underdraining. "There is little use, however, in draining a field unless it is thoroughly done. Lay out the main drains first and then the laterals. You do not need to go so deep in clay as in sandy soil, and there is some danger of placing your tiles so that the surface water never penetrates to their depth." Mr. Peart finds it best to use a wooden outlet for tile drains, as it is less liable to be broken by stock, and if a square or triangular box ten or twelve feet long be used, it cannot be easily obstructed at the mouth by a breaking away of the soil around it. The mouth should be protected by wire or iron bars to prevent small animals from penetrating the drain.

As viewed from the standpoint of an Institute worker, the agricultural conditions in Ontario are improving every year. A greater diversity of products and our rapidly increasing export trade necessitated a changed condition of farm management. The farmer of to-day has problems to solve and enemies to combat that were unheard of twenty years ago. He therefore requires a more technical training and a better general education. In travelling from county to county, and township to township, the two things that most strongly impressed the Superintendent were the necessity for a deeper knowledge of the scientific principles underlying our business, and the fact that we do not devote enough thought to maintaining and increasing the fertility of our soils.

New Kinds of Seed Grain.

To the Editor FARMER'S ADVOCATE:

SIR,—Seed time will soon be here, and as there is often a number of inquiries with regard to new varieties of grain, I venture to take the liberty of writing with regard to some of the newer varieties that have been grown in the northern part of the Township of Etobicoke, County of West York.

The Success or Beardless Barley.—The Success barley has been grown in this part for the last four or five years. After the harvest of 1899 the amount of bushels threshed in this neighborhood could be counted up in the thousands. I had 9 1/2 acres, which yielded between 350 and 400 bushels. I sold about 300 bushels at the elevators at Malton station for 41 cents per bushel, and it was emptied amongst the other kinds of barley, to be shipped to the breweries or exported out of the country with other barley. We got the same price for it as for other barley. It requires good strong land. I would not advise any person to sow it on light sandy land. It ripens about six or seven days sooner than the Russian barleys, and on account of there being no beards the straw makes excellent feed when run through a cutting box. It is the earliest grain to ripen that is grown in this part, generally being cut before fall wheat is ready. There has been a small quantity of the Mandscheuri (not Magsury) grown in this locality, and by all accounts it is going to be the coming barley for general crop.

Black or Hulless Barley.—This is a barley that a great many people make a mistake with when drilling it into the land. They seem to have the idea that because it is called barley they set the drill to put on about two bushels of barley to the acre, and the consequence is, when it comes to head out the heads will be very short on account of being sown too thickly, and the chances are they will have a poor yield. It is of the same weight per bushel as wheat, and sometimes when well cleaned will test 65 lbs. to the bushel. It will run out of the drill faster than wheat, therefore when setting the drill set it to sow wheat. I set the drill to sow a little less than a bushel and a half of wheat per acre, and the Black barley was plenty thick enough. Some people claim that it will yield over 40 bushels to the

acre. I had last year about 30 bushels to the acre. When it is ground into meal it makes the best feed for hogs that there is, or mixed amongst oats and ground up it makes a good meal for horses.

Spring Wheat.—The principal kind of spring wheat grown in this part is the Wild Goose variety. We can get more per bushel for it than we can for fall wheat at the present time. It is exported to Spain and Italy to be made into what is called macaroni, which is a food greatly used amongst the Spanish and other European people. I have grown a spring wheat called the Preston for about three years. It was sent to me from the Ottawa Experimental Farm, but I never could get any more than about 20 bushels to the acre with it, so I sold it to the mills this winter for the same price as fall wheat. The Preston is a good wheat; in fact, I would venture to say is next the Wild Goose for general crop in Ontario. The Wild Goose will yield in this part all the way from 20 to 40 bushels per acre. I had about 25 bushels per acre last year. It requires good strong land. Would not advise sowing it, on any consideration, on light sandy land; would sooner sow the Preston on sandy soil.

Oats.—We have tried a great many different varieties of oats in this part. The Banner, Newmarket and Joannette are the leading varieties. The Siberian is of no use here; it is too weak in the straw and too light in the grain, and yields from five to ten bushels less per acre than the Banner. There is an oat called the Bavarian that is going to be a leading oat for general crop in this part. About four years ago I sent to Philadelphia for a peck of oats called the Danish Island. I sowed them and threshed from the peck that I sowed about a bag and a half of the lightest weighing oats I ever grew. It is needless to say that I did not sow them any more.

R. T. WOOD.

EDITORIAL NOTE.—We would be glad to receive concise reports of the above nature from readers in other districts, stating: (1st) what varieties of grains have done best with them, mentioning their special good points; (2) mentioning any varieties that have proved failures, and in what particular; and (3) what methods of spring cultivation and seeding have been found most satisfactory, specifying the sort of soil in question. We would be obliged if our readers would send in their replies promptly.]

Mr. Lemuel Kelly's Stock Barns.

Perhaps the plans and description of this barn would be a help to some who intend repairing or remodeling in the near future. The barn is 55 feet long and 45 feet wide, and an open shed on south 12 feet wide, the entire length of barn. The drive-house at south-west corner of barn is 36 by 36 feet. The barn is 55 by 45 feet, is on a stone wall 20 inches thick, which is 2 feet in the ground and 8 feet out. A tile drain running around the wall keeps it dry both inside and out. The floors, when completed, will be cement concrete throughout the whole building. The cement used is Thorold, which is mixed 2 parts to 7 parts of good gravel. Where the cows stand the cement was mixed 1 to 1, making a very strong floor, which is kept clean, saving all liquid manure, which is the most valuable.

The basement accommodates 25 head when room is needed, but generally 20 head is as many as there are on the farm. The cow stalls are 7 feet wide and 5 feet from manger to gutter, which is 16 inches wide and 6 inches deep. The floor of stalls slopes 2 1/2 inches to gutter, which keeps bedding from getting wet. The passage behind cows is four feet wide; mangers 2 feet wide and 14 inches deep. The stall posts are set 2 1/2 feet in the ground and embedded in concrete. The cows are tied with chains fastened to iron bars running perpendicular on side of stalls. The horse stalls are 6 feet wide and arranged so as to accommodate two cows when needed. The stables are well lighted, having ten large windows. Ventilation is fixed at chutes where feed is thrown down—marked in Fig. II. The partitions are not boarded high, allowing the light to reach all parts of the stables. The box stall and horse stable are rodded up to the top so as to prevent horses from reaching or climbing over.

The root-house, which holds 2,000 bushels, is stoned off so as to prevent the dampness and steam from the horses. When roots are all out this makes two very good box stalls for calves or cows when needed. The stave silo built last summer has just been opened. The ensilage has kept well and is of more value than can be told for winter feed. It certainly is what every one engaged in dairying or stock-raising should have. The silo is 12 feet in diameter and 24 feet deep, which holds nearly 60 tons. It occupies a corner where there used to be two cow stalls and about two tons of hay or straw above. The shed shown in Fig. I. is a great benefit, keeping storms from beating on doors and windows; now they are all dry and work all right, and it is always dry outside the stable—no snowbanks to shovel. The drive-house is 36 by 36 feet, which is used for the rigs and harness and also for a summer

horse stable, which is convenient to barn and also house, which is about 45 yards away.

The barn plan show in Fig. 2 is roomy and convenient for filling and threshing. The granary is large and light and in a convenient place. The mows are large and in good shape. Such is a very fair description of a barn on Mr. Lemuel Kelly's 100-acre farm, which is in Burford township, in Brant County, Ont.

EDITOR'S NOTE.—It is unfortunate that the space at hand was such that it seemed necessary to confine the passages behind cows to four feet, as such a width will not admit of using a horse to clean out the stables. It also seems to us unwise to use indoor space for a silo.]

Nova Scotia Farmers' Association.

The fifth annual meeting of the Nova Scotia Farmers' Association was held in New Glasgow, Jan. 24, 25, 26. Among those present were: Dr. Wm. Saunders and J. H. Grisdale, of the Central Experimental Farm; Prof. F. C. Sears, Wolfville; R. Robertson, Supt. of the Experimental Farm, Nappan; B. W. Chipman, Secretary of Agriculture for Nova Scotia; Prof. H. M. Smith, Truro; F. L. Fuller, Supt. of the Provincial Government Farm, Truro, and J. E. Hopkins, Supt. Nappan Dairy Station. There were also 49 delegates from various agricultural societies in the Province.

President Blair, in his opening address, gave a review of the work of the Association during the past year, and called the attention of the Association to several subjects which he thought the Association should take action upon. These were the Manitoba Tile Drainage Bill, the establishment of a Bureau of Information, and the encouragement of sheep-raising by legislation regarding dogs.

The Manitoba Tile Drainage Bill had been introduced into the House of Assembly in 1889, but found no sympathy in that body. The Act was

at the last meeting to pork-raising and dairying. He thought sheep-raising was much more important, and that the high lands, which were now being abandoned, should be stocked with sheep. The returns of the first year would repay the original outlay in animals.

Mr. Robertson spoke of an experiment which he is conducting of bringing up a piece of exhausted land by means of sheep. He had placed twenty-five sheep on ten acres of land, and had supplemented the pasture with grain to the value of their wool. This year, by supplementing the pasture in the same way, the land had been able to carry thirty-five sheep. He thought in a short time the land would be rendered productive without any expense.

In his address upon "Live Stock Upon the Farm," Mr. Robertson said that he could not understand farming being successful without live stock. In Nova Scotia there was room for a great increase in all kinds of live stock, but he thought that of all live-stock industries, none was of such great importance as dairying. It was not only profitable in itself, but there was no means by which fertility could be so well built up. He thought dairying could be more profitably conducted in the Maritime Provinces than in Ontario, as feed could be more abundantly and cheaply raised. A thousand bushels of roots could be counted on here for eight hundred in Ontario. He advocated winter dairying, as prices of dairy products then ruled higher, and a cow that calved in the fall gave more milk in a year than one that calved in the spring. He emphasized the fact that to be successful in dairying, cows must be selected from dairy stock.

A paper, "How to Keep our Girls at Home," by a mother, was read by Mrs. Baillie, as the lady who wrote it was ill. She said that girls did not leave the farms because they did not love their homes, as was shown by the number who returned and spent their savings upon the farm, but because farming, as now carried on, did not yield returns enough to support the family comfortably. They felt that their labor did not pay for itself and that they were a burden to their parents. The remedies suggested were the public schools; agricultural societies, which would enable farmers to improve their stock; this association, which enabled farmers from different parts of the Province to meet and discuss questions relating to their calling; and the establishment of dairy schools, where girls could be taught improved methods. The moral of the paper was that if the girls are to be retained upon the farm they should be taken into partnership.

Prof. Sears, of the Nova Scotia School of Horticulture, gave an address on "Spring Work in the Orchard." He said: The time for pruning varies in different localities, and each different variety of tree requires different treatment, but some general rules can be laid down. The early spring is about the best time for pruning, as then the wounds are not long exposed. Experience is necessary to do the work well. The top generally requires to be thinned; take out all dead wood and all branches that rub; cut as close to the main branches as possible; large wounds should be covered with good lead paint. All prunings should be burned, as myriads of insect eggs are thereby destroyed. Trees which do not bear well, even when well cared for, can often be brought into bearing by a severe summer pruning. The best time for top grafting was about a week before growth began in the spring. Limbs to be grafted should not be over two inches in diameter. Saw them off square and split through the middle for two inches. Scions should be cut wedged shaped and set one on each side of the stock with the inner bark corresponding. The whole wound should then be covered with grafting wax. Scions should be selected from trees which are known to be of good varieties and good bearers. They can be cut at almost any time, but autumn was preferable. For early spring spraying he would suggest a solution of rock potash, one pound, to from two to eight gallons of water. There was nothing which would give trees such a clean, thrifty appearance. A solution of blue vitriol could also be applied early in the spring.

On Thursday Mr. J. H. Grisdale gave an address on the development of the dairy herd, which he illustrated with life-size portraits of noted milkers. He said: "There are three ways of developing a herd: by selection, breeding, and feeding. Select by performance, weighing and testing the milk; by form, but in order to do this we must have some idea of what form is best. While a good heart and lungs are important, still more so is the abdomen, which must be large, giving great capacity. The mouth should be large and the jaws powerful, giving great power of mastication. The conversion of food into blood is only half the work; large organs for the elaboration of the blood into milk are necessary, and to give room for it the hind legs should be wide apart and thin. In order to stand the strain of converting these rough foods into milk, a strong constitution is necessary, and this is shown by a good development through the shoulder, giving room to the heart and lungs. As the elaboration of milk is largely a nervous function, therefore we want a large forehead, giving plenty of brain room, and a large, quick, prominent eye, showing a quick disposition. The next step in development is by breeding. Select a well-bred sire of a good milking strain, and stick to the breed you start with. Get a masculine animal, yet one possessing the characteristic form of the dairy cow. Strive to increase the size of your animals, as a large cow is always preferable to a small

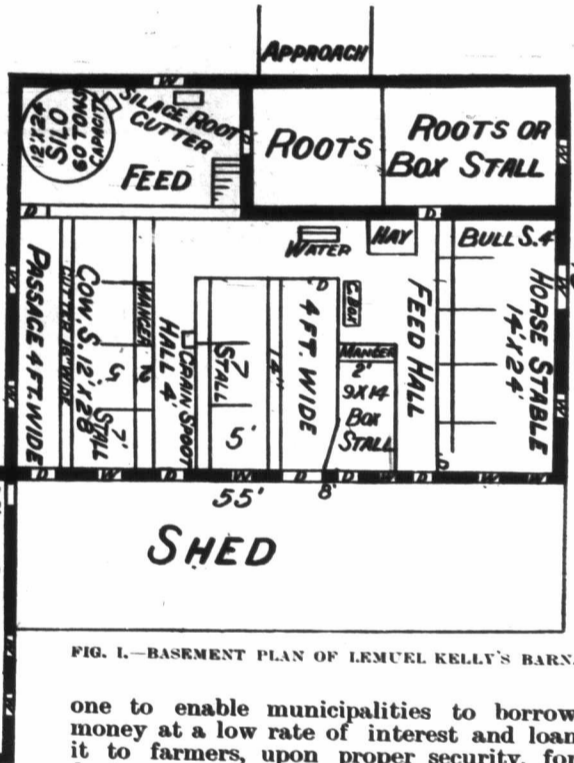


FIG. 1.—BASEMENT PLAN OF LEMUEL KELLY'S BARN.

one to enable municipalities to borrow money at a low rate of interest and loan it to farmers, upon proper security, for drainage purposes only. The municipality was to collect each year, along with the principal as would redeem the loan in twenty years.

The Bureau of Information was to be an office where descriptions and prices of farms which were for sale in different parts of the Province could be obtained. It could keep in touch with the office of the High Commissioner in London, and furnish reliable information by means of pamphlets.

The sheep industry was of great importance, but it was being seriously menaced by the worthless curs which were now allowed to roam the country. So great was the loss from this cause that many farmers were obliged to give up sheep-raising altogether. He thought the Association should take the matter up and press for legislation on the subject.

The committee to whom the address was referred afterwards reported recommending its adoption. The discussion on the report resulted in the clause relating to draining being referred to a committee to report at the next annual meeting. A committee was also appointed to draft a resolution recommending legislation regarding dogs. The clause relating to the Bureau of Information passed with the recommendation that it be connected with the Provincial Department of Agriculture.

W. W. Hubbard gave an address upon the necessity of better agricultural education. He showed the present indifference of farmers upon the subject and the benefit of Institute meetings in awakening their interest.

W. McG. Johnson, of Upper Stewiacke, read a paper on "The Sheep Industry on the Farm." He outlined the proper treatment and handling of the sheep. He thought it was one of the most profitable branches of agriculture that could be carried on in Nova Scotia. The returns were quick and they gave three crops in the year—wool, lambs, and mutton.

Mr. Parcey referred to the stress which was paid

one, but do not sacrifice form to size. In feeding we must have in view what we want to get—milk. As milk is composed largely of albumen, we must therefore feed largely of protein, and as most of our coarse fodders only contain it in small amounts, we must supplement them with more concentrated foods, such as bran, oil meal and cottonseed meal. Feed a narrow ration of 15 or 14, and feed continuously.

James Norrie, in his paper on beef-raising, showed that our principal markets were largely supplied by importation, and he contended that Nova Scotia could easily and profitably supply her own demands and have a surplus for export. He thought the high lands should be devoted to growing store cattle, which would be fattened by the farmers on the low lands. These steers were to be raised upon turnips and straw, and should weigh 1,000 lbs. at two years old. This suggestion was severely criticised, as it was thought that the farmer who produced such an animal had not much more to do to finish the fattening process.

Mr. Peter Innes read a long and elaborate paper on the Provincial Exhibition and its improvement. He favored Government control, Halifax to pay a subsidy and be represented on the commission by the mayor only. Manufacturing and mechanical industries should have better representation, while that of agriculture, which was now very large, should be reduced. The prize list should be remodelled. Undue preponderance was now given to agriculture, and especially to professional cattle breeders. Prizes given to different breeds should have regard to their proportion in the country. He advocated an annual exhibition for all the Maritime Provinces, to be held alternately in Halifax and St. John, Prince Edward Island to participate upon payment of a subsidy. In the alternate years district exhibitions should be held in different parts of the Province. He would confine exhibits to our own Provinces or such other Provinces or States as gave a reciprocal return.

Mr. S. C. Parker, in his paper on "The Fruit Situation in Nova Scotia," said: "Apples have been grown in Nova Scotia for over 200 years, and trees at Annapolis Royal and Grand Pré which were planted by the Acadians are still doing good service; but it is only during the past quarter of a century that the industry has made much growth. In 1863 the Nova Scotia Fruit Growers' Association was established. In 1872 the first shipment of a few hundred barrels was made to London, and this date marks an epoch in Nova Scotia fruit-growing. The orchard acreage has steadily increased, and the banner year of 1896 saw 500,000 barrels sent to market. Until quite recently it was thought that in order to properly fertilize the orchard it was necessary to keep and feed live stock, and the scarcity of manure restricted the planting of trees, but now commercial fertilizers were used with good results. As compared with other systems of farming, fruit-growing was much the more profitable. Hundreds of farmers in the Annapolis Valley were this year taking from \$200 to \$4,000 for their apples alone. He thought fruit-growing could be made profitable in any part of Nova Scotia, and advised each farmer to raise at least enough to satisfy his own demands."

Mr. J. E. Hopkins, of the Nappan Dairy Station, spoke of buttermaking on the farm. He advocated the travelling dairy to give practical instruction in isolated sections where creameries could not be maintained, and thought one of the principal causes of bad butter was the custom of disposing of it in trade. If it were sold on a cash basis and discrimination used in grading it, a marked improvement would result.

Mr. J. Rufus Starr, in his paper on "Feeding Dairy Cows," said that skillful feeding demanded that cows receive a ration of a certain nutritive ratio, and by means of a chart he showed how, in order to obtain this without compelling the cow to consume enormous quantities of coarse foods, it was necessary to combine with them small quantities of highly concentrated foods.

Papers on "Agricultural Education" were read by Messrs. F. L. Fuller and Percy Shaw, which advocated the establishment of an agricultural college and elementary instruction in the common schools.

Mr. P. C. Black read a thoughtful paper on "Beef-raising," in which he contended that Nova Scotia offered a profitable field for this industry.

Mr. M. G. DeWolfe, President of the Maritime Board of Trade, extended his congratulations to the Association on their work. The Board of Trade was very much interested in the Association, as they were largely working on the same lines. Of twenty-one subjects discussed by the Board at its meeting in St. John, one-half were of direct interest to farmers. He drew attention to the fact that King's County is the only county in Canada that has a County Board of Trade, composed almost entirely of farmers.

The following officers were elected:

President—Wm. Corning, Yarmouth.
 1st Vice-President—George C. Lawrence, Port Hastings.
 2nd Vice-President—John Donaldson, Port Williams.
 Directors—Col. Wm. Blair, Amherst; S. C. Parker, Berwick; F. R. Trotter, Antigonish; S. J. Moore, Shubenacadie; W. J. Maxwell, Durham.
 Auditors—J. Rufus Starr, Port Williams; F. H. McPhie, Antigonish.
 Exhibition Commissioners—Jos. R. Wyman, Yarmouth; David Logan, Pictou.
 Secretary-Treasurer—Chas. R. B. Began, Durham.

P. E. Island Meetings.

FARMERS AND DAIRYMEN'S AND FRUIT GROWERS' ASSOCIATIONS HAVE LARGE AND ENTHUSIASTIC MEETINGS.

The semi-annual meeting of the Provincial Farmers and Dairymen's Association was held at Marshfield on the 18th and 19th of January. There was a very large attendance of farmers present from all parts of the Island. The president, Walter Simpson, of Bay View, occupied the chair, and the following was the programme of the two days' meeting:

Address—"Tuberculosis in Cattle,".....Dr. Robertson, ex-M.P., [of Montague].
 Paper—"Adjuncts to Dairy Farming,".....F. G. Bovyer, George [town].
 Paper—"Pork Raising,".....J. A. McDonald, Hermanville.
 Address.....A. G. Gilbert, Poultry Manager at the Exp. Farm.
 Address—"Agricultural Education,".....W. W. Hubbard, Editor [Co-operative Farmer].
 Paper—"How to Make Farm Life More Attractive,".....President [W. Simpson].
 Original Poem.....Wm. Thomson, Marshfield.
 Address—"Transportation,".....Joseph Wise, M.P.P.
 Paper—"Poultry for the British Market,".....J. Wheatley.

at present, was not nearly so profitable as it should be. The reason given was that the bacon-curing establishment in Charlottetown was not properly conducted, and as a consequence we did not get as much for the best bacon hogs as corn-fed pork brought in the U. S. markets. The statement was made, and not contradicted, that the Charlottetown factory had not been a success in curing the best quality of bacon, and that there was no encouragement to breed and feed the bacon hog while the price for thick fats was the highest. Mr. Cotton's paper advised the extension of the co-operative principle, which had been so successful in our dairy business, to other branches of agriculture, such as improvement in stock by getting the best sires.

The paper by the president was an argument for higher aims and a broader culture among farmers, and also a strong plea for making our homes more attractive and our country more beautiful by planting ornamental trees about the buildings and along the roadsides. Other papers of very especial interest were on "The Farmer's Orchard," and "The Value of Literature," but space forbids enlarging on them.

This meeting was pronounced by all present to be the best agricultural meeting ever held on the Island, and our visiting friends, Prof. Gilbert and W. W. Hubbard, said it was very seldom they had the privilege of attending such a large and enthusiastic meeting of farmers.

The Provincial Fruit Growers' Association met in Charlottetown on Wednesday, the 24th of January. There was a good attendance, and great interest taken in the meeting. Mr. Patriquin, a prominent and successful fruit-grower, of Wolfville, N. S., was present by invitation, and gave valuable information about the care of orchards, the best kinds of apples, and the best way to pack and ship them to the Old Country. Rev. A. E. Burke read an instructive paper on "How to Prune an Orchard." J. S. Clark, of Bay View, a graduate of the N. S. School of Horticulture, gave a paper on "The Medical Treatment of Plants." F. G. Bovyer described a "P. E. Island Ben Davis Orchard," of which he is the proprietor and which he has made a great success. Senator Ferguson read a valuable paper, entitled "The Commercial Orchard." The Senator is a very successful grower of good shipping varieties. The discussions on these and other subjects were exceedingly interesting, and went to show that the people of the Island are studying horticulture with a view to making it a paying industry in the future.

Bean Growing.

The method by which we have produced our heaviest crops of beans is as follows: We prefer a sod field, fall plowed, and manured during the winter. As soon as spring opens this is worked over about once every week or ten days, for the purpose of rotting the manure, killing the weed seeds, and producing a moist, mellow seed-bed.

The last week in May the beans are planted either with a bean drill, which drops them in hills every six inches, in rows twenty-eight inches apart, or with an ordinary grain drill. From ten to twelve acres can thus be planted per day. Cultivation should begin as soon as they show above ground, using a two-horse cultivator, which does the work rapidly and well, and should continue until they begin to bloom. To make them yield their best, they should be kept perfectly free from weeds, and to do this we usually hoe them once.

In about eighty days from planting, ordinary varieties are ready to harvest. This is rapidly accomplished with a "bean harvester," which cuts, or, rather, pulls, two rows at a time, as fast as a team can walk. They are forked carefully into windrows, and left to dry until they will rattle when handled.

In connection with harvesting, it is better to cut them a little green, as they shell less and make a whiter sample. To reduce loss from shelling, we cut while the dew is on, and fork and load carefully upon tight-bottomed hay racks.

The varieties most widely grown are the Pea and Medium. For the past few years the former has taken the lead, being a heavier yielder and commanding slightly more per bushel in the market. Last year we grew a new variety of Pea bean imported from California, which seems much ahead of any of the old varieties. It ripened from five to ten days earlier, which is a great advantage in itself; seemed more thrifty and withstood the drought better, and while other varieties yielded from fifteen to eighteen bushels, ours rolled out at the rate of twenty-five and a half bushels per acre, and are pronounced by all who have seen them to be the finest sample grown in these parts.

Until the bottom dropped out of the market, beans were one of the most paying crops grown by Kent and Essex farmers. But prices slumped to 50c. and 60c. per bushel, consequently all but a few quit growing them. The scene has changed, however. The prices have gone skyward, until they now bring \$1.25 to \$1.40 per bushel, and as a result one of the largest acreages of beans on record will be planted in 1900.

Kent Co., Ont. W. A. McGEACHY.

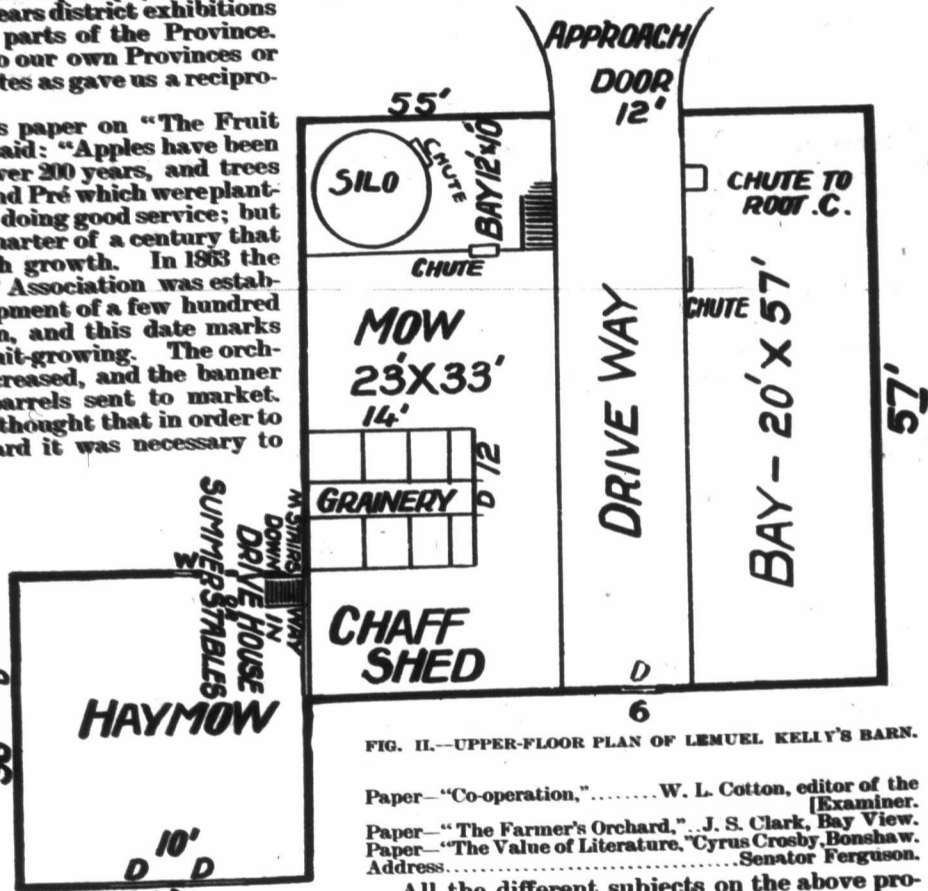


FIG. II.—UPPER-FLOOR PLAN OF LEMUEL KELLY'S BARN.

Paper—"Co-operation,".....W. L. Cotton, editor of the [Examiner].
 Paper—"The Farmer's Orchard,".....J. S. Clark, Bay View.
 Paper—"The Value of Literature,".....Cyrus Crosby, Bonshaw.
 Address.....Senator Ferguson.

All the different subjects on the above programme were well handled by the speakers, and thoroughly enjoyed by the large audiences present at each meeting.

In the discussion which followed each paper and address many points of value were brought out. On the subject of "Tuberculosis in Cattle," there was considerable difference of opinion, some of the speakers claiming that there was danger of infection of healthy cattle from the use of tuberculin, but this was shown to be impossible by the doctor who led the discussion of the subject. F. G. Bovyer, of Georgetown, our most prominent breeder of Shorthorns, took strong ground against the use of tuberculin, and said he knew large cattle breeders in Ontario who would not for thousands of dollars have their herds tested. Mr. Gilbert's address on "Poultry on the Farm" was listened to with marked attention by an audience of over 300 people. He is an immensely popular speaker, and handles his subject in such a way as to convince his hearers. He advised farmers to engage in the poultry business, but not to neglect other departments of the farm. He preferred the Barred Plymouth Rock to other breeds, as they were the best kind where both eggs and dressed poultry was the object. This, he said, had been proved by a number of experiments conducted by him at the Experimental Farm at Ottawa. Mr. Hubbard's paper was a strong plea for the broader education of the farmer. As some of the means to this end he suggested: 1st, direct appeals to the people through local meetings or Farmers' Institutes; 2nd, through the agency of the press, both the agricultural and the news press; 3rd, through the schools of the country, in opening the children's intelligence to the natural world around them and the opportunities about them.

In the discussion of Mr. McDonald's paper on "Swine Raising," it seemed to be the opinion of all the speakers that our swine industry, as conducted

A. G. Sparling's Barn.

To the Editor FARMER'S ADVOCATE:

I submit plan and description of my barn, intended for 100-acre farm, which may be helpful to someone in building. It is built on level ground, 100 feet from my well and 200 feet from my house, the well being between. I have a 13-foot power mill on the barn, the mast of which runs down into basement with gear on it to run suction pump and root pulper. It also gives me all the power up-stairs in barn that I need. I have a mast grinder with hopper in granary. My cutting box stands over feed-room, feed going direct down as it is cut.

The pump above mentioned works complete; it lifts the water 21 feet out of the well, and then, by means of a three-way tap, it is turned into the house, yard, or basement of barn, whichever is needed.

I have everything set so that I can cut feed, grind grain, pump water and pulp roots all at the same time, or I can run each one separately if I wish. The barn is built of good material and stands on a stone foundation 4 feet high. The posts are 21 feet high, making the barn 28 feet to top of wall plate. Trapdoor in center of barn floor lets the feed from one end down into basement, and trapdoor on side lets feed from the other end down into basement. All the feed drops just in front of the stock. The stables are all floored with pine plank, and well underdrained with tile. The ceilings are 9 feet high. All the windows are on slides, so that they can be opened any time I wish. The outside wall (4 feet of it, as has already been mentioned) is of stone; the remaining 5 feet is double boarded, with tar paper between, making the stables very warm and dry. The barn floor is down 2 feet below the mows, which makes the approaches very easy to ascend. The floor being down 2 feet leaves the space under the floor with 7-foot ceiling. One row of stalls is for cows, the other row for small cattle. The cattle are all tied with chains fastened to the side of stall. The mangers are 2 feet wide at bottom, inside measurement. The back of manger next the passage flares into passage 7 inches, and is 2 feet 6 inches high; the front of manger next the cattle is 10 inches deep. In fine weather we turn our cattle all out into the yard for a drink, and in stormy weather we water them all inside, the cattle with pails and the horses by leading to the tank in feed alley.

A. G. SPARLING,
Lambton Co., Ont., Feb. 1st.

DAIRY.

Cheese and Butter Makers' Convention.

The second and last annual convention of the Cheese and Butter Makers' Association of Western Ontario was held in Ingersoll, January 31st and February 1st. The President, Mr. T. B. Millar, in his opening address referred to the Canadian output of \$18,000,000 worth of cheese and \$6,000,000 worth of butter during the season of 1899. To secure such a hold of the markets has required earnest and painstaking efforts, which have been materially facilitated by the interchange of ideas and experiences at such conventions as this. Mr. Millar referred to the encouraging outlook for dairying, but continued success depends on better milk, clean and free from taints, and suitable factories, well equipped and kept cleaner than ever before. Among the chief questions referred to in the address was the amalgamation of this Association with the Cheese and Butter Association.

Mr. G. E. Goodhand presented the Directors' report, in which was recommended the amalgamation referred to by the President. Mr. John Brodie presented the Secretary-Treasurer's report, which showed a balance to the credit of the Association.

Cure of Milk.—Mr. John Scott read a paper setting forth the chief points to be observed in caring for milk on the farm. Healthy cows, cleanly housed and properly fed on fresh succulent food and good water, in a light, well-ventilated stable, are among the first considerations. The cows should then be milked regularly into clean pails after brushing or wiping their udders and sides. There should be as little dust as possible floating in the air when the milking is going on. As soon as drawn, the milk should be removed to a clean, airy location, strained and separated if for home buttermaking, and aerated if to be sent to the factory. Aeration while the milk is warm removes the animal odors. During the discussion that followed the paper, Prof. Dean referred to experiments conducted at the dairy school, which showed very slight advantage from aeration apart from the cooling it afforded, and unless it is done in exceptionally favorable quarters, away from dust or currents of air from foul quarters, more harm than good is likely to be caused. It was generally conceded that no advantage was derived from aerating good-flavored milk. It was also held that the only bad flavors gotten rid of by aeration are those due to food or indigestion of the cows, and then the aeration should be done while the milk is warm from the cow. It was found that Saturday night's milk can be kept sweet till Monday by keeping the temperature of the milk down at from 50 to 55 de-

grees when the atmosphere is from 70 to 80 degrees. The milk should be kept stirred occasionally to prevent the cream from rising. Patrons were advised not to allow their cows to drink dirty water nor wade through marshy land, as from these sources gas-producing germs, which give trouble in cheese-making, are produced. Cheesemakers were recommended to use a starter to overcome gas organisms when they were suspected. Mr. Bell, of Tavistock, claimed that the best milk coming to his factory in hot weather is kept over night in pails hung in a clean atmosphere, and occasionally stirred or poured while cooling.

Flavor in Milk, Cheese and Butter was the subject dealt with by W. W. Waddell, Strathroy. In order to overcome bad flavor their causes must be understood. Ill health of cows or injury to a teat or udder will give trouble as well as musty or other improper food. It is highly important that cows giving milk have pure air to breathe, whether it be in the stable or the pasture. Cases are on record where a whole churning of butter has been rendered useless by reason of the herd passing a dead skunk, the odor from which was inhaled. While pasteurization is a help in getting rid of bad odors, it should not be depended upon as a cure-all. Prevention is a much more rational remedy. In order to obtain uniform flavors the milk should be pasteurized, and when ripening is wanted, a starter containing the desired ferment should be used. The starter should be pure, fresh, and entirely devoid of objectionable flavors. The temperature of the milk or cream to which the starter has been added should be held about 70 degrees Fahr., as at this temperature lactic acid fermentation goes on more rapidly than many objectionable species. Fifth germs multiply faster in high temperatures, and bitter-producing ferments at lower temperature. During the discussion it was pointed out by Prof. Dean and others that starter may be added to pasteurized cream as it comes from the separator at say 90 degrees. In this way time is saved by hasten-

ing the ripening of the cream, and less starter need be used. It was evident from the discussion that starters are very generally used in winter factory buttermaking.

Preparing a Starter.—Mr. James A. Gray explained how to prepare and use a starter for either cheese or butter making. Rich milk is not as suitable to make a starter from as that which is poorer in fat. The milk should also be selected from the supply of a patron known to be thorough and clean in his dairy operations. It is also well to allow the patron to know his milk is being used. Take 100 pounds of the milk, pasteurize it, and to it add from 1 to 2 pails of pure water and half a pail of the former day's starter. The old starter should be added while the milk is at 75 degrees. Stir the milk thoroughly, cover tightly, and leave standing in a warm place. By next morning it is ready to use. The top inch should be skimmed off and the mass finally broken up by pouring from one vessel to another. Its use requires judgment born of experience and study. In concluding, Mr. Gray advised using only first-class starter, and using it judiciously. A very useful discussion followed the reading of this paper. Mr. Knechtel gave his method of preparation as follows: Take 100 pounds nice flavored milk, add 2 pails of pure water, and pasteurize by holding the milk at 165 degrees for half an hour. Then cool quickly to 76 degrees, and add 10 pounds of old starter. Keep in a tight can at about 76 degrees over night; take off one and a half inches of the top, break up the mass, and use what judgment dictates.

Experiences of Past Season.—Messrs. Jas. Morrison and George McDonald, cheese-factory inspectors and instructors, went over the chief defects and also improvements noticed in connection with their work in 1899. While there is an upward tendency in many districts, there are vastly too many defective factories being used. Leaky floors are great sources of foul smells. Too many patrons send in milk without straining it. Other defects were pointed out. Mr. A. F. McLaren, V. P., made a brief address, in which he expressed the opinion that instructors

are too easy. They should demand improvements where they see they are needed. He strongly advocated amalgamation of the two western dairy associations, on the ground that in union there is strength. He advised makers to use the Babcock test if for no other reason than to prevent patrons tampering with their milk. Mr. McLaren insisted that makers should demand proper factories, and owners of good factories should demand first-class workmanship from makers.

Summer Buttermaking.—Mr. Fred Dean, butter-maker at St. Mary's creamery, reviewed his system of making creamery butter in summer. All milk is pasteurized, and the fermentation is promoted by the use of a well-prepared starter. In this way uniform butter is made throughout the season. As soon as the cream is separated, the temperature is quickly lowered to 45 or 50 degrees by artificial refrigeration. The temperature is then raised to about 60 degrees and the starter added. The acid test is used to indicate the ripeness, and when almost ripe the temperature is lowered to 48, where it is held over night. In the morning it is churned at about 50 degrees. It is salted in the worker with salt paste, which seems to do away with mottles. The butter is packed in 56-pound boxes for the British market. It is stored for a few hours in cool temperature before being placed in the cold room kept almost at the freezing point.

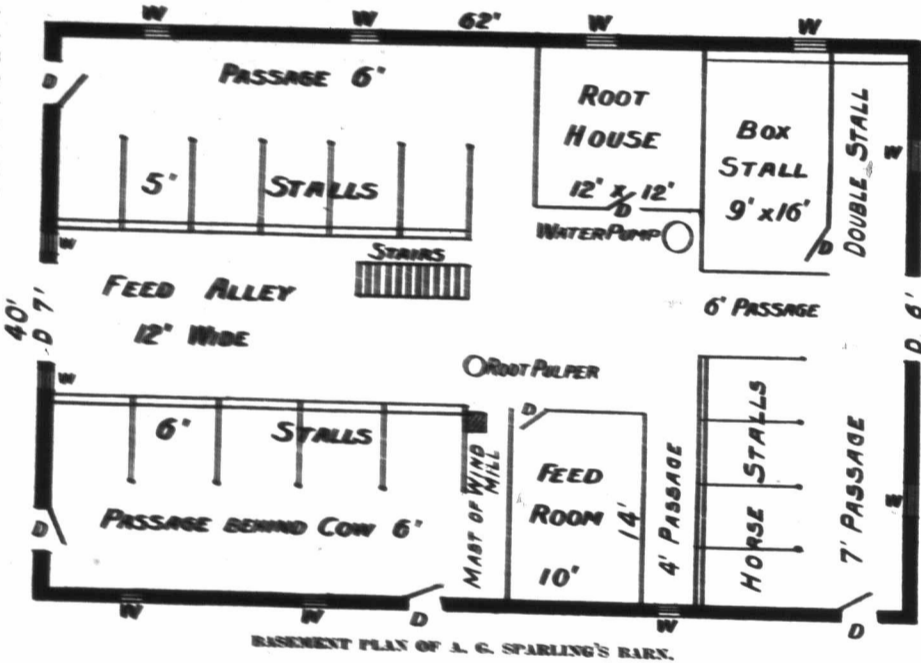
Cheese Judges' Report.—There was rather a small entry of cheese, which was pronounced upon by Messrs. R. M. Ballantyne and A. T. Bell. When Mr. Ballantyne took the platform to give his report he described a good cheese in the words of Mr. Robert McAdam in his book on cheesemaking, written 30 years ago: "A good cheese is rich without being greasy, having a sweet, nutty flavor, and a clean uniform color throughout. It should have a solid, compact texture, firm, yet melting easily in the mouth, leaving no rough taste on the palate." The score card used estimated perfect flavor at 40 points; texture, 30 points; color, 15; and finish, 10. The highest score for white cheese made September 15th to 30th was 95½ on a cheese made by Jos. T. Thompson, Hawkesville; D. M. Scott, Holmesville, won 2nd—score, 95; and Mr. Knechtel, Dorchester, 3rd—score, 91 points. In colored cheese made within the same period, W. A. Bothwell, Hickson, won 1st—score, 95; W. A. Bell, Pine River, 2nd—score, 94; and George A. Boyes, Mapleton, 3rd—score, 93 points. Mr. T. C. Goodhand, Milverton, won the Hansen's special—score, 96 points.

Butter Judges' Report.—The butter exhibit was judged by Prof. Dean, Guelph. The entry was light, but generally good. In 56-pound creamery packages, Mr. Jas. Bristow, Sebringville, scored 97 points; W. A. Bothwell, Hickson, 2nd—score, 95½; and J. R. A. Laing, Avonbank, 3rd—score, 94. The lowest score in this class was 88½ points. In packages of ten 1-pound prints of creamery butter, W. A. Bothwell, Hickson, won 1st, scoring 96½ points; Robert Malcolm, Kinlough, 2nd—score, 94½; and T. B. Marshall, Tiverton, 3rd—score, 94 points. The lowest score here was 89 points. The butter special was won by Mr. R. Malcolm—score, 94½, with G. A. Boyes 2nd—94 points.

A Popular and Instructive Evening Session.—Mayor Miller welcomed the gathering, and referred briefly to the growth of the dairy industry in Canada, which he claimed had its birthplace near Ingersoll about 50 years ago. Mr. Harold Eagle and Professor Dean gave interesting and instructive addresses, the latter dealing with many scientific truths, as applied to dairying, in a popular manner. Mr. R. D. Harling occupied a profitable and entertaining hour describing the port of Manchester and its ship canal, illustrating his lecture with views of the canal, bridges, docks, harbors, factories, etc.

Cream Separators.—Mr. Mark Sprague, Ameliasburg, who is an expert authority on the operating of cream separators, addressed the convention on mechanical separation of milk. Milk just drawn from the cow is in best condition to separate. As the temperature of the milk lowers it becomes more or less viscous. Heating again overcomes this condition, and also separates further the specific gravity of the fat from the other ingredients. In order to run a separator properly, its operator must thoroughly understand it and keep all the parts in perfect condition. A constant interest must be taken in the machine. In heating milk for separation it should not be done in large bulk. Samples of the skim milk should be taken frequently in order to ascertain the character of the work being done, also to know when the machine is being fed to its full capacity for good work. Winter milk or old milk will not separate well at the temperature lower than 90 degrees, and 100 is better. When milk is pasteurized it may be separated at say 140, or even higher, which will increase the capacity of the machine.

Handling Gassy Curds.—Mr. Robert Johnston, Bright, described his method of dealing with gassy curds. Many fine points were brought out that were developed by lively discussion. One generally-favored practice is to wash the curds immediately after mulling, with pure water at about 98 degrees. When this fact was brought up it came out that a



BASEMENT PLAN OF A. G. SPARLING'S BARN.

number of the best makers are adopting the plan of washing all curds during the season, which seems to not only tend to overcome difficulties from gas and bad flavors from other causes, but a more uniform product is made throughout the season. In handling milk supposed to be gassy, the aim should be to keep the lactic acid ferment well in advance of other varieties. This is accomplished by adding a good starter.

Cheesemaking.—Mr. G. G. Publow, of Kingston Dairy School, reviewed the modern system of making cheese with normal milk, as taught in the Kingston Dairy School. The paper was well received and discussed at considerable length.

New Brunswick Dairy Industry.—Messrs. Tilly and Mitchell, cheese-factory instructors in New Brunswick, who are spending some time gathering points in Ontario, were called to the platform. In the course of their remarks it was brought out that dairying in New Brunswick is yet in its infancy. In 1891 there was one co-operative creamery in the Province, while now there are nine turning out a high-class product. Last year considerable butter was exported to the British market, commanding the price of best Canadian. The cheese industry had its origin ten years ago, when the Province had one factory. In 1894 it had 33, and in 1899 the 60 cheese factories in New Brunswick turned out 40,000 boxes of cheese, two-thirds of which were exported, giving good satisfaction in the British markets.

Curing of Cheese.—Mr. Stratton, of Guelph Dairy School, reviewed two experiments in curing cheese at different temperatures. Three rooms were used, one cooled with ice, one with sub-earth duct, and one was not cooled. In each case a maximum and minimum thermometer were used, as well as a hygrometer. The results were that the cheese cured in a temperature of 60 degrees where the duct was used was of better quality and gave less shrinkage than either of the other systems, although the room held at an average of 65 degrees, with ice, gave much more satisfactory results than where no attempt was made to control the temperature.

Winter Buttermaking.—Mr. Arch. Smith, Principal of Strathroy Dairy School, read a treatise on this subject. Winter is not as favorable a time for making good butter as is summer, owing to the greater difficulty at that season to keep milk from contamination. Mr. Smith has found it a good plan to call a monthly meeting of the patrons to discuss methods of caring for milk, and other subjects pertaining to dairying. A successful buttermaker must not only know how to make good butter, but he must also understand the running of a separator, as well as the engine and boiler, besides being able to readily detect bad flavors in milk. Mr. Smith is not in favor of pasteurizing milk if the flavor is good. Flavors that are not just right can be partially gotten rid of by skimming the cream richer, thus leaving less caseous matter in the cream. Then put in a good starter in the cream, ripen in from 4 to 5 hours at from 70 to 80 degrees. The alkaline test should be used to ascertain the degree of ripeness. He has found that the cream is ready to cool down when the test shows .4 or .5 per cent. of acid. With good cooling facilities it may reach .65 per cent. of acid, as sudden cooling checks the development of acid. The cream should be put in the churn after careful scalding and cooling. Churn at a temperature to bring the butter in from 40 to 45 minutes. If the cream adheres to the sides of the churn it is too thick and should be diluted, as that which rides around on the sides of the churn is not being churned. When churned to granules the size of wheat the buttermilk is run off and a sample taken to test. Wash the butter once with water at the same temperature as the cream when it was put into the churn. Salt in the churn to suit the market to be supplied. One should be able to judge when butter is worked enough without following a rule of so many revolutions. When the butter is packed in boxes paraffined inside and lined with parchment paper, it should not be set in a temperature much lower than 45 degrees for a time. The regular storage should be at 36 degrees or lower.

Amalgamation.—A committee appointed from the Board of this Association recommended amalgamation with the Western Ontario Cheese and Butter Association, on the following terms:

1st. That we have four sessions devoted to cheese and butter making.

2nd. That we have an equal representation on the Board of Directors, and that at least two new members be appointed on the Board each year.

3rd. That our winter dairy show be carried on.

4th. That our cheese and butter makers' agreement be sustained by the Association.

The committee also recommended that instead of the present system of inspection and instruction, the following plan be adopted, viz., to employ competent men to visit factories and to conduct fermentation or curd tests to ascertain the condition of the milk from the different patrons supplying the same, and if found necessary to visit any who may be sending faulty milk, and to endeavor to discover the cause of the faulty condition, also to give the patrons necessary instruction in caring for

milk. And also that they act as inspectors of factories, plants and surroundings, and to report the condition of same to the directors of said factories. The committee also recommended that if possible the expense in connection with this work be borne by the Association. One other recommendation was that Mr. T. B. Millar, President of this Association, be a member of the amalgamated committee. The resolution passed almost unanimously.

Mr. R. M. Ballantyne, President of the Cheese and Butter Association, spoke strongly in favor of the union, and bespoke his support of the recommendations made by the committee, which he believed would be carried out so far as the funds of the Association would allow.

Officers.—President, T. B. Millar, London; Vice-President, G. H. Barr, Sebringville; Secretary, G. A. Brodie, Mapleton. Directors—Geo. E. Goodhand, Milverton; John Brodie, E. Agur, Brownsville; T. E. Nimmo, Ripley; Jas. Morrison, Stratford; W. A. Edgar, Ingersoll; and W. W. Brown, Attercliffe Station.

British Columbia Dairymen's Association.

The sixth annual meeting of the B. C. Dairymen's Association was held on the 12th and 13th of January, at the rooms of the Department of Agriculture, in Victoria. There was a good attendance of members, including the President, Mr. H. F. Page; the Secretary, Mr. J. H. Hadwen; besides two visitors from a distance, Mr. F. T. Shutt, Chemist of the Central Experimental Farm, Ottawa, and Mr. C. Marker, Superintendent of Creameries in the Northwest Territories, who attended the sessions throughout, and assisted materially in rendering the meetings a pronounced success.

After routine business had been disposed of, the question of butter-keeping in cold storage was discussed. It was very evident that the experience of those present was unfavorable, but whether this was due to the quality of the butter stored or to the cold-storage facilities offered remained an open

ally the following resolution was submitted and passed unanimously:

"Resolved,—That the Dairymen's Association of British Columbia desire to impress upon the Hon. Minister of Agriculture for the Dominion the advisability of granting to B. C. the advantages that have been received by the other Provinces in their time of need, and are at present enjoyed in the Northwest Territories, in having an official devoted to the dairy interest established amongst them, and respectfully request that an expert in dairy matters be appointed to take up the work in this Province without delay."

At the evening session, Prof. Spillman addressed the meeting on the Babcock and Curtis methods of testing milk and cream. His experience was decidedly in favor of the former, provided the samples of cream tested were weighed instead of measured, as with milk, in using the test. During the latter portion of his remarks, the speaker referred to the great future in store for the Pacific Coast, and fairly carried his hearers "off their feet" with the glowing picture he drew of the vast possibilities of the near by States and the Province in this connection. In conclusion, he offered to place the bulletins issued by the Washington Agricultural College at Pullman at the disposal of the members of the Association, which later on was gratefully accepted, and a hearty vote of thanks tendered to the speaker.

Mr. C. Marker delivered an address on the advisability of conducting a series of tests of milking stock throughout the dairying districts by means of weighing and testing milk, and carefully compiled records covering a long period, on the lines followed by Danish dairymen with great profit. This would enable farmers to realize the actual producing value of their stock, and lead to the retaining of those animals only which showed a profit, in contradistinction to the prevailing system, under which conclusions were merely guessed at. It was suggested that the work might be carried on with advantage through the buttermakers at the various creameries operating. At the conclusion of his remarks, a hearty vote of thanks was accorded to Mr. Marker.

The election of officers for the year resulted as follows:

President, Mr. H. F. Page, Matsqui.
Vice-President, Major J. M. Mutter, Somenos.

Secretary-Treasurer, G. H. Hadwen, Duncan's.

Directors—J. Street, A. C. Wells, Chilliwack; R. Balfour, Langley; W. H. Hayward, Metchosin; W. Ladner, Ladner's; Hon. Thos. Forster, Port Kells; J. T. Collins, Salt Spring, I.; C. R. King, Victoria; T. Sluggett, Saanich; J. W. Harris, Port Hammond; F. Kincaid, New Westminster; A. Urquhart, Comox; O. Bowman, Sumas; T. W. Stirling, Kelowna.

The auditors' report showed the Association to be in good financial condition, and, with the annual grant from the Provincial Government, quite able to take up the work previously referred to.

In conclusion, it may be stated that the meetings were by far the most successful yet conducted by the Association. From the long distances intervening between the different dairy districts, organization work has been difficult and expensive. The Secretary-Treasurer is to be congratulated on the success which has attended his efforts in the past, and may look forward with confidence to the future.

The addresses delivered will be given at full length in a future report of the Association, so as to be available for all interested.

Cost of a Creamery.

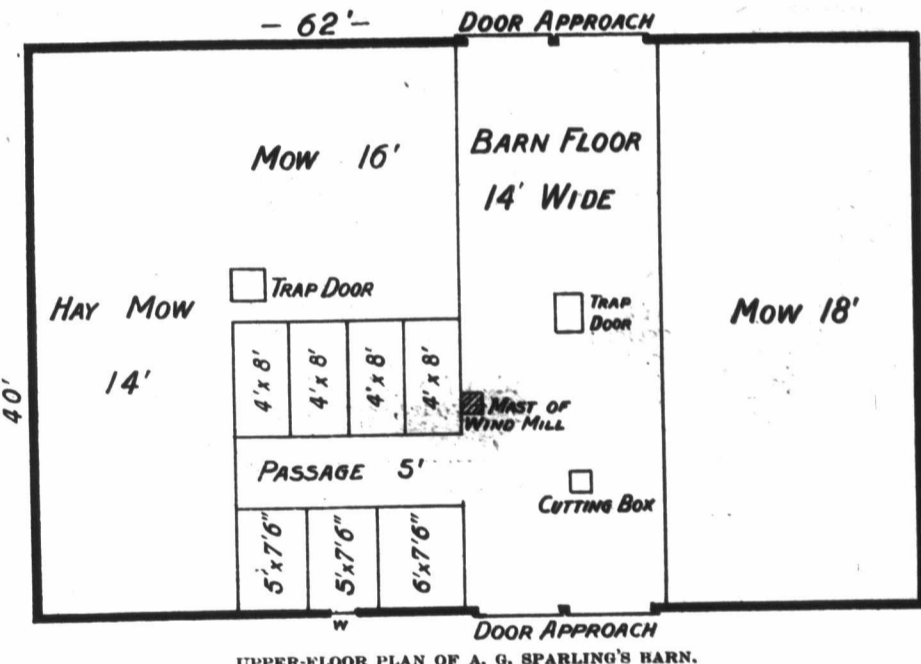
The probable cost of a creamery well equipped with good machinery and utensils (on the separator system) will be from \$2,500 to \$3,500, varying according to the quality and price of material used, and also to the amount of work done by the farmers by way of preparing the foundation and hauling the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

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

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

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

The milk should be paid for according to quality, and if there is not sufficient milk to be able to run the factory on the separator system, I would advise starting on the cream-gathering system, which is more economical, as it is cheaper to draw the cream than the milk, and if the farmers are



question. Further tests are to be made with the view of determining this question.

Mr. W. H. Hayward submitted a motion as follows: "That the energies of the Association for the year 1900 should be bent towards the importation of pure-bred stock, to be disposed of by auction or private sale, at the discretion of the Directors, and that the Association take up the question of the transportation of pure-bred live stock."

In the discussion which followed, it was shown that under prevailing transportation rates it was practically impossible to make importations of stock in small lots from Eastern Canada, freight charges amounting to more than first cost of the animals. There was some opposition to the motion on the part of provincial breeders, who evidently considered that the trade in pure-bred stock should be left to private enterprise, but eventually the motion was carried unanimously.

At the evening session of the opening day, Prof. F. T. Shutt delivered a very able and interesting address on "Chemistry in Relation to Farming and Dairying." He also strongly advocated the practice of winter dairying, as being specially suited to the conditions prevailing in the Province. After a lengthy discussion, in which Hon. Mr. Forster (Speaker of the House), who is a practical, up-to-date dairyman, took a prominent part, a very hearty vote of thanks was moved by the Hon. Mr. Semlin and tendered to Mr. Shutt for his valuable and instructive address.

On the second day, Prof. Spillman, of the Washington State Agricultural College, was present, and addressed the meeting. He advocated the establishing of dairy schools in the Province, in connection with the Experimental Farm at Agassiz, and stated that if a larger number of men were trained than could find work in the Province, they could easily find employment in the State of Washington. A lengthy discussion ensued on the various forms of dairy instruction given in Ontario, the Northwest Territories, and the neighboring States. Eventu-

educated in the best methods of skimming their milk and caring for their cream, a very good quality of butter can be produced.

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

The milk may be collected for a distance of five miles from the factory. If it is drawn farther than five miles in the hot weather it is often delivered at the factory in very poor condition, and the cost of drawing is so great that it reduces the profits of manufacturing considerably. The cost of running the factory depends somewhat on the system on which it is managed. If the farmers draw their own milk the butter is usually made for 2½c. to 3c. per pound, but if the buttermaker does the drawing he usually charges about 4c. per pound of butter. The subject of starting and operating a creamery is one on which a great deal may be written, but as your subscriber no doubt intends starting on a small scale, and space in your paper is valuable, I have confined my answers to his questions to as few words as possible.

ARCHIBALD SMITH,
Superintendent Western Dairy School.

VETERINARY.

"Lumpy Jaw" in Cattle.

To the Editor FARMER'S ADVOCATE:

DEAR SIR,—Knowing your willingness to do anything in your power to better the condition of the farmer, by giving support to whatever may be to his advantage, by calling attention to his own faults and pointing out a remedy, or by attacking the Government of the day whenever you consider they overstep their prerogatives or fall short of their duty to the farmer or to the public, I am emboldened to say that, while you have ably and persistently called attention to many of the diseases that afflict farm animals and endanger the health and lives of the public, yet there is a "contagious" and "infectious" disease which it seems to me has not received that attention which is called for, either from the Minister of Agriculture or your very excellent paper, the FARMER'S ADVOCATE. I refer to that much-to-be-dreaded disease commonly called lumpy jaw, or cancer of the jaw, but scientifically known as actinomycosis.

It is very evident from the manner in which the Government have lain down the law in the case, and the penalties attached to any infringement of it, that they regard it as of the most virulent and contagious nature, and so I believe it is. As witness Sub-sec. 7 of the Contagious Diseases Act, which provides a penalty not exceeding \$200 for selling, offering or exposing for sale animals so affected.

Now, I happen to know something of this disease and the result of its treatment, and I want to say right here that I believe it is far more prevalent than the public are aware of, and is one of the most dangerous to public health, and has no cure. True, no doubt, there will be many to cry "Nonsense!" and declare they have cured perhaps plenty of cases. Yes, I admit I believe there have been many cases of lumpy jaw that have been cured; but this is quite different from the real actinomycosis, or cancer of the jaw. The one is a loose lump in the flesh and cords of the neck near the jaw, which, if taken in time, can, I believe, be safely cut out; or, perhaps, by a very strong astringent blister be destroyed. But the other has its seat in the bone of the jaw. The best authorities say it is a germ taken up in the food, and being an insect, it finds a lodgment in or around the teeth, from where it begins to multiply and expand until the jaw becomes completely perforated with holes, and the flesh around it a mass of corruption, laden with death-dealing germs to man or beast.

So much for broad assertions. Now let me give some instances that have come under my observation: In the fall of 1897, a neighbor of mine had a valuable cow (due shortly to calve) which showed symptoms of the disease, and a veterinary was promptly called in, who, upon examination, at once declared it was (in his opinion) quite incurable, and advised the destroying of her, and informed the owner that the law provided for no compensation.

The owner, much objecting to lose so valuable an animal entirely, asked him to attempt a cure by treatment, but was at once told, "The law will not allow me, unless the Minister grant me permission as laid down in Sec. 14 of the Act. And more than that, you are liable to a fine if you do not at once destroy or isolate the animal." (See Sec. 5 of the Act.) But he agreed to write for permission to treat the case, on the strict understanding that the animal was to be isolated from all other cattle, which was done, and the animal was treated for about five months by the most up-to-date remedies. At the end of which time another veterinary was called in, who was also a Government inspector, who at once declared it not cured, and as incurable, and recommended destroying the animal at once, which was done. Again the law stepped in and forbade the removal of the hide, horns, or any part of it. (See Sec. 7 of the Act.) However, the owner, determined to know all he could of the disease, removed the diseased jaw, and by boiling removed all the flesh, when he found just as both veterinaries had told him, that the jaw was completely "honey-

combed" and enlarged, showing clearly that to have removed the trouble would have required the cutting away of a large section of the jaw, or, in other words, killing by curing. The owner still has the diseased jaw, which has been viewed by many.

Another case happened in 1890, on an adjoining farm. The animal affected was a fine young cow ready for the butcher, when a small growth was noticed. The owner, not thinking it serious, neglected for a while to call in an inspector, but in the meantime tried a blister, I believe some of the so-called "lumpy jaw cures"; but finally, seeing no improvement, called in the inspector, who, after carefully examining, pronounced it an incurable case and ordered the killing of the animal, which was promptly done, and, as in the other case, forbade the removal of hide, horns or hoof. Now, in this last case the animal was ready for beef, and had the owner not been an honest man he could have killed her in the early stage of the disease and sold hide, carcass, and all, and no one need have been the wiser; but I would not like to say that the consumers would not be the worse for partaking of it.

Did space permit, I could describe other cases near by very similar, but I think I have said enough to show you that this is a matter that needs dealing with in a decidedly different manner than at present by those in authority. Why is it that the law says the Minister may order compensation in cases like these, while in swine plague, tuberculosis, glanders, etc., it seems to say he shall order compensation. Now, if this is an evil and contagious disease, and the law says it is, and all the best veterinaries say it is, and even ordinary common sense says it is, then why not make it an object for the owner to act in honorable accord with the Government in stamping it out, instead of, as at present encouraging them to conceal the contagion and dispose of the animal dead or alive? Most likely the former, for there is no doubt in my mind but that there have been many animals so affected killed and the carcass disposed of as human food by unprincipled dealers, and I believe I voice the sentiments of the public when I repeat more legislation is required, and instead of leaving it optional on the part of the Minister to compensate, and encouraging the owner to conceal it, that it shall say that as soon as an inspector shall discover an incurable case that he at once order its destruction, and upon reporting it to the Minister, that he shall grant compensation (and one half of a fair valuation would not be too much), and then make it even more dangerous to conceal a case; and if this were done, I believe the owners would gladly second all efforts of the officials to stamp it out, and the consumer would have less dread when he is eating his roast beef that it is not loaded with death-dealing cancer germs; for there is no doubt whatever that such it is.

Begging your pardon for so lengthy an article, I am,
Humbly yours,
Kent Co., Ont. A READER.

[EDITORIAL NOTE.—While the FARMER'S ADVOCATE welcomes free, full and fair discussion of subjects calculated to further the interests of the farmer, we do not hold ourselves responsible for the opinions or statements of writers. Believing that advantages come from the frank expression of ideas, we publish the foregoing letter, but consider it only right to point out that our correspondent errs in stating that actinomycosis is caused by an insect. The disease is due to the entrance into the tissues of the spores (actinomyces) of a parasitic vegetable fungi sometimes known as the ray fungus, common on grasses, being often found on barley straw. Infection usually takes place through inoculation coming in contact with wounds in the mouth. In Europe the disease is found under the name "woody tongue." Our correspondent rightly distinguishes between lumps on the jaws arising from injuries and actinomycosis; but it is quite incorrect to designate it as cancer, the germs of which have no such structures as actinomycosis. Our correspondent in one place asserts positively that the disease has "no cure"—another erroneous idea at one time entertained. Taken in time, it is amenable to proper treatment; but allowed to go on, hopelessly involves the bone. Some surgeons use the knife to remove the lump before it has gone too far, washing out the wound with formalin or other germicide, and there are preparations for outward applications which are reported to be very generally and successfully used. The standard professional treatment is iodide of potassium administered with the food, the success of which we have personally observed. Charged specially to investigate this subject, a U. S. official commission found out of a total of 185 animals affected on the jaws and parotid regions, 131—or 71 per cent.—recovered, and 53 animals affected in a less degree recovered after treatment. As to its prevalence, we notice that by the last annual report of the Minister of Agriculture, out of 100,000 Canadian cattle exported in the year only 71 were rejected and sent to abattoir by the inspectors for actinomycosis. The fungus appears to thrive best on open ranges, and

during the year 200 head of cattle were killed in the Territories by the N.-W. Mounted Police. A veterinary of extended practice and a Medical Health Officer in Ontario both inform us that during the last few years they have found very much less of this ailment than formerly. From a late medical work we find that there are only 40 or 50 cases on record where the disease ever made its appearance in human subjects. Prof. McEachran, Dominion Veterinarian, in reviewing this subject, says: "It occurs in cattle most frequently, is rarely seen in horses, it affects swine occasionally, is seen in man as a rare affection, but no evidence has yet been adduced of its communication to man by injection of flesh of animals affected with this disease." Prof. Ostertog, of Germany, never succeeded in reproducing the disease by inoculation, nor by feeding with diseased tissue, but always found the vegetable spores from grass or straw as the focus of infection. He questions its contagiousness, but other pathologists hold different views on the subject. Hence its prevalence and communicability would appear to be greatly overdrawn in the minds of some. In the Animal Contagious Diseases Act, referred to by our correspondent, the expression, "infectious or contagious disease," includes, in addition to other diseases generally so designated, glanders, farcy, mange, pleuro-pneumonia, foot and mouth disease, anthrax, rinderpest, tuberculosis, splenic fever, scab, hog cholera, hydrophobia, and variola ovine, as well as actinomycosis. The Department of Agriculture does not grant compensation for actinomycosis, nor for tuberculosis or glanders, but it is granted in cases of hogs slaughtered for hog cholera and swine plague, and in some instances for sheep affected with scab; but it has not been given in any other of the infectious or contagious diseases.]

POULTRY.

Artificial Incubation.

HOW TO SECURE A SUCCESSFUL HATCH.

BY W. R. GRAHAM, B. S. A., POULTRY MANAGER, G. A. C., GUELPH, ONT.

When considering how to manage an incubator so as to succeed in hatching a fair percentage of the fertile eggs, it is well to first observe a little of the structure of an egg. The most external structure is the shell. This is composed of innumerable small particles which are very porous, allowing a free circulation of air and gases to and from the interior of the egg. Inside this will be found the shell membranes, and adjoining them is the white or albumen, arranged in layers, while in the center is the yolk. If you were to cut a hardened egg through the center, you would notice a center flask-shaped portion of a lighter color than the balance of the yolk. Upon this flask-shaped portion, the neck of which extends to the outer edge of the yolk, is situated the germ spot. If a fresh egg is broken the germ can be readily noticed, as a semi-opaque spot, about one-eighth of an inch in diameter, on the upper surface of the yolk. This portion of the yolk supporting the germ has less specific gravity than the other parts of the yolk, and from this being lighter is always found uppermost. In turning an egg it will be always noticed that the germ will be found on the upper side. It has a constant tendency to rise near the shell membranes, and if left in one position long enough will rise and come in contact with the shell linings, becoming attached to it. In such cases a further development of the germ is retarded. Thus the reason for turning the eggs before and during the period of incubation.

At the large end of the egg there is an air-space which increases in size as the contents of the egg evaporates or is diminished. When sufficient heat is applied the germ gradually increases in size, and by the end of the second week will have developed to a moderate size, so large as to require plenty of fresh air in order to carry on the functions of life. From this time on, or even earlier in the period, pure air is needed for further development of the germ. It must also be remembered that there is being continually given off, or discharged into the air, certain offensive gases. A direct draft across an incubator is injurious, as it interferes with an even circulation of the warmed air in the egg chamber.

The proper temperature at which to run a machine is generally acknowledged to be 102 degrees for the first few days, gradually increasing to 103 degrees during the last day or two. Eggs will stand quite a variation in temperature, but all such change of temperature tell more or less on the percentage of chicks hatched as well as on the constitutional vigor of those hatched. Have a good regulation on the incubator and see that the temperature does not vary over one degree before you venture to hatch any eggs.

In operating an incubator great stress is laid upon its location. Cellars having in them decaying wood and vegetables are unfit places to operate incubators, if for no other reason than that there is

an excess of carbonic acid gas. What is best adapted to a successful operation of a machine is a room in which the air is pure, with a normal percentage of moisture, and is free from any direct drafts over the machine, as well as being of a fairly even temperature. Many house cellars meet these requirements. When the room is well ventilated, as is also the machine, very little trouble will be experienced from that perplexing problem of "how much moisture to use." Under normal air conditions the evaporation from the egg or the amount of air space is usually about correct, and any interference on the part of the operator, either in trying to increase or reduce the moisture supply, is almost sure to be unsatisfactory. There are certain conditions which require less moisture or sometimes more. Most incubator manufacturers nowadays send out with their direction as to how to manage the machine a chart illustrating the air space. Watch the air space in the eggs closely, and increase or decrease the ventilation as the eggs require evaporation or otherwise. The air space can be readily observed by holding an egg, after dark, between a lamp blaze and the eye. Always bear in mind the more warm air is sent over the eggs the greater will be the evaporation of the egg contents. A lack of evaporation does not give space enough for the chick to turn around, before exclusion, in order to break the shell, while an excess injures the vitality, producing a small, weakly chick.

Many operators fail to consider the larger amount of heat radiated by eggs after the germ is twelve days of age. When eggs are placed here and there over the tray, or when the infertile ones have not been removed, the temperature of all the eggs is not the same, for the reason that if a number of fertile eggs adjoin one another they certainly radiate a large amount of heat, thus raising the general temperature, when, as if a fertile egg adjoins an infertile one, or is alone by itself, this heat is to a large extent lost, thus creating an unevenness of temperature in the egg chamber.

All infertile eggs should be tested out by the tenth day. They then can be easily detected, a fertile egg appearing, when held to a light, very dark, while the infertile one will appear as clear as a fresh-laid egg. The eggs should be turned regularly twice each day. If this is not done the germs will dry fast to the shell lining during the early stages of incubation, and during the later stages the embryo does not attain its natural position, and is rarely excluded. The trays and positions of the eggs should be changed at each turning, so as to equalize any variation in temperature that may exist. To accomplish this, change the right tray to the left side, placing the front end to the back, taking the eggs from the center, when turning, and placing them at the ends, moving the others downwards. This tends toward getting an even development of the germs. There is no time when a hatch can be injured as much as during the time the chicks are hatching. Do not open the door to peak in or remove shell, etc. By all means avoid any change of temperature. Keep the temperature fully at 103 degrees. Give a slightly increased amount of ventilation when the eggs begin to pip. Do not remove any chicks before the hatch is over. They need no feed before they are 24 to 36 hours old.

Arranging the Breeding Pens.

It is now generally conceded that the male in the poultry yard is a menace to best results for food consumed, and an injury to the eggs, inasmuch as they do not keep so well. The old custom of setting eggs indiscriminately gathered is also falling into disuse through enlightenment. It is as important to select the males and females from which the eggs for hatching are produced as to select the parentage of other farm stock. It therefore follows that breeding pens must be made up to produce the eggs to be set the coming spring. The males to be employed in the pens should be obtained now as soon as possible, the pens made up and a general acquaintance established among the fowls before the season actually opens. This is a very good plan to pursue to get fertile eggs. Strange fowls when placed in the same apartment always have to spend some time in getting acquainted, and they will fight some, become a little jealous, show signs of offishness, shy around and be estranged to both the environments and the other fowls for a time, and hence the necessity of getting them together early as a preparation for the season's business.

To such of our readers as are contemplating buying males or hens for their pens, we would advise getting them soon. Years of experience have taught us that the eggs are always more fertile when pens have been made up early than when the matter has been delayed. It will also be a good plan to order eggs as soon as possible, and have the order booked for the eggs to be delivered on a certain date so they may arrive in due season. If the matter is delayed too long, others may be booked for that date, and eggs may not arrive until later than they are wanted. There is nothing like being on time in the poultry business, and the party who makes early matings and sends in early orders, as a rule gets the best birds and has the best results.

It is claimed that an animal will starve to death if fed no protein, and yet far too many of us fail to study the feeding question as we should. Are we feeding stock and at the same time starving them?

APIARY.

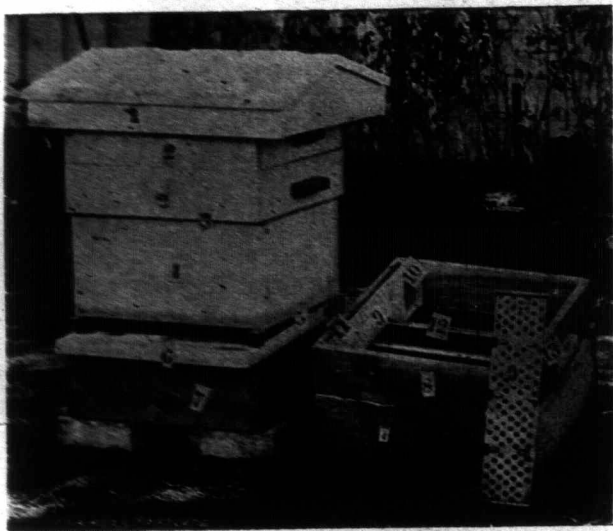
Apparatus for Taking Comb and Extracted Honey.

BY MORLEY PETTIT.

A pleasant task for the apiarist who has mechanical tastes—and he does not succeed well who has not—is the winter preparation for summer work. For comb honey production, sections (preferably of white poplar) are secured from the supply dealer, as well as good machines for putting them together and fastening in foundation. Every section should be filled within 3-16 inch of the bottom, with light foundation of good quality, hung the strong way to avoid buckling. Let me explain. Comb foundation, besides having the hexagonal indentations for the cell bottoms, is slightly corrugated. In view of this fact, it will be easily understood that when attached to the top bar of a section, and subjected to the heat of the hive and weight of the bees, it would stretch a good deal and not only buckle at the bottom, but draw cells out of shape, unless hung the "strong way."

For the arrangement of a hive for taking comb honey, allow me to direct your attention to the excellent photograph of the Pettit hive here reproduced from page 486 of the September 1st FARMER'S ADVOCATE. "2-2 are section supers 1/2 inch deeper than the sections used." The capacity of super will depend on the size of hive. "3. The queen bar of perforated zinc should always be used, as it excludes from the sections not only the queen and brood, but also drones and their 'travel stain.'" It also lessens the danger of pollen in comb honey.

Most beekeepers recognize the difficulty of getting sections well filled and capped next the hive wall. This is due largely to the fact that bees coming in from the field alight near the middle of the entrance and, crawling in and up the combs, deliver their honey in the center of the hive. To overcome this my father devised "wedges of wood (5), 1 inch deep in front, gradually tapering" to a thin edge at back, to be inserted at the beginning of



COMB-HONEY HIVE AND ARRANGEMENT.

the honey season and allowed to remain until fall. These raise the combs so high from the floor in front that many bees go to the sides and back to crawl up, and so the honey is equally distributed in the super. The enlarged entrance also gives excellent ventilation during the hot months.

Of equal value is Mr. Pettit's "divider" (9-9) "set on two sides of super, as shown in position." It is 1/2 inches thick, and is perforated with 3/8-inch holes which, with the 5-16 inch bee space (11), allow free communication for an extra number of bees between the outer sections and the hive wall, thus making the conditions more favorable to the filling of the outer sections.

10 is a "section in position resting on 1 tins 12, and against divider." The 1 tin is made of two strips bent in the form of an L and soldered back to back. These are supported at the ends by square staples driven into the sides of the super, with care to leave the flush 1/4-inch bee space under the sections. It will be noticed that the divider is the full depth of sections, having notches to receive 1 tins. Separators of the same material and dimensions as dividers are placed between the sections throughout the super, and must be the full depth of the sections, otherwise bulging and bleeding sections may be produced.

For taking extracted honey the hive is simpler. Wedges are used as in the other, and the queen bar is even more necessary; but the super may be the same as the brood chamber, except that drone comb answers as well as worker. Some use a larger comb for extracting. This has the advantage of giving more store-room, but the disadvantage of making two sizes of frames and hive bodies.

The beekeeper requires a veil (plain black net veiling, attached to the rim of a white straw hat, is the best), a smoker, a supply of goose or turkey quills for brushing bees from the combs, a wheelbarrow and comb-box for carrying full combs to the extracting room and empty ones back to the next hive. Within the extracting room are extractor, uncapping knives, uncapping can and receptacle, with strainer for the honey when extracted. The room should be light and airy, with doors and windows well protected by wire netting. Screw

the extractor to a box high enough to allow the honey to run from the tap into an ordinary pail. As the pail is filled it can be emptied into the receptacle, which should be of tin and provided with a tap for weighing out small quantities. Tie over the top a piece of stout cheese cloth to strain out particles of comb from the honey. For uncapping, an ordinary shallow milk pan answers fairly well, but uncapping cans may be obtained from the supply dealer. Or, get a square tin box, put a wooden frame on top to support the comb, and a cheesecloth sack inside to catch and drain the capings. Use a good uncapping knife, and have it very sharp.

GARDEN AND ORCHARD.

Time and Cost of Spraying Reduced—Recipe for Grafting Wax.

To the Editor FARMER'S ADVOCATE:

SIR, — We are very much pleased with the ADVOCATE. The spicy articles accompanied with the illustrations make it a welcome visitor that is well worthy a place in every household in this fair Canada of ours. I am much pleased with the articles on spraying orchards in your February 1st number, although I think the article on page 60 is rather overdrawn with regard to the quantity of mixture used per tree, viz., two gallons per tree at each spraying; also the time fixed for the work—two men three days each time. Now, I have been spraying our orchard for several years, and if I use more than one gallon per tree the mixture will surely run off, which I think is injurious. We have had splendid results with an average of one gallon per tree. Part of our orchard is twenty-four years planted and are very thrifty large trees. I use an Aylmer sprayer, which is worked by a boy, and he never seems to get tired. We use a democrat wagon to drive between the rows, and spray both sides, if not too much wind; but if strong wind, we keep on windward side, and the work is very satisfactory. We commence to spray in March with copper sulphate and lime. We always use plenty of lime, as it is beneficial to the trees in any case. We always use the cyanide test before applying to the trees, to see that the sulphate is not too strong to damage the foliage. At the second and all following sprayings we add the Paris green, four ounces to forty gallons water, except the third spraying after the blossoms fall, when we use five ounces to forty gallons, for, in my opinion, this is the time to catch more injurious insects than any time in the season. I know there are a large number who contend that spraying is useless to prevent apple scab and other diseases, but the chief reason is they have only partly done the work, and not at the proper time and not persistently enough. Every orchardist should be on the lookout for insects and fungus diseases, and apply the remedy at once if they want a good clean crop of fruit, and no other kind pays to grow.

I see an inquiry how to make grafting wax? My plan is: One part tallow, two parts beeswax, and three parts resin, by weight; dissolve altogether over a slow fire till all are thoroughly melted, then stir well and while still hot pour into a pail or tub of clean cold water and follow up at once with pulling and mixing with bare hands until it becomes a fine yellow mass. If the hands are greased it will prevent sticking. I have found the above to answer all kinds of grafting, and is easily applied to cover all fresh cuts in the trees.

R. L. HUGGARD,
Fruit Experimenter.
Ontario Co., Ont.

Entirely Satisfactory Results from Spraying.

With reference to spraying fruit trees I would say: 1. I have sprayed six seasons—apples and plums.

2. I use 5 pounds sulphate copper to 40 gallons water, 5 pounds lime milk, 5 ounces Paris green. Spray three times each season, viz.: 1st, before blossoms burst; 2nd, after blossoms fall; 3rd, ten days later.

3. The chief points to observe in preparation of solution are: Carefulness in mixing and applying in calm weather, with first-class appliances.

4. The results are: (a) All trees sprayed have a healthier appearance in trunk, limb and foliage. (b) Fruit is much more free from spot and fungous disease—fully 75 per cent.—than in trees not sprayed. (c) The destruction of foliage by insects much less; in fact, I was able to destroy millions of caterpillars last season with the Bordeaux mixture, using a much greater proportion of Paris green, however, and lime.

5. The improved appearance of the sprayed fruit, or rather fruit from sprayed trees, commanded much greater prices in the English market. A more profitable sale in consequence of spraying, equal to at least 50 per cent.

6. Trees in orchards which were purposely left unsprayed bore unprofitable fruit, because smaller, and largely affected by spot, etc.

7. All my results from spraying have been most satisfactory. It pays to spray, and to spray well and carefully.

Thanks for the Xmas number of the FARMER'S ADVOCATE. It is excellent. R. W. SHEPHERD.
Montreal, Jan., 1900.

Meeting of the Nova Scotia Fruit Growers.

In opening the 36th annual meeting of the Nova Scotia Fruit Growers' Association, held at Wolfville, January 29th, 30th and 31st, President Bigelow said in part: "The past two years have been most profitable to the Nova Scotia fruit-growers from the fact that we have had fair crops of superior apples and have obtained the highest prices in the history of the trade, owing to a scarcity in the world's apple crop. Our crop for the past year will exceed 400,000 barrels, and as most of these have been sold at from \$2 to \$3 per barrel, the net proceeds may be fairly estimated at over one million dollars. Some estimate may be formed of the immense profit from this business the past year from the fact that several growers have accepted or refused from \$3,000 to \$5,000 for this year's crop of apples, and many orchards have paid this year 25 per cent. on a valuation of \$1,000 per acre. This is owing to the fact that Nova Scotia was the only apple-producing country that had 90 per cent. of an average crop, the others ranging from 70 per cent. to as low as 20 per cent., and all together averaging less than 50 per cent. "Lest we forget," now is the time for us to economize and provide against a light crop and low prices, which are sure to come.

The only drawback to this year's fruit harvest was the unusually warm weather during October and November, which prematurely ripened our early winter varieties, and caused some of them to open "slack" and soft in foreign markets. I think that under our high cultivation, especially if autumns are warm, our early winter fruit, notably Blenheim, Kings and Ribstons, are maturing earlier each year. The complaint of excessive freight rates charged by subsidized lines to London has engaged our attention for the past ten years, and seems no nearer a favorable solution than at first. After a careful consideration of this subject, I am fully of the opinion that as this trade develops, the only profitable means of transport will be by small fruit steamers from the Bay of Fundy ports, much the same as oranges are exported from the Mediterranean and bananas from the West Indies, and with loading ports at Annapolis, Kingsport, Horton, and Hantsport, and a pier now being provided at the mouth of the Cornwallis River, fruit-growers can find foreign markets without the aid of any subsidized monopolist lines, at about half the freight now paid. Within the next five or ten years we must provide for an export of over one million barrels annually, and the steamship company which secures this business from Bay of Fundy ports at half the present cost will have one of the most profitable export trades from this continent. It is now certain that steamers can be loaded once a week in Minas Basin from wagons direct from the orchards, and it requires only the united efforts of the fruit-growers to secure this at once.

Mr. Robt. W. Starr, in discussing the question, "What variety of apples shall we propagate?" urged the importance of testing new and promising sorts, and especially those of European origin, since more than half of the standard commercial apples now grown in Nova Scotia were originated in Europe. As a rule English varieties are suited to our maritime climate better than those which have originated in the interior of continents.

While we are undoubtedly growing too many varieties of apples, yet this does not mean that we are growing those best suited to our conditions. All must consider that many of our so-called "standard" varieties have serious faults which lower their value to the grower, and if by testing one hundred varieties of carefully-selected new and foreign sorts we can find one only for the mid-winter season that will prove as good as Gravenstein is for the autumn months, then we shall be well paid.

The question of "The best paying commercial apple?" proved as interesting as it has ever been in the past, for many growers are planning to either enlarge their present orchards or set new ones the coming season, and every one is anxious to set those sorts which will prove most remunerative. Mr. John E. Starr, whose orchard the past year produced above 1,300 barrels of apples, introduced the discussion. He would place the Gravenstein at the head of the list for Nova Scotia. It is wonderfully productive, generally healthy, and the quality of the Nova Scotia Gravenstein is unsurpassed. True, it ripens early, when prices are not so high as later in the season, but this earliness is an advantage in one respect, since it enables the orchardist to pick them and have them disposed of before the later sorts are ready to gather, and this is an important point for the large grower. In a large orchard Mr. Starr would grow not more than seven varieties, and of those now grown as commercial sorts in Nova Scotia he would add to the Gravenstein the Baldwin, the Nonpareil, the Golden Russet, the Ribston, the King, and the Ben Davis. Some of those present were inclined to dissent from the last named sort, for though it is admitted that as yet it gives very good returns, still it does not seem

probable that we can continue indefinitely to sell an apple so inferior in quality, even though it does keep till spring.

The subject of the inspection of apples packed for export was given a large share of attention at several sessions. While the evil of fraudulent packing is believed to be less prevalent in Nova Scotia than in Ontario, owing largely, perhaps, to the fact that in Nova Scotia a much larger proportion of the apples produced are packed and shipped by the growers themselves, yet it is believed that the evil is growing, and that some measure ought to be adopted to check it. The resolution on this subject passed by the Ontario Fruit Growers' Association at their last annual meeting was discussed at length. Most of its provisions were heartily approved, but it was thought that it would be unwise to admit 10% of wormy or scabby apples in the first two grades (X A No. 1, and A No. 1), and 20% in the third grade (No. 1). There will be enough of such apples that will find their way into these grades of fruit either intentionally or unintentionally, and it was thought best to make the rule as stringent as possible. These clauses were therefore stricken out, and the resolution, as amended, was passed unanimously.

The cranberry crop of Nova Scotia was reported to have been especially fine the past season and to have sold for very satisfactory prices, bringing from \$5 to \$7 per barrel in Montreal. The outlook for the future is also very encouraging, since Canada still imports thousands of barrels every year. In establishing cranberry bogs it is very important that they be so situated as to admit of flooding, for although there are many profitable bogs in Nova Scotia which cannot be so treated, yet the ravages of the fire-worm, which was introduced from the United States, are each year becoming more serious, and as yet the only satisfactory remedy seems to be June flooding. In securing wild vines from natural bogs (which, by the way, have proved very satisfactory indeed) growers were urged to get them from the frostiest localities possible, since in such places all the late-maturing vines have been destroyed, and those which now survive are almost sure to mature in all ordinary localities. It is simply a case of "the survival of the fittest."

F. C. SEARS.



SAMPLE OF STANDING OATS.

Mr. Lawrence G. ft. 9 1/2 in. tall standing in them. Vermilion, Peace River (Lat. 56, 45), Aug. 25th, 1899. Seven hundred miles north of Edmonton, Alta.

QUESTIONS AND ANSWERS.

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

Veterinary.

INDIGESTION IN PIGS—ANOTURIA IN HORSE—MAMMARY TROUBLES IN COWS.

M. B. H., Elgin Co., Ont.:—"1. Pigs about three months old; am feeding scalded bran and middlings and a little milk mixed. They are very eager for feed, and two of them, after taking a few mouthfuls, appear to have a fit. They open the mouth and become stiff, fall over on the side, and after a few moments begin to revive and be in pain, toss about and breathe heavily for some time. When they walk they go sideways. While they are stiff they do not seem to breathe. One coughed once when it first got up. They have had two attacks each. Do you think they were choked?"

"2. Horse in good condition after being worked hard, stood in stable a few days, and was fed liberally on hay and oats. On being driven about forty rods became very stiff.

"3. Cow coming in late next spring is giving red milk; a thick clot came from one teat. She is fed hay, straw and cornstalks each day, and about four quarts of oats.

"4. Cow on pasture, bag became very hot and sore, swelled hard. She would not be milked, but after soreness left her, she came back to her milk; had lumps in one teat before. Cow on same pasture was just the same, but one teat entirely dried up, but is giving a good mess from the others now."

[1. Sometimes young pigs will choke on shop mixed too thick to drink easily and too thin to demand mastication, causing them to attempt to gulp down more than their throats can take. It would seem, however, that the pigs in question are suffering from stomach trouble, in which case they should be given a teaspoonful of bicarbonate of soda in feed twice a day until positive relief is given. They

should also be given earth and charcoal to chew. Allow them outdoor exercise on fine days.

"2. The horse had a disease known as anoturia. Liberal feeding and idleness produce this trouble, which is due to an excess of albumen in the blood. There is no uncertainty about the disease when it appears in well-nourished form, as after he is driven from a quarter to half a mile from home he gets so stiff he cannot travel, he breaks out in a profuse sweat; he will breathe heavily and his pulse will be quick and he will tremble at the flanks; the muscles of the back and hips become swollen and hard. As soon as the symptoms are noticed, the horse should be taken to the nearest stable and be well covered. Rub his back and loins with hot liniment or mustard and vinegar, or it is well to apply bags of hot salt over the kidneys. Give a drachm of sweet spirits of nitre, 1 ounce; Barbadoes aloes, 5 drams; soda and ginger, 1 teaspoonful each, and Fleming's tincture of acetone, 10 drops; all mixed in a pint of warm water. If relief is not given in three or four hours, give spirits of nitre, 1 ounce; soda, 1 tablespoonful, and Fleming's tincture of acetone, 10 drops. Mix in a pint of warm water and give every three hours until the animal gets relief. If he gets down and cannot rise, turn him from side to side twice a day, and assist him to rise as soon as possible. Feed on soft food, give chilled water to drink, and make comfortable. While he is recovering give a teaspoonful twice a day, in food, of equal parts nitrate of potash and ground gentian root. Anoturia is a serious and often fatal disease, and unless one has considerable veterinary knowledge, he should call in a qualified veterinary surgeon when a case occurs.

"3. Bloody milk may be caused from an external injury or from some constitutional trouble. Give 1 pound of Epsom salts and 1 teaspoonful of saltpetre, dissolved in a quart of warm water, twice a week for a few weeks.

"4. The swelled and hot condition was due to garget, which should be treated by a purge of salts and saltpetre as above, and bathing the udder with water hot enough to bear the hand, twice a day, followed by application of liniment or goose oil. The lumps should be removed by a surgical operation performed by a veterinary surgeon, or if the cow is not particularly valuable as a breeder, it would be well to dry the lumpy teat and not breed her again, as the trouble is liable to recur with her next calf. In all probability the lump caused the garget by preventing the flow of milk. Nothing can be done for the cow with the blind teat. If she gives enough to be profitable as a dairy cow from the three teats, it may be all right to keep her, but it would not be wise to keep the heifer calves, as such troubles are likely to be hereditary."

SPAVIN LAMENESS.

A. E. P., York Co., Ont.:—"I have a mare very lame. When she first comes out of the stable she is so bad she can hardly hobble; but after she has travelled ten rods you would not know that there was anything the matter, but leave her standing a few minutes and she is as bad as ever when she starts again. What is the matter?"

[There is no doubt that your mare is suffering from a "bone spavin." It is a common form of hock lameness, very often incurable, especially in old animals and when the disease is of long standing. The disease is hereditary—that is, handed down from sire or dam—and, therefore, she should not be bred from. Bone spavin consists of inflammation excited in the small bones of the true hock joint. The bones involved are the cuneiforms and metatarsals. An exudate is thrown out, binding them together, which is ultimately converted into bone. A characteristic symptom is when the animal travels on the road the toe first touches or knocks the ground, wearing off the front of the shoe. The lameness in early stages may often be removed by counter irritation—i. e., firing and blistering—and if successful, with "a very large if," it is all that can be expected, as a cure is impossible.

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

BLOOD OUT OF CONDITION—SAWDUST FOR CLAY LAND—CONSTANT STABLING OF CATTLE.

D. S., Huron Co., Ont.:—"1. My mare has a thick swollen leg and is scabby at the heel. Her coat is very rough and dry. She galls easily and is very slow to heal. She is kept almost entirely in idleness. What will put her right? 2. Is sawdust good to put on a hard clay knoll? 3. My cattle run loose in the stable, and have water inside. Would you consider it advisable to allow them to run outdoors on fine days?"

[1. The mare is evidently in a generally unhealthy condition, due perhaps to heavy feeding, with hard work followed by sudden idleness without reducing the feed. This is a frequent cause of such a condition, or it may arise from depleted blood, due to too low a diet, such as straw. The first step in the treatment is to prepare the mare for a purge by feeding only bran mash for two days, then administer a good physic, consisting of Barbadoes aloes, 5 drams; ginger and soda, each 1 tablespoonful, dissolved in a quart of warm water. Allow the mare to stand in a comfortable stable a couple of days, well blanketed, and fed on soft food, such as bran mash, with a little ground flaxseed. Give plenty of water to drink, having the chill taken off. Then give a teaspoonful, twice a day, in the feed, of equal parts saltpetre and sulphur, for a week. Follow this with tonic of ground gentian root and sulphate of iron, equal parts, giving one teaspoonful twice a day for ten days or two weeks. The fore-

going medicines will cleanse the blood and therefore heal the sores, but local applications should not be neglected. Keep the parts clean and apply white lotion made of half an ounce each of sulphate of zinc, sugar of lead, and a teaspoonful of carbolic acid, mixed in a quart of water; apply twice a day, after shaking the bottle. Feed the mare moderately well on oat chop, boiled oats and bran, clover or timothy hay, and a few roots.

2. Sawdust is poor medicine for any land, as it contains practically no plant food and renders soil more liable to dry out. Coarse manure from the yard, black muck, or even sand, would answer a much better purpose. It would be well to plow in one or two green crops. The best manure we know of for heavy clay knolls is night soil.

3. We would prefer to allow cattle the liberty of an open yard for a short period, say an hour, each fine day, even though they are housed in loose boxes.]

SPLINTS ON OUTSIDE OF HORSE'S LEG.

A SUBSCRIBER, York Co., Ont.:—"Would you kindly inform me through the columns of the FARMER'S ADVOCATE if splints ever appear on the outside of the leg. What is a reliable cure for them?"

[Splints are bony enlargements usually on the inside, but occasionally on the outside, of the fore leg, and in rare instances they appear on the hind leg below the hock, on either the inside or outside of the limb. The position of splint is usually at a point at the lower part of the upper third of the cannon bone, or it may come nearer the knee, when there is greater liability to lameness. Splints are more likely to occur in young horses with small, weak bones below the knees, or colts that are very fat and heavy on their legs. Driving or riding colts on hard roads are likely causes of splints. A bruise, too, or any condition that sets up irritation between the bone and the covering of the bone at the seat of splint, may cause a deposit of bony matter and consequent soreness. Splints are not always easily detected, as they may be very small and still producing lameness; in fact, the greatest tenderness is usually seen in the early stages, before the bony growth has made much advancement. Usually the animal walks without lameness, and stands on the leg as though perfectly sound, but at the trot, especially on hard road, he goes very lame, and more particularly so if ridden. In treating splint, keep the horse from work as much as possible, and in summer, or if the horse has a warm stable, bathe the leg in cold or hot water, either of which will answer the purpose of allaying the inflammation. After bathing for half an hour twice a day, rub dry, and apply white lotion made of half an ounce each of sulphate of zinc, sugar of lead, and crushed alum, dissolved in a quart of water. Continue this till the inflammation and soreness are out of the splint, when there should be applied a blister, made as follows: Powdered cantharides and biniodide of mercury, each one dram, mixed with an ounce of vaseline or lard. After clipping the hair closely, rub oil or grease on the leg, surrounding the splint, but not on it, and apply the blister for fifteen minutes. Tie the horse so that he cannot reach the blister with his lips, and in three days rub the part with lard or vaseline. A second blister may be necessary, or the pointed firing iron may be used with more telling effect. A seton passed over the splint, and allowed to remain for a couple of weeks, will often effect a cure when every other treatment fails.]

LAME MARE.

I. N., Wellington Co., Ont.:—"I have a mare, in foal, which went lame about three months ago, and kept getting worse, so that I could not work her. I do not think there is anything the matter with her fetlock joint. Her leg is not swollen. She had what seems to have been the same thing the matter with the other leg two years ago. I had a veterinary surgeon examine her and he gave me a bottle of medicine to give in tablespoonful doses, and it cured her. Will salts and linseed oil given together to either horses or cattle injure them?"

[We cannot from your description glean any knowledge of the complaint that your mare is suffering from, except that it is quite likely to be constitutional. As she is in foal, you must not give any drastic purgatives. Take of castor oil, 10 ounces; oil of turpentine, 2 ounces. Give a fourth part of this mixture night and morning, in a pint of warm gruel. We do not recommend the administration of Epsom salts or linseed oil to the horse, and could not recommend both together for either animal. WM MOLE, M. R. C. V. S.]

Miscellaneous.

PLANTING AND GRAFTING APPLE TREES—DORSET HORNED SHEEP.
SUBSCRIBER, Hastings Co., Ont.:—"1. Will apple trees thrive better if planted out in the fall if planted immediately after digging from the nursery rows?
"2. Would someone please explain as to about how far from the root the apple stock should be cut off for the purpose of grafting? Would the cuttings that are got in the fall for grafting do if they are kept in a box of sawdust or sand? Is the

right time to cut these cuttings when the leaves have just fallen? What way is best to keep the young trees over winter for grafting in the spring? (Is spring the best time for grafting?)

"3. How do Dorset Horned sheep compare with the Leicester in size and length of fleece? Will Dorset Horns do as well as Leicesters and Cotswolds on low, wet land?"

1. If apple trees are planted in the fall it should be done soon after the leaves have fallen, and very soon after being taken from the nursery row. Between fall and spring planting there seems to be a general preference for setting out in spring, which may be done any time before the leaves are out.

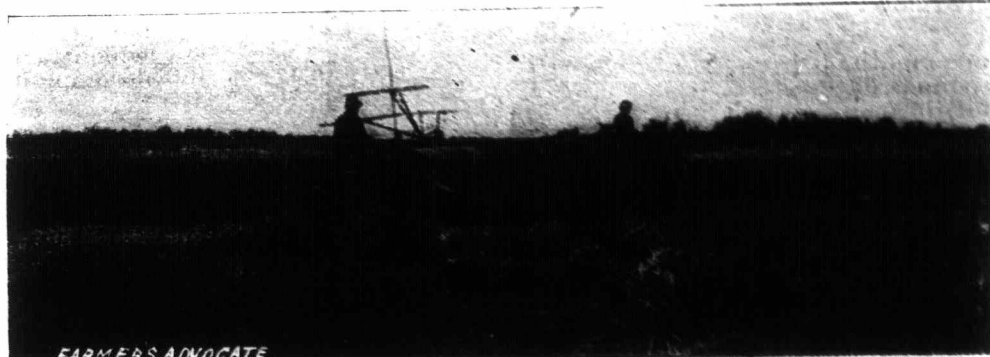
2. This question is fairly well answered in reply to another enquirer in this issue.

3. Dorset Horned sheep are considerably less in size than Leicesters, and their wool is perhaps half as long. Dorsets will do fully as well as the other breeds mentioned on any land, but we would not consider low, wet land suitable for any breed of sheep.]

REMEDY FOR KICKING COW.

SUBSCRIBER, Middlesex Co.:—"Could you give me advice how to fix a cow to keep her from kicking the milk pail? I have been told to put a ring in the floor and strap her foot to it, but I am afraid she would hurt herself trying to get loose, as she is nervous."

[There are many contrivances used for kicking cows, some of which will answer where others will fail, and vice versa, according to the disposition of the animal. With a nervous cow, kindness and gentleness will work marvels, but will not always cure. The most effective remedy we have tried is to buckle a strap quite tightly around her body just in front of the udder. A cow will seldom kick while this is on. Another plan that works well is to hang a fairly heavy logging chain across her loins. With these suggestions we leave the question for our readers to answer. Send us plans found to work well and we will gladly publish them.]



BINDER AT WORK IN WHEAT FIELD
of E. J. Lawrence, Vermilion, Peace River, Aug. 26th, 1899. Seven hundred miles north of Edmonton, Alta.

TREATING OATS FOR SMUT.

J. W., Lambton Co., Ont.:—"Do you know of any simple way of treating oats to stop smut on them?"

[Dissolve 1 pound of bluestone in about 8 gallons of water. This will do about 8 bushels of oats. Spread the oats on the barn floor, and while one is spraying on the liquid have someone turning the oats with a shovel. Every grain should be well moistened. The pile should be left 4 or 5 hours, and turned occasionally to insure thorough wetting; then spread out in the sun, or where there is a breeze, to dry. It is claimed that the bluestone solution tends to delay germination, and for this reason hot water treatment of the seed is recommended. To do this the seed should be held in water at 133 degrees Fahr. for from 5 to 10 minutes. To do this the oats should be placed in a coarse sack and dipped into water at about 120 degrees to warm up and become wet. The sack should then be placed in the water at 133, as directed. This will destroy the smut and not delay germination of the seed. The bluestone treatment is very popular in Manitoba, where smut is prevalent, and is perhaps more convenient than the hot water method.]

APPLICATION OF ASHES TO LAND.

C. A. R., Northumberland Co., Ont.:—"When and how should ashes be sown in the spring on land that I intended for barley, oats, and wheat, and to be seeded down with timothy and clover? The land was plowed twice last fall, and is ready to cultivate or disk harrow in the spring before sowing. Will it be better to sow the ashes at time of sowing seeds or after? How many pounds of ashes per acre, and which is the best way to sow them? I have a carload to sow? Had I better roll the land after sowing?"

[Our plan would be to apply not less than 400 or more than 800 pounds of fresh ashes to the acre before the crop is sown in spring. They are easily applied by spreading carefully with a shovel from a cart, waggon box or stone boat. So far as the ashes are concerned, it is immaterial whether the land is rolled or not. Usually ashes yield better returns when applied to orchards or other fruit plantations than to crops such as those mentioned by C. A. R. They will do good, however, to any crop, especially on light land.]

COMBINED THRESHER AND STRAW CUTTER WANTED.

J. S. HARVEY, Huron Co., Ont.:—"Many farmers feel the need of a machine to thresh the grain and cut the straw at the same time. It would be much less trouble to manage one machine than to set a straw cutter and a separator as they are often arranged now. I think a machine can be arranged with knives on a cylinder, with another cylinder behind for threshing, with good accommodation for separating, and a blower at rear end. If an emery stone could be set so that by turning the first cylinder backward the knives could be sharpened, it would be a great saving of time. Some of the advantages are:

"1st. Time would be saved, as only one handling would be necessary.

"2nd. The cut feed would be better than when straw is cut.

"3rd. A much larger quantity of straw could be accommodated in barn after it is cut.

"It may be there is such a machine made now, but we never see it advertised. If the manufacturers knew that such was wanted they might try to meet the want."

PLASTER ON HEAVY LAND.

T. HARRIS, York Co., Ont.:—"Is gypsum good for heavy land, and if so, when should it be applied, and in what quantities?"

[Gypsum, or land plaster, has been found to have its action in setting free potash from insoluble compounds. In this way its application is helpful to leafy crops, such as clover, that acquire large quantities of potash; that is, on land well stored with that element, which is usually the case with clay land. So far as improving the mechanical condition of the soil is concerned, an application of plaster would have little or no effect; but if the land is seeded with clover, it might be well to apply say about 200 pounds per acre early in the spring. This is the only circumstance under which we would consider an application of plaster profitable.]

IS IT A GUARANTEE?

SUBSCRIBER, Middlesex Co., Ont.:—"I sold a cow at auction in November, supposed to be in calf, as she was served in August and had not been noticed in season between that time and the sale. The buyer asked me when she was put up if I was sure she was in calf? I replied I could not be sure, but told him the date on which she was served and that I had not seen her 'running' since. He claims that the cow is not in calf, that 'supposed to be in calf' is a guarantee, and that he is entitled to a reduction in the price. Am I liable in such case?"

[It is, we believe, usual in the case of public sales to advertise cows as supposed to be in calf, and that this is not regarded as a guarantee by either seller or buyer. The most the seller can do is to give the date of the last service, and if he states that he has not seen or known the cow to be in season since that date, his word is usually taken for it, and the buyer has, we think, no legal claim for compensation. It sometimes happens that a cow goes three months after a service without showing signs of heat. It may be a case of abortion or it may be due to some irregularity of the system.]

DAIRYING VERSUS GRAIN RAISING.

ED. J., Lenox Co., Ont.:—"I consider the ADVOCATE the most valuable paper a farmer can read if he desires to improve his farm or his methods of farming. Would you consider keeping cows on a farm that was all working land more profitable than raising hay and grain? My farm contains one hundred acres, all under crop except about twenty-three acres that is shallow, and I keep about twenty sheep on that. There is a creek running through it, and I have no room for cows unless I turn out a meadow for pasture, and I don't think that would pay. Kindly give me your advice on this point."

[There are so many conditions and qualifying influences to be considered in a decision between dairying and raising grain and hay to be sold off the farm, one can settle it only in a general way. We may say, however, that the tendency during the last ten years among successful farmers in Ontario and other like countries has been to increase stock raising or go into dairying, thus preventing the depletion of the soil to the greatest possible degree. It has now become realized pretty thoroughly that it is much more profitable to sell the produce of the farm on foot, or in a finely finished product like butter and cheese, than to sell it in the form of grain or hay. So thoroughly have many of the wisest farmers become convinced of this fact, that they not only feed all the grain they grow, but buy large quantities besides. To do this profitably, however, requires on the part of the farmer a practical knowledge of the particular line to be followed, and a liking for that branch. A rich, clean farm, well cultivated, will undoubtedly yield satisfactory returns of grain, etc., for a number of years, but unless fertility is restored in some form the soil must become poorer, until it ceases to be profitable to farm, while, on the other hand, practically as good returns can be secured with good grade stock, while the soil is being maintained in fertile condition.]

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...and a few roots.

...is poor medicine for any land, as it
...no plant food and renders soil
...to dry out. Coarse manure from the
...or even sand, would answer a
...purpose. It would be well to plow in
...The best manure we know
...is night soil.

...I would prefer to allow cattle the liberty
...for a short period, say an hour,
...even though they are housed in loose
...stalls.

SWELLING ON OUTSIDE OF HORSE'S LEG.
...York Co., Ont.:—"Would you
...through the columns of the
...if splints ever appear on the
...What is a reliable cure for them?"

Splints are bony enlargements usually on the
...of the fore
...and in rare instances they appear on the hind
...on either the inside or outside
...The position of splint is usually at a
...of the lower part of the upper third of the
...bone, or it may come nearer the knee,
...where there is greater liability to lameness. Splints
...are more likely to occur in young horses with small,
...weak bones below the knees, or colts that are very
...and heavy on their legs. Driving or riding
...on hard roads are likely causes of splints. A
...to any condition that sets up irritation
...between the bone and the covering of the bone at
...the seat of splint, may cause a deposit of bony
...matter and consequent soreness. Splints are not
...always easily detected, as they may be very small
...and still producing lameness; in fact, the greatest
...tenderness is usually seen in the early stages, before
...the bony growth has made much advancement.
...Usually the animal walks without lameness, and
...stands on the leg as though perfectly sound, but at
...the trot, especially on hard road, he
...gives very lame, and more particu-
...larly as if ridden in treating splint,
...keep the horse from work as much
...as possible, and in summer, or if the
...horse has a warm stable, bathe the
...leg in cold or hot water, either of
...which will answer the purpose of
...slaying the inflammation. After
...bathe for half an hour twice a day,
...rub dry, and apply white lotion made
...of half an ounce each of sulphate of
...alum, sugar of lead, and crushed alum,
...dissolved in a quart of water. Con-
...tinue this till the inflammation and
...soreness are out of the splint, when
...there should be applied a blister,
...made as follows: Powdered can-
...tharides and biniodide of mercury,
...each one dram, mixed with an ounce
...of vasoline or lard. After clipping
...the hair closely, rub oil or grease
...on the leg, surrounding the splint, but not on it,
...and apply the blister for fifteen minutes.
...The horse so that he cannot reach the blister
...with his lips, and in three days rub the part with
...lard or vasoline. A second blister may be neces-
...sary, or the pointed firing iron may be used with
...more telling effect. A seton passed over the splint,
...and allowed to remain for a couple of weeks, will
...often effect a cure when every other treatment fails.]

LAME MARE.
...I. N. Wellington Co., Ont.:—"I have a mare, in
...foal, which went lame about three months ago, and
...kept getting worse, so that I could not work her. I
...do not think there is anything the matter with
...her fetlock joint. Her leg is not swollen. She had
...what seems to have been the same thing the matter
...with the other leg two years ago. I had a veteri-
...nary surgeon examine her and he gave me a bottle
...of medicine to give in tablespoonful doses, and it
...cured her. Will salts and linseed oil given together
...to other horses or cattle injure them?"

[We cannot from your description glean any
...knowledge of the complaint that your mare is
...suffering from, except that it is quite likely to be
...constitutional. As she is in foal, you must not give
...any drastic purgatives. Take of castor oil, 10
...ounces; oil of turpentine, 2 ounces. Give a fourth
...part of this mixture night and morning, in a pint of
...warm gruel. We do not recommend the adminis-
...tration of Epsom salts or linseed oil to the horse,
...and could not recommend both together for either
...animal.
WM MOLE, M. R. C. V. S.]

Miscellaneous.

**PLANTING AND GRAFTING APPLE TREES—DOR-
SET HORNED SHEEP.**

SUBSCRIBER, Hastings Co., Ont.:—"1. Will apple
...trees thrive better if planted out in the fall if
...planted immediately after digging from the nursery
...rows?"

2. Would someone please explain as to about
...how far from the root the apple stock should be
...cut off for the purpose of grafting? Would the
...cuttings that are got in the fall for grafting do if
...they are kept in a box of sawdust or sand? Is the

right time to cut these cuttings when the leaves have
...just fallen? What way is best to keep the young
...trees over winter for grafting in the spring? (Is
...spring the best time for grafting?)

"3. How do Dorset Horned sheep compare with
...the Leicester in size and length of fleece? Will
...Dorset Horns do as well as Leicesters and Cots-
...wolds on low, wet land?"

1. If apple trees are planted in the fall it should
...be done soon after the leaves have fallen, and very
...soon after being taken from the nursery row.
...Between fall and spring planting there seems to be
...a general preference for setting out in spring, which
...may be done any time before the leaves are out.

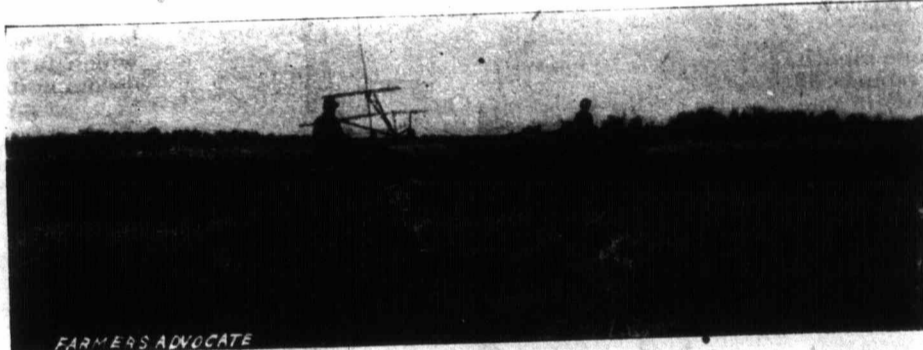
2. This question is fairly well answered in
...reply to another enquirer in this issue.

3. Dorset Horned sheep are considerably less in
...size than Leicesters, and their wool is perhaps half
...as long. Dorsets will do fully as well as the other
...breeds mentioned on any land, but we would not
...consider low, wet land suitable for any breed of
...sheep.]

REMEDY FOR KICKING COW.

SUBSCRIBER, Middlesex Co.:—"Could you give
...me advice how to fix a cow to keep her from
...kicking the milk pail? I have been told to put a
...ring in the floor and strap her foot to it, but I am
...afraid she would hurt herself trying to get loose,
...as she is nervous."

[There are many contrivances used for kicking
...cows, some of which will answer where others will
...fail, and vice versa, according to the disposition of
...the animal. With a nervous cow, kindness and
...gentleness will work marvels, but will not always
...cure. The most effective remedy we have tried is
...to buckle a strap quite tightly around her body
...just in front of the udder. A cow will seldom kick
...while this is on. Another plan that works well is to
...hang a fairly heavy logging chain across her loins.
...With these suggestions we leave the question for
...our readers to answer. Send us plans found to
...work well and we will gladly publish them.]



BINDER AT WORK IN WHEAT FIELD
of E. J. Lavence, Vermilion, Peace River, Aug. 26th, 1899. Seven hundred miles north of
Edmonton, Alta.

TREATING OATS FOR SMUT.

J. W., Lambton Co., Ont.:—"Do you know of any
...simple way of treating oats to stop smut on them?"

[Dissolve 1 pound of bluestone in about 8 gallons
...of water. This will do about 8 bushels of oats.
...Spread the oats on the barn floor, and while one is
...spraying on the liquid have someone turning the
...oats with a shovel. Every grain should be well
...moistened. The pile should be left 4 or 5 hours,
...and turned occasionally to insure thorough wetting;
...then spread out in the sun, or where there is a
...breeze, to dry. It is claimed that the bluestone
...solution tends to delay germination, and for this
...reason hot water treatment of the seed is recom-
...mended. To do this the seed should be held in
...water at 133 degrees Fahr. for from 5 to 10 minutes.
...To do this the oats should be placed in a coarse sack
...and dipped into water at about 120 degrees to warm
...up and become wet. The sack should then be placed
...in the water at 133, as directed. This will destroy
...the smut and not delay germination of the seed.
...The bluestone treatment is very popular in Mani-
...toba, where smut is prevalent, and is perhaps more
...convenient than the hot water method.]

APPLICATION OF ASHES TO LAND.

C. A. R., Northumberland Co., Ont.:—"When and
...how should ashes be sown in the spring on land
...that I intended for barley, oats, and wheat, and to
...be seeded down with timothy and clover? The
...land was plowed twice last fall, and is ready to cul-
...tivate or disk harrow in the spring before sowing.
...Will it be better to sow the ashes at time of sowing
...seeds or after? How many pounds of ashes per
...acre, and which is the best way to sow them? I
...have a carload to sow? Had I better roll the land
...after sowing?"

[Our plan would be to apply not less than 400 or
...more than 800 pounds of fresh ashes to the acre be-
...fore the crop is sown in spring. They are easily ap-
...plied by spreading carefully with a shovel from a
...cart, waggon box or stone boat. So far as the
...ashes are concerned, it is immaterial whether the
...land is rolled or not. Usually ashes yield better re-
...turns when applied to orchards or other fruit
...plantations than to crops such as those mentioned
...by C. A. R. They will do good, however, to any
...crop, especially on light land.]

**COMBINED THRESHER AND STRAW CUTTER
WANTED.**

J. S. HARVEY, Huron Co., Ont.:—"Many farm-
...ers feel the need of a machine to thresh the grain
...and cut the straw at the same time. It would be
...much less trouble to manage one machine than to
...set a straw cutter and a separator as they are often
...arranged now. I think a machine can be arranged
...with knives on a cylinder, with another cylinder
...behind for threshing, with good accommodation for
...separating, and a blower at rear end. If an emery
...stone could be set so that by turning the first cylin-
...der backward the knives could be sharpened, it
...would be a great saving of time. Some of the ad-
...vantages are:

"1st. Time would be saved, as only one handling
...would be necessary.

"2nd. The cut feed would be better than when
...straw is cut.

"3rd. A much larger quantity of straw could be
...accommodated in barn after it is cut.

"It may be there is such a machine made now,
...but we never see it advertised. If the manufactur-
...ers knew that such was wanted they might try to
...meet the want."

PLASTER ON HEAVY LAND.

T. HARRIS, York Co., Ont.:—"Is gypsum good
...for heavy land, and if so, when should it be applied,
...and in what quantities?"

[Gypsum, or land plaster, has been found to have
...its action in setting free potash from insoluble
...compounds. In this way its application is helpful
...to leafy crops, such as clover, that acquire large
...quantities of potash; that is, on land well stored
...with that element, which is usually the case with
...clay land. So far as improving the mechanical
...condition of the soil is concerned, an application of
...plaster would have little or no effect; but if the
...land is seeded with clover, it might be well to apply
...say about 20 pounds per acre early in the spring.
...This is the only circumstance under which we would
...consider an application of plaster profitable.]

IS IT A GUARANTEE?

SUBSCRIBER, Middlesex Co., Ont.:—"I sold a cow
...at auction in November, supposed to be in calf, as
...she was served in August and had not been noticed
...in season between that time and
...the sale. The buyer asked me when
...she was put up if I was sure she was
...in calf? I replied I could not be
...sure, but told him the date on which
...she was served and that I had not
...seen her 'running' since. He
...claims that the cow is not in calf,
...that 'supposed to be in calf' is a
...guarantee, and that he is entitled
...to a reduction in the price. Am I
...liable in such case?"

[It is, we believe, usual in the case
...of public sales to advertise cows as
...supposed to be in calf, and that this
...is not regarded as a guarantee by
...either seller or buyer. The most
...the seller can do is to give the date
...of the last service, and if he states
...that he has not seen or known the
...cow to be in season since that date,
...his word is usually taken for it, and
...the buyer has, we think, no legal claim for com-
...pensation. It sometimes happens that a cow goes
...three months after a service without showing signs
...of heat. It may be a case of abortion or it may be
...due to some irregularity of the system.]

DAIRYING VERSUS GRAIN RAISING.

ED. J., Lenox Co., Ont.:—"I consider the ADVO-
...CATE the most valuable paper a farmer can read if
...he desires to improve his farm or his methods of
...farming. Would you consider keeping cows on a
...farm that was all working land more profitable
...than raising hay and grain? My farm contains one
...hundred acres, all under crop except about twenty-
...three acres that is shallow, and I keep about twenty
...sheep on that. There is a creek running through it,
...and I have no room for cows unless I turn out a
...meadow for pasture, and I don't think that would
...pay. Kindly give me your advice on this point."

[There are so many conditions and qualifying
...influences to be considered in a decision between
...dairying and raising grain and hay to be sold off the
...farm, one can settle it only in a general way. We may
...say, however, that the tendency during the last ten
...years among successful farmers in Ontario and
...other like countries has been to increase stock
...raising or go into dairying, thus preventing the
...depletion of the soil to the greatest possible degree.
...It has now become realized pretty thoroughly that
...it is much more profitable to sell the produce of the
...farm on foot, or in a finely finished product like
...butter and cheese, than to sell it in the form of
...grain or hay. So thoroughly have many of the
...wisest farmers become convinced of this fact, that
...they not only feed all the grain they grow, but buy
...large quantities besides. To do this profitably,
...however, requires on the part of the farmer a
...practical knowledge of the particular line to be
...followed, and a liking for that branch. A rich,
...clean farm, well cultivated, will undoubtedly
...yield satisfactory returns of grain, etc., for a num-
...ber of years, but unless fertility is restored in some
...form the soil must become poorer, until it ceases to
...be profitable to farm, while, on the other hand,
...practically as good returns can be secured with
...good grade stock, while the soil is being maintained
...in fertile condition.]

PORK-PACKING RINGS—SEED PEAS WANTED.

J. T., Elgin Co., Ont.:—"You will find enclosed one dollar for this year's subscription to the FARMER'S ADVOCATE. This is my third year for it, and I am more than pleased with the paper, and especially with the Christmas number. In following the columns of your paper one gets a great many good pointers, which, used in connection with his own experience, are very helpful.

"1. The hog question of to-day is a very important one, and I would like to hear some of your readers propose some way to protect the farmer against this pork-packing ring, which is at present filling their pockets at our expense?

"2. If you will allow, I would like to hear from some of your Middlesex readers if they have any seed peas for sale, as in Elgin they were a very poor crop last year?"

[It is indeed encouraging to receive expressions of appreciation of our efforts to make the FARMER'S ADVOCATE really helpful to its readers in making their work easier and more profitable. Regarding the existence of a pork-packing ring or combine, we have heard it stated on several occasions that prices were held down by a mutual arrangement between packing concerns, but we are not yet convinced that such an arrangement exists. If the farmers are being imposed upon in this way, there can be a positive remedy in the numerous co-operative packing-houses being opened in various parts of Ontario. Reference is made to a few of these in the "Farm Gossip" department of this issue.

2. Farmers having good seed peas to dispose of will do well to let it be known through our advertising columns.]

HOW MUCH MILK SHOULD A GOOD COW GIVE?—ROOTS FOR HORSES—CLOVERS.

ELGIN PARROTT, Lennox Co., Ont.:—"1. Please let me know how many pounds of milk a grade Holstein cow must yield daily to be called a good cow? How many to be called an extra good cow?"

"2. Which kind of roots are the best to feed horses—mangels, sugar beets, or carrots?"

"3. Is lucerne clover (well cured) as good a fodder for milk cows as red clover? And is lucerne clover seed worth as much per bushels as red clover seed?"

[1. A good cow at her best, say about one month after calving, should give from 38 to 45 pounds of milk, testing from 3 to 4 per cent. of fat, in one day; and about 7,000 pounds of milk, containing 300 pounds of butter, in a milking period of ten months. This is fairly good work, and needs good feeding as well as a good cow. A cow may be called extra good if she gives from 55 to 65 pounds of good milk in 24 hours, and from 12,000 to 15,000 pounds of milk in a year. Mr. E. D. Tillson's best grade Holstein cow gave in 12 months and 15 days, 20,134 pounds of milk, testing an average of 3½ per cent. fat.

2. We prefer carrots for horses, as they are much more relished than either of the other roots mentioned.

3. Owing to the coarse stalks of lucerne, it is not as palatable as red clover. Both being equally well cured, we would prefer red clover for milk cows or any other stock. Lucerne clover seed is the dearer by about seventy-five cents per bushel.]

A BEGINNER'S BEEKEEPING OUTFIT.

READER, Middlesex Co.:—"I have become interested in beekeeping, and wish to start in a small way this coming spring. Kindly inform me just (1) how many colonies I should get; (2) what time I should secure them; also (3) what equipment is really necessary; and (4) the cost of same, and how best to secure it? My idea at present is simply to raise enough honey for family use."

[1. From one to three.

2. Any time in warm weather, preferably when bees are gathering honey.

3. For each colony one Langstroth hive, consisting of stand, floor, hive body, eight movable frames full of worker comb or foundation, cloth, cushion, cover, blocks, and alighting board. For swarms you require two extra hives like this. Now, if you wish to take comb honey, you require, besides these, two queen bars, three section supers complete, and two pairs wedges, besides foundation fastener and section machine. If you wish extracted honey, get two extra hive bodies instead of section supers, and 16 extra frames with a ¾-inch strip of foundation fastened along the top bar of each for starter, two queen bars, two pairs wedges, one extractor, and one uncapping knife. In any case you need smoker and veil. See Mr. Morley Pettit's article in the "Apiary" department in this issue.

4. Write for catalogue to Goold, Shapley & Muir Co., Brantford, Ont.; The A. I. Root Co., Medina, Ohio, or any other supply dealer.]

BARN PLAN WANTED.

W. H. S., Wentworth Co., Ont.:—"If you have any plans for a barn about 42x64, with a basement stable, I should be pleased to receive a few of them."

[In this issue is published a plan of Mr. Lemuel Kelly's barn, which is 45 feet wide and 55 feet long. Mr. W. H. S. may get some points from this which he can apply to the dimensions he mentions. We will welcome good plans for publication if sent in at an early date, so that they will be helpful to those who will build or overhaul barns this coming season.]

THE CLASS OF STOCK FOR MANITOBA.

T. H., Georgetown Ont.:—"I propose settling in Manitoba next spring. I have a mixed herd on my farm here, and write for advice regarding the breed of cattle likely to succeed best in that climate. I presume that swamp hay is fed exclusively."

[On this farm we have tried seven different breeds of cattle and all have thriven equally well. This climate is well adapted for horned stock, and yearlings here are often equal in size to the two-year-olds found in many parts of the East; this is largely attributable to the abundance of succulent pasture found in nearly every portion of the Province. As almost every calf dropped, whether male or female, is raised here, I would advise you to select the choicest females of your herd, irrespective of breed, and use the best sire obtainable. Although the bulk of fodder used in this Province is natural marsh hay, we are not by any means confined to this, as timothy can be successfully grown in many parts of the country; also Brome grass and western rye grass succeed everywhere. Fodder corn and roots can be grown with profit, and their cultivation is rapidly increasing each year.

S. A. BEDFORD,
Supt. Brandon Experimental Farm.]

ROOT-GRAFTING.

J. LEMON, York Co., Ont.:—"In the ADVOCATE of January 15th, I notice a good illustration and explanation of the method of top-grafting. In your next issue will you please explain the method of root-grafting, and the time to do it? 2. What may I root-graft pears into with good results; is thorn good?"

[There are various methods of root-grafting, but the one most generally employed is what is termed whip-grafting. It is done with small stock usually from one to two years old. Both the scion and stock are cut across diagonally, the cut surface extending from 1 to 2 inches, according to the size



Fig. 1.—Scion of whip-graft.
L. H. Bailey.

Fig. 2.—Whip-graft in position.
L. H. Bailey.

Fig. 3.—Root-graft.
L. H. Bailey.

of the part. A vertical cleft is then made in both, and the two are joined by shoving the tongue of the scion into the cleft of the stock. The operation can be understood by reference to Figs. 1, 2, and 3. Fig. 1 shows the end of a scion cut (natural size). The stock is cut in the same manner, and the two are joined in Figs. 2 and 3. The parts are held firmly by a waxed bandage passed five or six times around them. If the graft is to stand above ground it is well to apply a coating of hot wax over the bandage. The operation of whip root-grafting is performed in winter. The stocks, either one or two years old, are dug in the fall. In January or February the grafting is begun. In true root-grafting only pieces of roots are used, but some prefer to use the whole root and graft at the crown. When the grafts are made and bound together with the waxed strips they are packed away in sand, moss or sawdust, in a cool cellar, until spring, when the two parts will be firmly calloused together. If the storage cellar is cool—not above 40° Fahr.—they will knit together so that they can be planted in spring without danger of breaking apart. If the cellar is warm the grafts will start to grow and be lost.

2. Pears do much better grafted into thorns than into apples. Quince stocks are frequently used, from which larger fruit is usually produced than from the original pear from which the scion was taken.]

PEAFOWL WANTED.

Several enquiries have recently been received at this office for the addresses of breeders of peafowl. The last enquiry is from J. H. C., Calgary, wanting a pair of peafowl or eggs for hatching. Breeders would do well to inform the public through our advertising columns.

GREEN CROP TO PLOW UNDER.

J. C. JR., Lincoln Co., Ont.:—"I have a 25-acre field that had oats and barley on last season. I wish to fallow the coming season and sow with wheat next fall. I am thinking of plowing under some kind of a green crop, but have no experience in the matter. How would it be to plow the field in the latter part of May and sow with rape, and then plow this under in August? Or is there some other green crop more suitable? In this matter it appears to me that the cost of the seed is an important factor. It would cost less to seed with rape than for any other crop to plow under; and then, perhaps rape would furnish some pasture about the 1st of August, a time when grass is usually scarce?"

[Unless there is considerable fertility in the land, green crops, except clover or other legumes, such as peas, tares, etc., are not much to depend on as manure for fall wheat. Rape, buckwheat, millet, and even corn, are used for this purpose, but their function is more to add humus and water-holding power than fertility, as they simply return to the land what they take from it in growing. Their decomposition in the soil after being plowed down has the effect of dissolving inert fertility, preparing it for plant food. In doing this something is accomplished towards rendering the soil more fertile. Seeding with peas or tares, either of which crops would, like clover, add nitrogen from the air, would be expensive, more so, perhaps, than the comparative benefit received. Of the other crops we mention, rape and buckwheat would have our choice. The latter, sown three pecks per acre late in May, should produce a considerable crop to turn under, and would greatly help the mechanical condition of the soil by the time the wheat should be sown. Rape in a moist season, sown 4 pounds per acre in May, would perhaps yield almost as much top and furnish pasture as proposed, but feeding off would reduce the bulk to be plowed down. There is probably little difference between rape and buckwheat when a full crop of either is produced. In our experience the latter is to be preferred for the single purpose of green manuring, and should be plowed down when in full bloom, care being taken to turn all the heads under, so as to prevent seed forming. In any case the land should be rolled with a heavy roller immediately after plowing down the green crop, and harrowed a day or two after each shower of rain to firm the land, a condition favorable to the wheat crop, and which favors the retention of moisture and the decomposition of the crop turned under.]

CONCRETE WALL FOR CELLAR.

W. J., Perth Co., Ont.:—"Which is the best kind of cellar wall to build under a house; is a concrete wall good to keep milk in, and could I build a concrete wall and floor in a low place to keep out water?"

[In our opinion a concrete wall and floor for a cellar would be drier than any other, but we could not trust them to keep out all water. There would probably be dampness in the cellar if there was no drain from the foundation; that is, if the situation is low and wet. It would be better either to fill in a trench under the foundation with stone and have a tile drain from the lowest corner of it, or else put a tile drain all around the outside of the cellar wall, say a foot deeper than the bottom of the wall, and carry the drain to a point where it would empty freely at the surface of the ground. If there is not a sufficient fall for drainage, it would be better to build most of the cellar wall above the level of the ground and haul earth to bank it with.]

RATION FOR JERSEYS.

C. R. B. B., Pictou Co., N. S.:—"Would you kindly compound me a ration for Jersey heifers and young cows from the following feeds: Mixed hay (chiefly timothy), ensilage (corn did not ear), turnips, smashed oats, pea meal, linseed meal (o. p.), bran, corn meal."

[For cows weighing about 800 lbs. the following daily ration should give maximum results, other conditions being favorable: Bran, 3 pounds; peas, 1 pound; corn, 1 pound; oats, 2 pounds; oil meal, 1 pound; ensilage, 30 pounds; roots, 10 pounds; hay, what is eaten cleanly twice daily. It is well to vary the mixture occasionally so as to afford a change, which the cows will appreciate.]

DOCKING COLTS.

SUBSCRIBER, Wellington Co., Ont.:—"1. Can you tell me is there any law to prohibit docking colts? If not, what is the best age to do so?"

"2. On what class of horses was it the judges would not award prizes last fall at the Toronto Industrial if docked?"

[In 1898 the Act for the Prevention of Cruelty to Animals was amended to make it illegal to dock, prick or nick a horse's tail except it be done by a qualified veterinary surgeon or by a student acting under his direction. A satisfactory age to have a colt docked is between ten and fifteen months old.

2. In the Hunter and Saddle class, three-year-old; also two-year-old fillies or geldings not Thoroughbred, but sired by a Thoroughbred horse, were not awarded prizes if docked.]

CROWN PEAS.

ABRAM WOOD, Huron Co., Ont.:—"Could you let me know, through your valuable paper, where I could get Crown peas for seed?"

[We have not been able to locate Crown peas, but presume there are some to be had. Those having them would do well to make the fact known in our advertising columns, as there is apparently a demand for them.]

Canadian Horse Breeders' Association Annual Meeting and Banquet.

TWO MINISTERS OF AGRICULTURE ON THIS INDUSTRY.

The annual meeting of the Canadian Horse Breeders' Association was held at the Albion Hotel, Toronto, February 8th; Principal Andrew Smith presiding over a gathering of about a hundred representative breeders. Hon. Sydney Fisher, Minister of Agriculture, was present. Secretary Henry Wade presented the annual report and financial statement. The receipts at last year's Horse Show amounted to \$9,513, and a profit was made of \$1,355, the C. H. B. A. having a balance of \$2,384 on hand. An agreement had been undertaken with the Toronto Hunt Club to hold a spring show this year on equal terms, which had not yet been considered.

The following representatives to Fair Boards were appointed: Industrial Exhibition, Robt. Beith, M. P., Bowmanville, and Robt. Miller, Stouffville; Western Fair, D. O. Sorby, Guelph, and Robt. McKwen, Byron.

Col. McCrae brought up the question of transportation, and urged that horses should receive the same consideration from the railway authorities as is given to other pure-bred live stock. He referred to the superior condition of affairs in England, where special provision is made for carrying stallions and mares at reduced rates, while in Canada there was the greatest difficulty in getting the railways to carry single horses, and those at exorbitant rates.

Hon. Mr. Fisher said that his attention had been drawn to this matter, and he had entered into communication with the railways to see what could be done.

On motion of Mr. Pepper, the following committee was appointed to interview the railways on the subject: Messrs. R. Beith, M. P.; D. McCrae, F. W. Hodson, Jas. Dalgety, J. McMillan, M. P., and J. M. Gardhouse.

The election of officers resulted as follows: President, Dr. Andrew Smith; First Vice-President, H. N. Crossley; Second

Mr. Dryden assured the horse breeders that they had a warm friend in almost every member of the Legislature, and he was not one of those who believed the day of the horse was past. That was what he heard when as a boy he went to Whitby to see the first locomotive run over the Grand Trunk, but not engines, bicycles, trolleys nor automobiles were ever going to get rid of the horse, for the demand to-day was greater than ever before. Some people thought that men could be made to breed in the right line if they had a little more law, but the Minister's theory was the education of the people, and he appealed to the Breeders' Association to do its part in this policy, promising them all reasonable assistance on his part and that of the Legislature.

Clydesdale Association Annual Meeting.

The fourteenth annual meeting of the Canadian Clydesdale Horse Breeders' Association was held at the Albion Hotel, Toronto, February 8th, the President, Mr. Peter Christie, Manchester, in the chair. The meeting was largely attended, and much enthusiasm in the business was manifested. The report of the Secretary, Mr. Henry Wade, stated that there had been a decided improvement during the year in Clydesdale matters, and that there had been increased importations from Scotland, principally of stallions. The number of registrations had been 22, an increase of 30 over the number for the previous year, and there were now 416 ready for the tenth volume. There were 106 paid-up members, an increase of 37 over 1898. The financial statement showed a balance on hand of \$458. The report was adopted, and the matter of amalgamation was referred to a committee composed of the President, Vice-President, and D. McCrae, to consider the whole question, with power to discuss and arrange terms to be submitted to a later meeting. A resolution was also passed referring the matter of cheap transportation for registered horses to the Board, with instructions to proceed as quickly as possible in getting lower rates.

The following grants were made as prizes:—\$100 to the Spring Horse Show, \$25 to the Winnipeg Industrial, and \$25 to the Brandon Fair. The officers elected were:—President, Peter Christie; First Vice-President, John Davidson, Ashburn; Vice-President for Ontario, D. Sorby, Guelph; for Quebec, Robt. Ness, Howick; for Manitoba, J. K. Smith, Brandon; for the Northwest, J. A. Turner, Calgary, and J. A. Macfarlane,

Hackney Society Annual Meeting.

The annual meeting of the Canadian Hackney Society was held at the Albion Hotel, Toronto, February 7th. The attendance was large, and genuine enthusiasm prevailed. The president, Mr. H. N. Crossley, of Rosseau, Muskoka, called the meeting to order, and delivered a very felicitous address, in which he referred to the growing interest in and demand for Hackney horses.

The report of Mr. H. Wade, secretary, showed 206 Hackneys on record, besides the inspected mares. The registrations numbered 23 last year, being 9 less than in 1898. Thirteen members paid their fees. The receipts were \$278.51, and there is a balance on hand of \$176.51.

Officers were elected as follows: President—Robert Miller, Stouffville. First Vice-President—Thomas Graham, Claremont. Second Vice-President—John Holderness, Toronto.

Provincial Vice-Presidents—Ontario, A. G. Ramsay, Hamilton; Quebec, J. A. Cochrane, Hillhurst; Alberta, A. M. Rawlinson, Calgary; Manitoba, J. A. S. Macmillan, Brandon; New Brunswick, J. R. Frink, St. John.

Directors—Robert Davies, Toronto; O. Sorby, Guelph; Dr. Andrew Smith, Toronto; Robert Beith, Bowmanville; Robert Bond, Toronto; Wm. Merry, Toronto; Geo. Pepper, Toronto; D. B. Simpson, Bowmanville; E. C. Aittrill, Goderich.

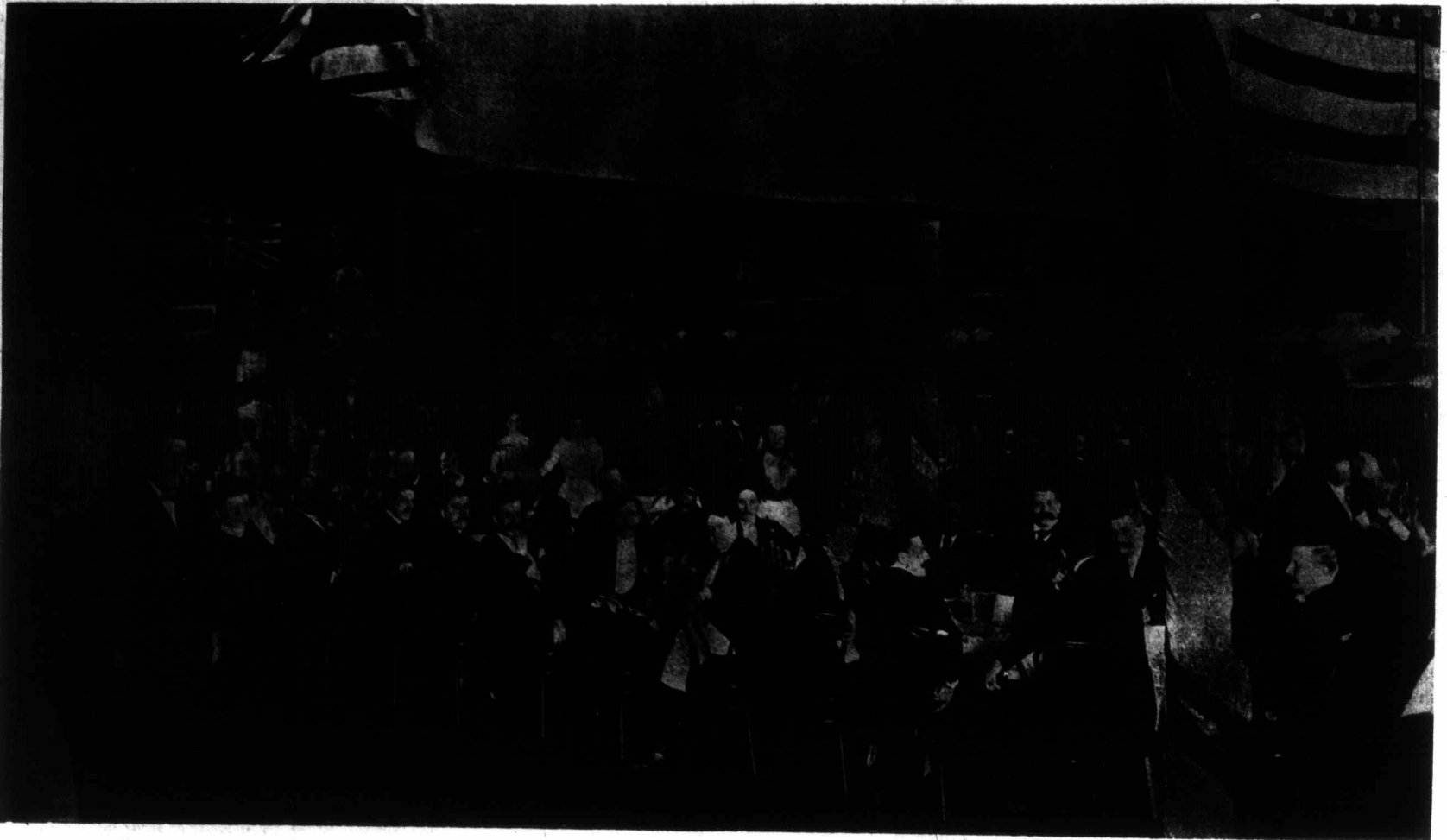
Messrs. Robert Beith and Geo. Pepper were elected delegates to the Horse Breeders' Association.

Delegates to Exhibition Boards—Toronto, H. Wade; London, Adam Beck; Woodstock, A. G. Bowker; Ottawa, R. Beith, M. P.; Quebec, J. A. Cochrane, Hillhurst.

For the selection of judges at the Spring Horse Show, and Industrial Exhibition, the society nominated: Richard Gibson, Delaware, Ont.; A. Mann, Staten Island, N. Y.; Penn Smith, New York; and Wm. West, Ballington, Vt.

Dominion Ayrshire Breeders' Association Annual Meeting.

The annual meeting of the Dominion Ayrshire Breeders' Association was held in Shaftesbury Hall, Toronto, Feb. 6th, 1900. Mr. A. Kains, the President, occupied the chair. There was a fair representation present of the members, principally from the Province of Ontario, and the evidences of a good



THE HORSE BREEDERS' BANQUET AT THE ALBION HOTEL, TORONTO, FEBRUARY 8TH, 1900.

Vice-President, R. Beith, M. P.; Secretary-Treasurer, H. Wade. Representatives to the Horse Show—Dr. Smith, R. Davies, Robt. Beith, M. P.; H. N. Crossley, J. M. Gardhouse, Wm. Hendrie, Jr.; Geo. Pepper, S. B. Fuller, D. B. Simpson, Q. C. Directors—From Hackney Horse Society, Robt. Beith, M. P., and Geo. Pepper; Shire Horse Society, H. N. Crossley, J. M. Gardhouse; Clydesdale Horse Society, Robt. Davies, D. Burke Simpson; Thoroughbred Horse Society, Dr. Smith, Wm. Hendrie, Jr.; Trotting and Pacing Association, S. B. Fuller, E. W. Cox; Draft Horse Society, A. Innes, J. Henderson; Saddle and Carriage Horse Association, Ald. Sheppard, L. Reinhardt, Jr.

THE BANQUET.

In the evening about 150 invited guests sat down to a sumptuous dinner at the Albion Hotel, prepared by the genial host of the house, Mr. John Holderness, who is a genuine lover of a good horse, and has taken a deep interest in promoting the breeding of high-class horses in Canada and has been liberal in his gifts to the furtherance of the industry. The spacious dining-room was handsomely decorated with flags, bunting, and pictures. The tables, which were appropriately arranged in the form of a horse-shoe, were tastefully set, and decked with plants and flowers.

Dr. Andrew Smith, F. R. C. V. S., President of the Association, was chairman, and Messrs. R. Beith, M. P., and H. N. Crossley occupied the vice-chairs. In response to the toast of the House of Commons and Legislative Assembly, Hon. Sydney Fisher, Minister of Agriculture for the Dominion; Hon. John Dryden, Minister of Agriculture for the Province of Ontario, and Mr. W. F. Maclean, M. P., delivered spirited and practical addresses, emphasizing the importance to the country of the horse industry if judiciously handled. Mr. Fisher strongly urged the importance of breeding for a purpose to secure uniformity of type in the different classes of horses produced. Speaking of the things that ought not to be done, he instanced the disappearance of the French-Canadian pony and the Morgan horse as cases where a fixed type, exactly suitable for the purpose for which it was intended and for the surroundings in which it was developed, had been lost through the little and dangerous knowledge that led breeders to introduce a mixture of many bloods, with the result that they got nothing of any value and lost what they had. To attain his object the breeder must have clearly in mind what he wants, and must persevere in the right line until the goal is reached and the object secured.

Saskatchewan. Directors—R. Beith, M. P., Bowmanville; R. Davies, Toronto; W. Hendrie, Jr., Hamilton; G. Cockburn, Baltimore; A. Innes, Clinton; John Vipond, Brooklin; Thos. Graham, Claremont. Delegates—To Toronto Industrial Fair, P. Christie and Wm. Wilkie; London Western, A. Innes and J. Henderson, Belton; Ottawa, R. Davies and R. Beith; Montreal, R. Ness; Horse Breeders' Association, R. Davies and from for the Industrial and Spring Shows, R. Ness, Howick; Alex. Galbraith, Janesville, Wis.; R. Gibson, Delaware, Ont.; Job White, Ashburn; D. Macintosh, V. S. Brucefield; J. M. Gardhouse, Highfield; and J. Dalgety, London.

Shire Horse Association Annual Meeting.

The annual meeting of the Canadian Shire Horse Breeders' Association was held at the Albion Hotel, Toronto, Feb. 8th. The President, Mr. H. N. Crossley, in the chair. There were present: Messrs. John Gardhouse, Highfield; P. Herold, Tavistock; V. Ficht, Oriel; J. M. Widdelield, Uxbridge; John Davidson, Ashburn; James Davidson, Balsam; Wm. Wilkie, Toronto; James Henderson, Belton; J. M. Gardhouse, Highfield; O. Sorby, Guelph; J. C. Snell, London; and Henry Wade, Secretary, Toronto. The President, in his address, referred to the very high prices being paid in England for horses of this breed, and to the fact that so great is the demand there that it is difficult to buy good ones. This, together with the demand for horses for the purposes of the war, had naturally affected prices and demand and good paying prices. After the reading of the reports and financial statements, which were found very satisfactory, officers were elected as follows: President, H. N. Crossley, Rosseau; Vice-President, E. Wellington, Toronto. Directors—John Gardhouse, Highfield; Jas. M. Gardhouse, Highfield; W. Hendrie, Junr., Hamilton; W. Wilkie, Toronto; H. J. Smith, Highfield; V. Ficht, Oriel; Thos. Skinner, Mitchell. Delegates to exhibitions—Toronto Industrial, H. N. Crossley; London Western, H. Wade and V. Ficht; Ottawa, J. R. Robinson; Maudon; to Horse Breeders' Association, Messrs. Crossley and J. M. Gardhouse. Judges recommended for the spring shows and other shows—R. Gibson, Delaware; Jas. Henderson, Belton; A. Dow, Exeter; O. Sorby, Guelph; John Davidson, Ashburn. Committee on Stud—H. N. Crossley, John Gardhouse, and Thomas Skinner. Auditor, C. F. Complin, London; Secretary-Treasurer, Henry Wade, Toronto.

demand for good Ayrshires at good prices were decidedly satisfactory. The Secretary, Mr. H. Wade, presented his report, which showed a considerable increase in the number of entries in the Herd Book over the previous year. The membership is now 167, an increase of 27 over 1898. The financial statement showed receipts amounting to \$1,790.92; expenditures, \$1,639.23; and a balance on hand of \$151.69.

Directors Elected.—The following directors from the Western district were elected: T. Brooks, Brantford; A. Hume, Menie; J. C. Smith, Hintonburg; Wm. Stewart, Jr., Menie; A. Kains, Byron; F. W. Hodson, Ottawa; W. W. Ballantyne, Stratford.

Mr. J. Lockie Wilson moved a resolution reaffirming the stand taken by the Association against a fast Atlantic service, unless it was a freight service. This was adopted without discussion.

Delegates to the Fair Boards were appointed as follows: Toronto, Messrs. W. Stewart and W. W. Ballantyne; London, Messrs. Kains and Brooks; Ottawa, F. W. Hodson and J. Yuill, of Carleton Place; Sherbrooke, Que., T. D. McCallum, Danville, and R. Ness, Howick, Que. Quebec, N. La Chappell, St. Pauli Hermite, and J. Drummond, Petite Cote.

Judges were nominated as follows: Toronto, A. Kains, Byron; reserve, A. Drummond, Petite Cote; and Thos. Bradshaw, Danville. London, D. Drummond, Myrtle. Ottawa, R. Hunter, Maxville; W. W. Ballantyne, Stratford, Sherbrooke, Ballantyne, Hunter. Quebec, Horace Lamarche, St. Esprit; John Morin, Belle Riviere, Que. In addition, a general list of judges were recommended, consisting of T. D. McCallum, Danville; R. Hunter, Maxville; D. Benning, Williamstown; W. F. Stephen, Trout River; J. G. Clark, Ottawa; A. Robertson, Comto; Thos. Drysdale, Allan's Corners; John Hay, Lachute; J. H. Douglas, Warkworth; F. Guy, Bowmanville; J. C. Smith, Hintonburg; John Crossley, Campbellford; Wm. Smith, Fairfield Plains; D. Livingstone, Coleman; J. Yuill, Carleton Place; N. Dymont, Clappison; Wm. Stewart, Jr., Menie; A. Drummond, Petite Cote; Alex. Hume, Menie. On the question of permanently locating the Winter Show, a resolution to the effect that from present appearances Brantford was the most entitled to have the show located there, providing they gave the necessary accommodation, was passed.

At a meeting of the directors, Mr. A. Kains was elected President, and W. F. Stephen, of Trout River, Vice-President. The name of Senator Owens was also added to the directorate from Quebec.



In Quarantine.

Dr. Norman was sitting in his surgery, reading, when he heard a little tap at the door.

"Come in!" he said. "Oh, it's you, is it, Hilda? Well, what's the matter, little woman?"

Hilda came in with a big bundle in her arms. "Margaret has the diphtheria!" she said, solemnly.

Her father jumped up in a great hurry, and gasped out, "How do you know? Are you quite sure?" in such a frightened voice that Hilda was quite alarmed.

"Oh, Daddy, won't you ever remember?" she said, as she held out the bundle to him. "I've told you ever so often that my baby's name is Margaret. Mother's baby is called Maggie, don't you know?"

Her father laughed as he picked up the indignant little figure, and said, "Well, you have so many children, Dot, I can't be expected to remember all their names, can I?" He kissed the flushed cheeks, and then put on his most professional air as the bundle was unrolled. Inside it there was a large doll with only one arm, no legs at all, and a very battered nose. A piece of red flannel was pinned round its throat and a handkerchief was tied about its head.

"It looks ill enough to go to the hospital," said the doctor, after a careful examination. "It will have to go to the Home for Incurables, I am afraid." Then he took out his watch and felt its pulse, while the little mother stood watching him anxiously. "If she really has diphtheria," he said at last, shutting his watch with a snap that made Hilda jump, "you must keep her away from the rest of your children, for it's catching, you know. How many children have you now?"

"Seven," said Hilda. "There's Margaret and Mary and John; but baby pulled his head off, and I'm afraid it's lost. He might sociate with her, for he couldn't catch diphtheria when he hasn't any throat to get sore, could he?"

"No, that's a fact," said her father. "He is decidedly immune."

Hilda took no notice of the long word, but went on counting on her fingers. "Then there's James and Elizabeth and Anne and Victoria."

"What a large family to look after," said her father, smiling, "and where did you get such sensible names?"

"I called them after kings and queens," said Hilda. "Don't you think Nellie Jones would take care of them for me while I nurse Margaret? She has only two children, and she just loves to undress mine and put them to bed. Hers won't undress, their clothes are fastened on."

"So you would give up all your other children for the sake of a poor shabby creature like that, would you?" said her father. "You mustn't go near them for weeks and weeks, you know. Hadn't you better let Nellie take care of Margaret, instead?"

Hilda hugged her dear invalid as she answered indignantly. "When children are ill they always want their very own mothers to take care of them." "She has the true mother-spirit," murmured the doctor. Then he said, aloud, "I know a little girl who has to lie in bed all the time. She is just nine years old, but she can't run about and play as you do. She lies there with a heavy weight fastened to one leg all the time."

"Why don't you take it off, and let her get up?" demanded Hilda.

"Her leg hurts so much when the weight is taken off that she asks to have it put on again," answered her father.

"Has she any dolls to 'muse her?" asked the little girl, eagerly.

"She has one doll, made out of an old shawl, but I know she would like to take care of yours until Margaret is better. Shall we take them to her this afternoon?" An hour later the doctor's sleigh stopped at the door of a tiny little house. Hilda, with her arms full of dolls, shyly followed her father in. She soon forgot her shyness, though,

when she found that poor little Susy was all alone. Her mother had to go out to work; but her brother, who sold newspapers, ran in whenever he could to see that she was all right.

"Aren't you very lonely, all by your own self?" asked Hilda.

Susy laughed, as she held up her queer-looking doll.

"This is Lizzie," she said, "I talk to her a good deal." Then she looked at the dolls in her little visitor's arms, as she said, wonderingly, "Are all them yours, Miss? What beauties!"

"Yes," answered Hilda, eagerly. "This is Mary. You see she has a jacket and hood trimmed with real fur. Then this is James, in the sailor suit, and this is Victoria, in the silk dress. Isn't she grand? This is Elizabeth. I kept Anne at home, for she's only a baby and might be cross away from her own mother. She's cutting teeth, you see, and babies are often cross then."

Susy was told about Margaret and the diphtheria, and how there was danger of the others catching it, and "would you mind taking care of them for me till she gets better?" ended Hilda, breathlessly, for she had talked very fast indeed.

"Will you truly leave them here with me? Let me play with them?" asked Susy, who could hardly believe her own ears. "Oh, Lizzie, won't it be just lovely!" and she hugged her own old doll rapturously.

Then Hilda went out to the sleigh for a box of dolls' clothes—nightgowns and other necessities—while her father carried in the beds. Susy was wild with delight over the dear little sheets and pillows and the little nightgowns trimmed with narrow lace.

Altogether, the plan was a most delightful one,

"Othello Relating His Adventures."

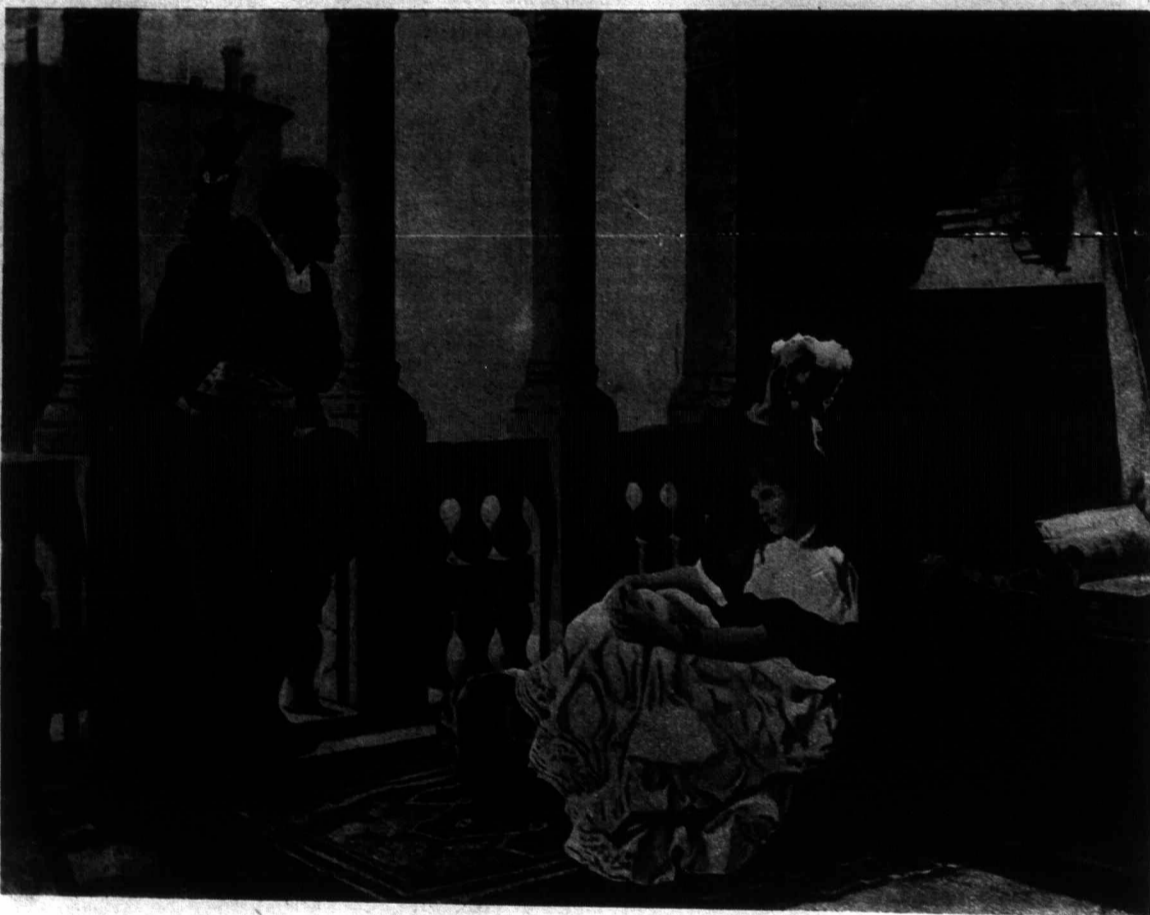
To many of our readers, Shakespeare's play of "Othello, the Moor of Venice," is familiar. Many, too, have seen the play acted. This is a fine picture, and brings very vividly before us the early scenes of the play, where the description is given of how the noble Moor, Othello, won the heart of the gentle Desdemona. The rapt attention of father and daughter is well depicted, while from the attitude of Othello, we can seem almost to hear his flowing words, as he relates his story of travel, battles, and endless adventures. We see them here, Othello, Brabantio and Desdemona, and but small idea is given of the awful tragedy which ends the play. The beautiful Venetian surroundings—pillars, balustrade, hanging-lamp, costumes, etc.—all serve to enhance the effect of this interesting work.

How to Attain Success.

In olden times it was not considered necessary for a farmer to be an educated man. The strong, able-bodied, industrious farmer used to imagine that it was merely a waste of time to be poring over books and papers. But times are changed now. Education is becoming more and more appreciated, and the farmer as well as the college student is finding out that it is indispensable to success.

Every year new inventions are being discovered for lessening labor, until farming is little more than play when compared with what it was in the days of our forefathers. What rapid advancement has been made within the past fifty years! Intelligent farmers are finding out by experience that knowl-

edge is power. The farmer who wants to succeed must not only turn over a new leaf, but he must turn over many new leaves of books and magazines (to gain information and acquaint himself with the latest and best methods of farming) written by those who have made experiments and found them successful. Instead of going to the corner grocery, or to visit a gossiping neighbor who knows less than himself, this wide-awake, ambitious young man, as soon as his day's work is done, shuts himself up with his beloved books and papers. As the busy bee extracts honey from the flowers, eagerly flitting from one to the other, adding to his store, so this farmer student stores his mind with valuable information, which, when carried into practice, will bring in many extra dollars. Young man, read everything you can lay your hands on pertaining to farming. Subscribe for a good agricultural paper. Don't say you cannot afford it, for you cannot afford to do without it. The FARMER'S ADVOCATE is an excellent periodical of that class. No farmer who values his own interests should be without it.



"OTHELLO RELATING HIS ADVENTURES."

and a very happy little girl went back to Margaret. She made up her mind that she would give Susy one of her dolls to keep, bed and all, "but I don't know which one I can spare," she said to herself. "I don't see how mothers can give any of their children really and truly away." COUSIN DOROTHY.

House of Too Much Trouble.

In the House of Too Much Trouble
Lived a lonely little boy;
He was eager for a playmate,
He was hungry for a toy,
But 'twas always too much bother,
Too much dirt and too much noise,
For the House of Too Much Trouble
Wasn't meant for little boys.

And sometimes the little fellow
Left a book upon the floor,
Or forgot, and laughed too loudly,
Or he failed to close the door.
In the House of Too Much Trouble
Things must be precise and trim—
In the House of Too Much Trouble
There was little room for him.

He must never scatter playthings,
He must never romp and play;
Every room must be in order,
And kept quiet all the day,
He had never had companions,
He had never owned a pet—
In the House of Too Much Trouble
It is trim and quiet yet.

Every room is set in order—
Every book is in its place,
And the lonely little fellow
Wears a smile upon his face.
In the House of Too Much Trouble
He is silent and at rest—
In the House of Too Much Trouble,
With a lily on his breast.

"Mount up, thou brave, aspiring youth,
Up on the rounds of Light, and Truth;
Up step by step; improve thy mind,
And leave dull ignorance behind."

MRS. ANNIE RODD.

Waverly House, Charlottetown, P. E. Island.

Recipes.

TEA CAKES.

Two cups of sugar; 1 cup of butter; 4 eggs; 2 teaspoons of soda; flavor with lemon; and flour enough to roll out nice and thin like cookies.

MOLASSES DOUGHNUTS.

Beat two eggs slightly, add one cup of granulated sugar and beat till light. Add one half cup of molasses, one tablespoon of melted butter, one teaspoon of salt, and one half teaspoon of ginger. Dissolve one level dessertspoon of soda in one cup of buttermilk and add it to the mixture. If the buttermilk is sweet, one teaspoon of soda is sufficient. Mix with flour to make a dough as soft as can be rolled. Cut out and fry in the usual way.

Molasses Doughnuts No. 2.—One cup of molasses, one egg, one cup sweet milk, one teaspoon of salt, one teaspoon of soda, two teaspoons of cream of tartar, and one half teaspoon of ginger. Mix with flour to a dough, to be rolled, cut and fry as usual. Molasses in doughnuts will be a novelty to some housekeepers, but we remember it in grandmother's pancakes, that were dropped from the spoon directly into the hot fat, and it is used in fried drop cakes, although usually mixed with rye meal instead of wheat flour.

Travelling Notes.

After three months' happy stay in Vancouver we said good-bye to our kind friends, and, amid the fall of the leaves and the fall of the rain, boarded a Canadian-Australian liner. The voyage from Vancouver to Honolulu must remain a suggestive blank. Some people like long voyages, and rave of the Pacific Ocean (surely somebody blundered at the christening of this Ocean!). Well, all oceans are pretty much alike in rough weather—of which we had a surfeit. What with the motion, the sea breaking over the decks, the closed port-holes, the lack of space (for what's a spacious cabin on board ship is but a roomy cupboard at home!), and the enforced publicity, ocean travel is anything but romantic. The number of passengers was small, and we tried hard to amuse each other and ourselves, but by the time we sighted the Hawaiian Islands some of us had got soured and felt like criticizing every mortal thing we came across with much cordiality. After contending for ten days with all the horrors of wind and wave, we reached Honolulu two days behind time—a pretty seedy-looking crowd, but we were amply repaid when we dropped anchor in a new world. In our short stay of a day and two nights we saw all we possibly could of Honolulu and its immediate surroundings, and got a glorious view from the summit of the valley where we looked down upon a verdure-covered plain—miles in extent—groves of palms, rich plantations and dairy farms and luxuriant fruit gardens. On either side are huge mountains, with sharp summits, and their black rocks hung with ferns and vines. In the distance lies the coral reef, with its line of white surf. As for the streets of Honolulu, they are one vivid picture of luxuriance—graceful palms and tree ferns, and the cocoanut, umbrella, and papaya trees, the scarlet-blossomed poinciana, pink and white oleanders, rich orange begonias, roses and lilies meet the eye on every side with their tropical gorgeousness. The private residences which line the streets are veritable bowers of beauty, nearly buried in flowers and vines, and their wide, shady verandas look deliciously cool and inviting. The wonderful cactus hedges and the fences, covered with passion flowers, are a perfect feast of color. There are tall hibiscus hedges covered with blossoms, and queer tropical fruits growing side by side with those of more temperate climates, and towering above all this foliage are the tall and magnificent palms. There are eight inhabited islands, covering 6,000 square miles, the largest being Hawaii, which gives the group its name. The native Hawaiian, or Kanaka, is the most interesting personage in Hawaii. Our first sight of these natives was upon our approach to their shores, when the little red-skinned boys came swimming round our steamer, ready to dive for any coins thrown overboard by the passengers. It is simply wonderful the way they swim and dive, going down right under the steamer and coming up on the other side. The women are certainly not graceful, being generally very stout, and their grace is hardly added to by their usual costume, the Mother Hubbard, which, at all events, is cool. They are, however, splendid astride riders, and on gala days they dash through the streets in companies of ten and twelve, with wreaths of flowers round their necks and hats, and their red and yellow pa-us streaming behind them. These pa-us are breadths of brilliantly-colored cloth made into long strips and securely fastened to the pommel of the saddle so as to stream freely on either side as the riders gallop fearlessly up hill and down dale at a breakneck pace, trusting to luck and the surefootedness of the tough little island horses. The Hawaiians have no word for "weather," for the simple reason that the weather is the same always. The sun shines and the wind blows, but never in an uncomfortable way; thus fruit and vegetables are always ripening. To us Canadians, it seems as though it would be monotonous never to have it clear and cold nor to see a flake of snow, although there is such a thing as monotony of snow, isn't there? The chief products of the Islands are sugar, bananas, coconuts, rice, pineapples, mangoes, and coffee, and most interesting was it to us unaccustomed ones to see all these growing in their native luxuriance. In spite of our rough voyage we could not but feel that it was amply compensated for by this short glimpse of Honolulu, and only regretted we could not stay a little longer.

After this, our first halt, the sea became calm and the days became warm, warmer, and warmest when we entered the tropics. As the days became warmer our tempers became cooler, and we ceased to snap and criticize, and got to be just one big family, the same as we did aboard the cars on that dear old Associated Press Trip a few months ago. We felt very safe with a fine Canadian captain, a staff of efficient officers, and a good substantial ship. Of the passengers, some were travelling round the world for pleasure, others for business, and others for health. As usual at the crossing of the equator, we were threatened a shaving by old Neptune, and they who had crossed before contemplated some pranks upon us, but refrained after all. Then we lost a day (of course, we need not explain how to our clever readers). As we had the whole ocean to ourselves, and one mile is pretty much the same as another, it would have been somewhat monotonous, save for the flying-fish, and now and then the sight of a nice, gentle shark! At last we reached Brisbane, where the mails were put off, and we had a few hours on shore. It was quite a pleasant relaxation, after the long sea travel, to feel our feet on terra firma, and to know that we were get-

ting our first sight of our great sister colony. In two days more we were at Sydney, where nearly all our party separated, with cordial good-byes, to meet again—where?—when?—if ever! After two days in Sydney—such a splendid city, very much like Old London in many ways, especially as to the hansom cabs and omnibuses, which are all over the city—we went on to Melbourne. The same may be said of Melbourne—everything large and handsome and solid. Now we go on to Adelaide. A month on the Pacific Ocean is a thing to remember—and home is now 11,000 miles away!

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 31st of that month. Leave envelopes 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—ENIGMA.

My shape is round, I'm hard and strong; And when I go I bound along. I am a game, as you may see. The ancients often played at me; And I am what they did when they play. With me quite frequently did play.

ROLLY.

2—ANAGRAM.

"What do you want?" said waiter John, As he tapped the boy on the head. "Please, Mr. Waiter, I'd like To Punct Tom," Said clever little Ned.

ROLLY.

3—LINKAGE.

ONE. Political meeting, concert, or ball, This is large enough for all.

TWO. When you are up, 'tis true, You look down on things too.

THREE. Two ardent lovers only see The goal of hope in being three.

FOUR. Treasured, I mean, and sanctified, Kept sacred from all things beside.

M. N.

4—RIDDLE.

Four words in me will be found, That compass the gamut of sound. My first has syllables, one, two, three. One means a silly, spiritless lout; Two, a verb of motion; three, a shout. My second has syllables two, you shall see. One a decade of years will make. One will show that a choice you may take. My third has two syllables short as can be. One is a nickname for brother Allan. Two will be found the third "total" in. Fourth comes now most suitably. A word of this sound means the bottom, hence Lowest it is in both place and sense. Placed properly together, they make harmony.

M. N.

5—CHARADE.

In a dark Calcutta dungeon, Gaping through the iron bars, I saw the royal villain, Called in prison lore, "the star." There were chains upon his ankles, There were chains upon his wrists, On his body there were lash marks, And the sword thrusts of the lists. I asked the hardened culprit, Why his prison was a dungeon, Why so many chains he bore. A fendish smile came to his lips, As through them these words burst, "Why, I'm the Buddhist devil Who stole the Viceroys' first."

IKE ICICLE.

6—ADDITION.

1—1+10+1+0+1000=A self-evident truth. 2—1+1+1000=Purpose. 3—1000+0+0+500=Manner. 4—50+0+0+1000=A machine. 5—0+5+1+500=A Latin poet. 6—50+1+10=Loose. 7—1000+1+10=To mingle. 8—1000+1+50+500=Gentle.

M. N.

7—BEHEADINGS.

At the church convention a x x x x x x in the course of his speech thought fit to x x x x x an anecdote of a cannibal chief who, x x x x x on account of a triumphant war, being asked what had become of the missionary, replied, "The x x x x missionary is no more, we x x x him."

F. L. S.

8—SQUARE.

1, brilliant display; 2, a seat; 3, a slip from duty; 4, a church passage; 5, large vegetable growths.

F. L. S.

9—HIDDEN PALINDROME.

A place in thy "memory," dearest, Is all that I "claim." To pause "and" look back When thou "hearest" The sound of my "name."

IKE ICICLE.

10—PALINDROMES (each word is a complete one.)

"x x x said we might go to the woods to-day," said x x x to her cousins, the Chesters, "and I have brought some lunch, also my book, so we may start at once." "What is the name of your book?" asked x x x (as he was generally called). "It is 'x x x and x x x,' a story of a Turkish commander and an old Jew, who was his friend," replied his cousin. They soon reached the woods, and being hungry, ate all their lunch, but decided to stroll round instead of reading. Now and then a little squirrel would x x x out of a hollow log, and x x x at them with a little black x x x. Suddenly a cheery "good-day" startled them, and looking up they saw a

man coming towards them with a wee x x x in his arms and a shaggy x x x following him. The man passed on, but not long after they met his wife, who asked them if they had seen her child. The children told her of the man they saw and who was with him. "Oh, well! she is all right then," said Mrs. Rowe. "I call her x x x, but her real name is x x x x x. I had just fed her her x x x and set her out on the grass to watch the x x x (we have a pet one) feeding around the fence. At first I was very uneasy, as a x x x who was visiting the poor in the village was attacked by a robber, but before he could x x x her she cried out, and two men came to her assistance. "ROLLY."

Answers to Jan. 15th Puzzles.

- 1—Alas, I see. 2—A rose by any other name has just as many thorns. 3—Franc, arrah, racer, Mundi (Monday), earns, right, steam, around, dress, venom, over, ie, charm, a knob, terse, eager, FARMER'S ADVOCATE, Christmas number. 4—Purring, wedding ring, key ring, ear-ring, starring, sparring, darning, caring, herring, plastering, pestering, warring. 5—TEN. 6—Rawdon Stormont, Edmundston, Newcastle, Prescott, Camden, Redditch. 7—Morse, ai, dog, marten, monkey, whale, angler, dab, cramp, shell, Pos, ruff, reeve.

SOLVERS TO JAN. 15TH PUZZLES.

"Rolly," Robt. J. Crozier, Fanny Prentice, Florrie A. Wherrett, Sila Jackson, Gordon Todd, "Diana," M. R. G.

ADDITIONAL SOLVERS TO JAN. 1ST PUZZLES.

"Diana," M. R. G., M. N., J. McLean, Sila Jackson.

MINNIE MAY'S DEPARTMENT.

MY DEAR NIECES,—

Perhaps when you read this you will be thinking of Saint Valentine's Day just gone by. Did you ever pause to think who St. Valentine was, or when and where he lived? For he was once as much alive as you are to-day. Well, long, long ago, as far back as the third century, this good man lived. He was an Italian bishop or priest, and he resided in Rome, spending his life in good works, until he was martyred on February 14th, A. D. 270, in the reign of the Emperor Claudius. Some time afterwards he was canonized, and the day of his death has been made a red-letter festival in the calendar of Cupid ever since. He is the patron saint of lovers; but his connection with these is not explained in history. No one can tell why St. Valentine's Day is Cupid's Day, so we must simply accept the fact as truth. It has been suggested that its cause is because it comes about the season when the birds choose their mates. Antiquaries tell us that the Lupecalia, or ancient Roman feasts in honor of the deities Pan and Juno, were held in February, and one of the ceremonies was a game in which young men and women chose each other jocularly by lot.

Good St. Valentine wandered by, Panning his spiritual key. Already the feet of the winter fly, And the pulse of the earth begins to leap. Waking up from the frozen sleep, And knowing beautiful spring is nigh. To life she wakes, and a smile and a sigh Thrill her with melody dear and deep. Spring with its mating-time is nigh, Already the feet of the winter fly, And the pulse of the earth begins to leap.

Whatever the connection may be, the fact remains that St. Valentine is the guardian of Cupid's shrine. For his votaries he has youth; pink is his color; and his chosen flower is the rose. From early times it has been the custom to celebrate his day by a festival. A way back in the 15th century we read of the gaieties of February 14th, and now at the close of the 19th century our young nieces and nephews are as eager for a Valentine party as their ancestors of long ago.

Who has not seen the pretty cards belonging to this good old saint's day? Heart-shaped, of course, covered with pink roses and dainty little Cupids shooting tiny silver arrows. And then the verses on these cards! Oh, how sweet! Oh, what extravagant compliments! Oh, what professions of admiration and love! A nice way for a sentimental young man, too bashful to speak his admiration, to express his feelings towards the maiden of his choice!

I have in my possession a curious old valentine dated February, 1783. It was evidently sent by a sailor lad to his "dear Peggy" in another part of the country. Right in the middle are the points of the compass, and around that is written the loving rhyme, while all the rest of the valentine is adorned with hearts, red roses, and the points of the compass in various colors—all done by "Robert" himself. The reverse side is likewise adorned with circles and the points of the compass (that most necessary thing in navigation), and the whole valentine is folded in a peculiar way which brings all the painted parts together, forming one complete ornament. This valentine is enclosed in a very loving letter which this sailor lad wrote to the "dear creature," as he calls her, and indeed the whole thing is a great curiosity on account of its originality and its great age. The letter is written from Montrose, Scotland, and is dated February 20th, 1783. From it one may gather that "the tender passion" of to-day has not changed from that of long ago—that "Robert" still sends dainty valentines with Cupids and darts and roses and hearts to his "dear Peggy."

"Love's heralds should be thoughts Which ten times faster glide than sunbeams, Driving back shadows over lowering hills, Therefore do nimble-pinioned doves draw love; And therefore hath the wind-swift Cupid wings."

Your loving old Auntie, MINNIE MAY.

GOSSIP.

THE BIRRELL SALE OF SHORTHORNS.

The attention of our readers is again directed to the advertisement, in another column, of the public auction sale of the herd of Short-horn cattle, etc., belonging to the estate of the late Mr. John E. Birrell, at Mosboro Station, on the G. T. R., near Guelph, on March 14th. The cattle are exceedingly well-bred, being all we understand of Scotch breeding or Scotch-topped, the highest class of imported Scotch bulls having been used exclusively for nearly thirty years. The sale, we are assured, will be absolutely unreserved. The farm, which was formerly the home farm of Mr. John I. Hobson, is known as one of the very best in the fine county of Wellington, and indeed one of the best in the Province, will be offered on the same day if not previously disposed of. The farm buildings, including dwelling, are located within a stone's throw of Mosboro Station and Post Office, are roomy, substantial, and in every respect first-class. Read the advertisement, send for a catalogue, and attend the sale.

BROOKBANK HOLSTEINS TO BE SOLD.

In our 1899 Christmas number and various other issues, reference has been made to the outstanding excellence of the Brookbank Holstein herd owned by Messrs. A. & G. Rice, Currie's, Ont. In public tests and in private production this herd holds positively a banner place. Such a result has been acquired by most earnest study of pedigree, production and strong dairy form. It now transpires that the senior partner, Mr. Alfred Rice, is giving up farming, and as Mr. Rice's farm can accommodate only half the herd, the other half will be sold by auction as per advertisement in this issue, on Feb. 23. This sale offers a great opportunity for securing blood of such producers as Winnie Win, Daisy Texal, Calamity Jane, and other notables. If there is anything in pedigree, and we know there is, it will pay those who are building up dairy herds to take advantage of this exceptional offering. Send at once for a catalogue, that the offerings may be looked over before the day of sale arrives.

OFFICIAL TESTS OF HOLSTEIN-FRIESIAN COWS FROM NOVEMBER 1 TO DECEMBER 1, 1899.

These tests are uniformly made by representatives of experiment stations or agricultural colleges at the homes of the owners of the cows. The length is seven consecutive days; the age is at date of calving; the butter-fat is determined by the Babcock method; and the butter is determined, first, by the 80 per cent. ratio, and second, by the 85.7 ratio.

Summary: Seven records of cows, five years old or over, average a product of 405.6 lbs. of milk and butter-fat, equivalent to 17 lbs. 8.4 oz. butter at 80 per cent. fat to the pound, or 16 lbs. 7.9 oz. at 85.7 per cent. fat to a pound. Three cows, between four and five years old, average 379.2 lbs. milk and butter-fat, equivalent to 15 lbs. 4 oz. butter at 80 per cent. fat, or 14 lbs. 3.7 oz. at 85.7 per cent. fat. Four cows, between three and four years old, average 370.1 lbs. milk and butter-fat, equivalent to 16 lbs. 8.4 oz. butter at 80 per cent. fat, or 15 lbs. 6.5 oz. at 85.7 per cent. fat. Two cows, under three years old, average 348.5 lbs. milk and butter-fat, equivalent to 10 lbs. 5.5 oz. butter at 80 per cent. fat, or 9 lbs. 10.5 oz. at 85.7 per cent. fat.

Highest records: Sarah Purdie 2nd 36693, age 5 years, 8 months, 14 days, 44 days after calving—Milk 464.9 lbs., butter-fat 15.229 lbs., butter 19 lbs. 0.4 oz. or 17 lbs. 12.1 oz., cost of product \$1.33. Calico Margaret 42273, age 3 years, 9 months, 13 days, 39 days after calving—Milk 404 lbs., butter-fat 14.077 lbs., butter 17 lbs. 9.5 oz. or 16 lbs. 6.8 oz. We Repeat 41016, age 3 years, 10 months, 3 days, 16 days after calving—Milk 345.8 lbs., butter-fat 13.084 lbs., butter 16 lbs. 5.7 oz. or 15 lbs. 4.2 oz. Manor De Kol Clothilde Lass 43890, age 1 year, 9 months, 11 days, 76 days after calving—Milk 238.5 lbs., butter-fat 7.296 lbs., butter 9 lbs. 1.9 oz. or 8 lbs. 8.2 oz. Auggie De Kol Wayne 44490, age 2 years, 6 months, 13 days, 14 days after calving—Milk 258.3 lbs., butter-fat 9.253 lbs., butter 11 lbs. 9.1 oz. or 10 lbs. 12.7 oz.

MR. A. D. FOSTER'S HOLSTEINS, AT HOLLOWAY.

Among the new Holstein offerings may be noticed that of Mr. A. D. Foster, whose stock farm in Hastings County lies near the village of Holloway, north of Belleville, Ont. Mr. Foster laid his foundation some three years ago in selections made personally from the herds of Messrs. Stevens & Sons, Lacona, N.Y. An analysis of the pedigrees of Mr. Foster's foundation stock shows a strong flavor of the famous De Kol, Sir Pieterje, Mechthilde, Hengerveld, and Burkey strains, and in that foundation were selected animals having national repute as producers, and their descendants. The particular offering which Mr. Foster sets forth in his advertisement, Sir Pieterje Burkey De Kol, by Sir Pieterje Josephene Mechthilde, and out of Helena De Kol's De Kol, is a true type of a dairy animal, whose strong ancestry have been among the most attractive and worthy members of the breed. His dam in seven days, at two years old, milked, under official test, 362 lbs. 10 oz. milk, which yielded 12 lbs. 7 oz. butter, being the second largest official record. In 39, as a three-year-old, she is credited with 1,826 lbs. 10 oz. milk in May, 1,634 lbs. in June, and 495 lbs. in seven consecutive days, and 69 lbs. 4 oz. in one day, which stamps her as a cow of high-producing ability. In conformation they are a smooth, evenly-made family, with well-sprung ribs of great length, carrying all the dairy indications well developed. The young bull promises exceptionally well, having a straight, even top, with well-developed body and glossy skin. His dam is due again in March, to the same sire, which did service in Mr. G. W. Clemons' herd for two years. Among the other matrons more worthy of a passing notice we might mention the famous Maggie Keys, who was only beaten by her own dam as a three-year-old for a year's record. She is a cow of wonderful capacity and vigorous constitution, with fine dairy conformation. Officially she gave 264 lbs. butter in 7 days, and 82 lbs. milk in one day. She is also due again in the early spring. As we know Mr. Foster personally, we cannot but predict a successful issue with such stock, when we know the result of a combination of the right material, proper facilities, and straightforward dealings with perseverance, qualities which we believe Mr. Foster to possess to the fullest degree.

"Canada's Greatest Seed House"



NEW SEED OATS

THAT WILL MAKE THE FARM PAY.

NEW IMPROVED "LIGOWO" OAT

THE HEAVIEST CROPPER KNOWN Yielded 100 bush. 20 lbs. per acre at Brandon Experimental Farm in 1899.

The Improved "Ligowo" Oat is a large, plump, white variety, with a branching head and stiff straw, a vigorous grower, very prolific, and exceedingly early. It has been grown and tested at all the Experimental Farms, and has given as a result of four years' trial an average crop of 64 BUSHEL, 6 LBS. PER ACRE. With such favorable results as above reported by the Dominion Experimental Farms, we were induced to procure a supply of seed stock from the original source in France, and now offer for the first time the Improved Ligowo Oats grown from imported stock. Price per lb., 25c.; 5 lbs. for \$1 (post-paid); ¼ bush., \$1.25; bush., \$2.00; 5 bush. lots and over, \$1.90 per bush.; bags, 20c. each extra.

NEW "SENSATION" OAT

Very large Grain, Best Quality, Strong Straw

It is impossible to over-estimate the good qualities of this New White Branching Oat. It has been grown in this vicinity the past year with extraordinary results. The grain is of good size, the hulls are thin, and the kernel is the largest in proportion to the size of the oat we have yet seen,

making it the best variety grown for feeding and milling purposes. The Sensation stools out well, and the straw is very strong, and does not lodge, even when others with a less weight of head go down. It is a very vigorous grower, quite noticeably so when seen growing beside other varieties. It is bound to take a leading place, and will, no doubt, become a very popular variety. Price per lb., 15c.; 4 lbs., 50c. (post-paid); bush., \$1; 5 bush. lots, 95c. per bush.; 10 bush. lots and over, 90c. per bush.; bags, 20c. each extra.

IMPROVED "AMERICAN" OAT

This splendid oat has already proved itself to be entitled to rank among the very first and best varieties. It is a heavy growing strong strawed variety, and is of such vigorous constitution as to be almost proof against rust and other diseases. The grain is large, white, thin hulled, and in every respect first-class. Price per bush., 75c.; 5 bush. lots and over, 70c. per bush.; 10 bush. lots and over, 65c.; bags, 20c. each extra.

SELECTED "BLACK TARTARIAN" OAT

It is extremely hardy, grows with vigor and rapidity, stands well, and adapts itself to almost any soil. Grain very black, large and plump. Our seed is grown from imported stock. Price per bush., 70c.; 5 bush. lots, 65c. per bush.; 10 bush. lots and over, 60c. per bush.; bags, 20c. each extra.

STOCKS of these new and improved oats are limited; order early and avoid disappointment. The bushel prices are for shipment from Toronto.

You can get Steele, Briggs' Famous Garden and Flower Seeds from your Resident Merchant, or send for them direct. THE BEST SEEDS THAT GROW.

A Handsome Illustrated 112 Page Catalogue Free, send for one to-day.

The Steele, Briggs Seed Co., LIMITED

TORONTO, Ont.

Jerseys are the cows for butter, and their milk for domestic use is unsurpassed, and of Jersey's St. Lamberts lead. Mr. Rock Bailey, Union, Ont., has a whole herd of this family that he has decided to dispose of according to his advertisement in this issue.

Fitzgerald Bros., Mount St. Louis, in Simcoe Co., Ont., announce in our advertising columns their auction sale of Shorthorn cattle and Cotswold sheep on March 7th. We would suggest that catalogues be sent for, which will show the families represented and sires introduced from time to time. Cotswold sheep are having their innings and are good property.

We are advised by Mr. Edward R. Hogate, Toronto, whose advertisement appears in this issue, that after a rather tedious and rough voyage his last shipment of Clyde, Shire, Coach and Hackney stallions arrived in Toronto on Feb. 1st in fine shape. There is no doubt but that the active demand for good stallions will soon clean up this lot, so that it

will be necessary to hustle in order to get first choice.

Alex. Hume & Co., Menie, Ont., write on Jan. 27th: "All our stock is coming through the winter well, as we have an abundance of feed. Prospects for the dairymen are very bright. Our White Chief heifers, of which we have a stable full, are a choice lot, uniformly light colored and of strong dairy conformation, with well-shaped udders and good teats. White Chief himself was never in better shape, and our 2-year bull and young ones are in the condition, all light colored. Our cows are just beginning to drop their calves. We have made numerous sales of both sexes at fair prices, and all report as being well pleased with their purchases. Our 2-year-old (in March) bear is of good length, with straight underline, medium length of nose, also good straight, strong, medium length of legs. We have several of his get ready to breed, and now can do without him, and will sell at a bargain. Our young boars and sows are a nice lengthy lot."

NOTICE.

Machine Sheep-Shearing.—Chicago Flexible Shaft Co., whose advertisement appears in this issue, have solved the problem of conducting power around corners and applying it in such operations as shearing sheep, clipping horses, drilling metal, sharpening machinery, grooming horses, and many other purposes pointed out and illustrated in their 112-page catalogue. Their dog-power shearing machine is a great boon that will expedite and ease sheep-shearing in a remarkable degree, leaving a finished job. They also make appliances for hand power as well as pedal power, using an ordinary bicycle set up stationary, with hind wheel running on the power roller. Among the many ways in which the flexible shaft can be used, probably the most important to our readers are for clipping horses and sheep. Their catalogue explains a good deal worth knowing.

For Sale

FOR A MAN WITH SOME CAPITAL
 A Farm, 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.

FARM FOR SALE CHEAP.

Two miles north of Moosomin, N.-W. T.; 100 acres, 100 broken, about 50 summer-fallow. Good cottage, 20x24; stone cellar full size. Good well. Apply to
 Box 36, Moosomin.

FOR SALE AT REDUCED PRICES.

- 1 No. 7 Alexandra Cream Separator.
- 1 No. 1 Alexandra Cream Separator.
- 1 Spring Cream Separator.
- 2 Spring Cream Separator Bowls.
- 1 Iron Cheese Press.
- 1 Wooden Cheese Press.

Address: BOX 524, LONDON.

Five Clydesdale Stallion Colts

FOR SALE.
 I have on hand two rising 3 years old, one rising 2 years old, one rising 1 year old, from imported and home-bred mares. They are good boned, strong fellows, and all bays, with little white. Also some fillies. Prices easy.—S. J. PROUSE, Inspector, Ont.

Clydesdale Stallion

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

JOHN CAMPBELL,
 FAIRVIEW FARM, ON WOODVILLE, ONT.

EDWARD R. HOGATE COMPANY

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

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

FOR SALE: 3-YEAR-OLD Hackney Stallion

Winner of 7 first-prizes at Toronto and London, and also a silver medal given by the English Hackney Horse Society. Three Clydesdale colts, one coming 1 year old, one coming 2 years old, one coming 3 years old. Also a choice lot of fillies, 1, 2 and 3 years old.
 QUEEN.
 D. & O. SORBY,
 GUELPH, ONT.

WM. LINTON

Aurora, Ont.
 1833 1900
 Telegraph and telephone. Trolley car passes the farm every hour from Toronto and return.
 Can furnish a carload of first-class Shorthorn bulls, from 11 months to 2 years, at lowest living prices.
 3 Holstein-Friesian Yearling Bulls FOR SALE. Prices right. Apply to
 WILLIAM SEBRING, Sebringville, Ont.
 PLEASE MENTION FARMER'S ADVOCATE.

DALGETY BROS.,

463 King St., London, Ont.



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

IMPORTANT AUCTION SALE OF

Scotch-bred Shorthorn Cattle

BELONGING TO THE ESTATE OF THE

LATE MR. JOHN E. BIRRELL,

5 MILES FROM GUELPH, ONT.

AT MOSBORO STATION, G.T.R.

On Wednesday, March 14, 1900.

35 HEAD HIGH-CLASS SHORTHORNS

23 FEMMES AND 12 YOUNG BULLS.

Including the imported two-year-old Prince Cruickshank (75377). The sale will also include all the farm horses, grade cattle, store pigs, farm implements, hay, seed grain, and roots on the farm, and will be without reserve. The farm will also be offered, consisting of 170 acres, and is the valuable and well-equipped Holston Homestead. Terms made known at time of sale. Catalogues will be ready about February 20th, and will be mailed on application to
 -om

DAVID BIRRELL, GREENWOOD, ONT.

Auction Sale of Shorthorn Cattle

On TUESDAY, MARCH 13th, 1900,

19 head registered Shorthorns, 11 Femmes and 8 Bulls, the property of
 MICHAEL LAMB, Ayrton, Ont.
 THOMAS INGRAM, Auctioneer.

30 HOLSTEINS BY AUCTION 30

The famous Broadbank herd of Holsteins, owned by A. & G. Rice, has been evenly divided, and Mr. A. Rice, who is retiring from farming, will sell his entire share by auction on Feb. 28th, 1900.

7 Bulls, including: Whinnie R. De Kol, Magic Paul, Winnie Win's Paul, Dewdrop Paul, and others, sired by Galamity Jane's Paul.
 23 Femmes, including: such record-makers as Daisy Texal, Daisy Texal 2nd (winner of Provincial dairy test, 1898, for 2-year-olds), Daisy Texal 3rd, Winnie Win and other noted cows, and several heifer-calves. No reserve.
 Also Horses, Hogs, Implements, etc.
 Catalogue of cattle now ready.
 Sale 1 p. m. sharp.
 Sale at farm, one mile south of Currie's, 5 miles south of Woodstock. Train from Woodstock to Currie's, 11:30 a. m. and 3 p. m.

TERMS—All sales \$100.00 and under, cash; over \$10.00, 8 months, on approved joint notes. 6% per annum off for cash on all sums over \$10.00.
 RYERSON ADAMS and FREDERICK IRVIN, Auctioneers.

A. RICE, Proprietor.

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 averaging 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 records.
 Terms reasonable.
 A visit to Thorncliffe will well repay you.
 ROBT. DAVIES,
 Thorncliffe Stock Farm, TORONTO.
 PLEASE MENTION FARMER'S ADVOCATE.

A Few Choice Durham Heifers In Calfr.

Two bulls; two bull calves; all of choice breeding. Berkshire hogs; brood sows and sow pigs. Prices right.
 A. J. C. SHAW & SONS,
 THAMESVILLE, ONT.

8 SHORTHORN BULLS 8

And a few females, sired by Revenue and Bonnie Lad, a son of (imp.) Blue Ribbon.
 ROBT. DUFF,
 G. T. R. and C. P. R. Myrtle, Ont.

FOR SALE: SHORTHORN COWS, HEIFERS, and YOUNG BULLS,

descended through imported Prime Minister, on Scotch-bred cows of high dairy quality.
 RICHARD BROWN,
 ORONO, ONT.

FOR SALE: 3 Shorthorn Bulls

and a few females by Indian Brave, Bold Breton, and Scotland's Fame, out of straight Scotch females.
 F. A. GARDNER, BRITANNIA, ONT.

FOR SALE: Entire Herd of Jerseys, 17 Head

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

GOSSIP.

Just as we were going to press with this issue we received word from Mr. Geo. Hindmarsh, Ailsa Craig, Ont., that he had sold all the Shropshire ewes and ewe lambs that could be spared, and has now only ram lambs to offer. Inquiries will receive prompt attention.

Mr. W. S. Marr, Upper Mill, Aberdeenshire, has recently shipped to Mr. C. L. Gerlach, Osborne, Ohio, 11 Shorthorns from his well-known herd, consisting of 8 females and 3 bulls. The bulls are yearlings, by the stock bulls, Wanderer, Sittyton Flash, and Golden Flash.

Mr. F. S. Peer, Mt. Morris, N. Y., on his last trip to England and the Island of Jersey, imported selections of Jersey cattle for ten United States herds. These included the beautiful English-bred cow Tulip, from the herd of Lord Rothschild, at Tring Park. This cow cannot be registered in the Herd Register of the A. J. C. C. under its present rules, but as she was considered by Mr. Peer the most beautiful Jersey he ever saw, Mr. B. M. Hawks, Farm Manager for Mr. Wm. Rockefeller, cabled an order to Mr. Peer to buy her at the price placed upon her, 200 guineas, or \$1,025. Twinkle of the same herd, was purchased for \$388. Tulip won first honors at ten important competitive meetings in England, including the Blythton bowl, which she won twice in succession. Among those imported for Mr. Rockefeller are several broken-colored animals, a feature which is considered no objection to a Jersey otherwise satisfactory.

MR. JAS. A. CASKEY'S HOLSTEINS.

During the early part of last year we visited Mr. Jas. A. Caskey's stock farm, near the village of Madoc, in Hastings Co., Ont., and gave a short review of recent purchases of Holstein cattle made from Messrs. Stevens & Son, Lacombe, N. Y.; and again at about the same period of the present season it was our privilege to visit Mr. Caskey at his comfortable home. We found the gentleman almost fully recovered from a broken leg. Although some important sales of Holsteins were made during the past year, we found the herd taxing the capacity of his stabling accommodations, including some promising young things developing into usefulness. It will be remembered that in Mr. Caskey's selection he drafted as foundation blood the descendants of such families of note as DeKol, Pietertje, Hartog, Mechthilde, Pauline Paul, Jesse, and Inka, the latter largely predominating, with Manor DeKol's Prince, a son of the noted Manor DeKol, and out of Manor Beets (74 lbs. milk), at the young bull, Regulator 1667, by Manor DeKol's Prince, and out of Pietertje Hartog DeKol, a family of national repute as producers, and credited with many high official records, as an analysis will show. Pietertje Hartog DeKol as a 2-year-old gave 43 lbs., and as a 3-year-old 55 lbs. milk per day, without grain, while her dam is credited with 513 and 594 lbs. during the corresponding periods at the same age, and officially tested 16,000 lbs. in 9 months, with 13 lbs. 8 oz. butter in 7 days. Adjuster DeKol 16691, another son of the same sire, and of Jesse 3rd's Inka, is another younger well and honestly bred along dairy lines, with vigor and conformation sufficient to recommend him, and whose dam at 2 and 3 years, respectively, yielded for her owner 35 and 50 lbs. milk daily, proving herself a most persistent milk producer, her dam giving 76 lbs. daily, and 693 lbs. in 10 days. We also saw many promising young females, whose pedigrees show them to be descendants of the handsome young Manor DeKol's Prince, upon such family lines as we have heretofore mentioned. Parties requiring young sires or foundation females from a breed growing rapidly into public favor as dairy cows, will do well to watch Mr. Caskey's offerings.

T. Douglas & Sons, Strathroy, Ont., write: "Our cattle are wintering nicely after coming in off short pasture. The young bulls we are offering are an attractive lot, smooth, growthy, fleshy fellows, with fine coats of hair. (Imp.) Diamond Jubilee is growing into a fine, large, well-proportioned bull, and the calves we have from him (12 in number) are a very promising lot. We have distributed 5 good useful bulls to various parts of the Province, and 2 to Indiana. Have also sold Roan Girl, winner of 2nd prize at Western Fair, 1899, in calf class, illustrated in December 1st issue. A. Montague & Son, Thamsford, were her purchasers. We were loath to part with her, and would not have priced her, only that we had several others almost her equal."

Mr. J. T. Gibson, Denfield, Ont., writes: "Mr. Conley, agent for Mr. A. Chrystal, Marshall, Mich., has purchased from me the imported calf 'The Baron,' and a very good Mina heifer calf by a Royal Sailor bull, and out of a grand breeding cow by British Chief. Mr. Conley visited most of the Shorthorn herds in Canada having or using imported bulls, and was at the W. D. Flatt sale. He considered this the best imported bull he saw in Canada. I bought this bull at Mr. John Isaac's sale, January, 1899, a lean calf; in fact, so lean, one man, who should know a Shorthorn, said all I had bought was the pedigree. I was not of that opinion. The bull was a good feeder; he soon got over the lean part of it, and is now in good breeding condition. Some of my friends are blaming me for selling the bull. I sold him for a fair price, making me some money (that is what most of us are after), have had the use of him for a year, have most of my cows in calf, and can take time in buying another bull. Mr. Conley tells me I have as good a young bull of my own raising as any he saw imported, or home bred. He also said I had four of the best calves he saw in one barn; three of these are bulls, a red, a roan, and a white. I am offering these bulls at about half what such bulls have been selling at auction, better individuals and better bred than most of the imported ones. This word imported appears to have a charm for most of us. It is all wrong; there are too many poor bulls imported, but as long as the prices are paid they will keep coming. What we want is some better bulls than we are raising here at about the same prices we are now paying for the culs. If they cannot be imported at these prices they are not wanted, as many of the bulls now imported are doing the country more harm than good, spoiling the sale for good home bred bulls."

PLEASE MENTION FARMER'S ADVOCATE.

Onions

and all Garden Truck are vastly benefited and quickly grown by the use of

Nitrate of Soda.

No scallions; no club root; no pithy centers; only firm, solid vegetables. A lot of information and valuable booklets on these subjects free by asking John A. Myers, 12-R John St., New York.

Write at once for List of Dealers.



Special Trial Offer New and GRAND PANSIES Did you ever see 7 straight or circular rows of Pansies, side by side, each a different color? If so, you know that the effect is charming beyond conception. Did you ever see Child's Giant Pansies, marvelous in beauty and true to color? If not, you have not seen the beauty and perfection now attained. As a trial offer, we will mail for 25 cents 50 seeds Pansy Giant, Pure Snow White, 50 " " " Coal Black, 50 " " " Cardinal Red, 50 " " " Bright Yellow, 50 " " " Azure Blue, 50 " " " Bright Violet, 50 " " " Striped, Variegated.

John Lewis Childs, Floral Park, N. Y.

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

Shorthorn Cattle.



GOLDEN FAME (IMP.) - 26056 - (72610). My herd is one of the largest in America, both imported and Canadian-bred. A very choice selection of both sexes always on hand for sale. Personal inspection invited. Address all communications:

JAMES SMITH, Mgr., Millgrove, Ont. R. R. Station and Telegraph, Hamilton, on main line Grand Trunk RR.

SHORTHORN CATTLE AND LINCOLN SHEEP.

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

J. T. GIBSON, DENFIELD, ONT.

Shorthorns and Leicesters.

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

JAMES DOUGLAS, CALEDONIA, ONT.

HAWTHORN HERD OF DEEP-MILKING SHORTHORNS.

We are offering 5 young bulls for sale, of first-class quality, and AI breeding. Wm. Grainger & Son, - Lakeshore, Ont.

SPRINGBANK FARM.

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

PLEASE MENTION FARMER'S ADVOCATE.

THE NEW BOOK: "SUCCESSFUL FARMING"

THE MOST PRACTICAL AND COMPLETE WORK OF THE KIND EVER PUBLISHED.

BY WM. RENNIE, SR., LATE OF THE ONTARIO AGRICULTURAL COLLEGE.

300 PAGES. PROFUSELY ILLUSTRATED. PRICE, \$1.50, POSTPAID.

Never before has such an enormous demand been created for a book upon "Farming for Profit." This is perhaps the first book of the kind ever written by a man while actually engaged in the work which has been such a continued success - hence the advice is practical and doubly valuable. The book is written in a plain, practical and easy-to-be-understood manner, and with up-to-date ideas in everything pertaining to successful farming. Farmers cannot afford to be without it.

The Latest Methods of Profitable Farming. How to Renew Worn-out Land. How to Clean the Land of Weeds. Advantages of Shallow Cultivation. What to Sow, and How to Sow It. Feeding for Profit. What to Feed, and How to Feed, etc., etc.

ADDRESS ALL ORDERS:

WM. RENNIE, Toronto.

NOTICES.

The Land of Bread and Butter is the title of a new illustrated pamphlet just issued by the Chicago, Milwaukee & St. Paul Railway, relating more especially to the land along the new line it is now building through Bon Homme and Charles Mix counties in South Dakota. It will be found very interesting reading. A copy will be mailed free on receipt of two-cent stamp for postage. Address Geo. H. Headford, General Passenger Agent, Chicago, Ill.

The Central Business College. - The fact that this excellent School had an average daily attendance of 285 members for January, under the care of twelve regular teachers, is not only strong evidence of the popularity of this School, but of the general demand for practical things in education. The reputation of this College is not confined to Toronto and the immediate vicinity, although the business men of the Queen City now look almost exclusively to it for such clerical assistance as they require, and also send their sons and daughters in training in numbers for the special training in this School affords. The present term finds representatives in attendance from every Province of the Dominion, from six of the neighboring States, Newfoundland, and the Bermuda Islands. The School remains in session throughout the entire year, so that students may enter at any time and complete any course desired without forced interruption from holidays. The College calendar will be sent free to anyone writing for it.

GOSSIP.

D. H. RUSSELL, Stouffville, Ont.: "I am very well pleased with your valuable paper, and consider it one of the best advertising mediums obtainable. There has been good demand for all classes of stock since advertising with you. Wishing you a happy and prosperous year."

MR. R. G. STACEY'S AYRSHIRE HERD.

On the occasion of a recent visit, a representative of the FARMER'S ADVOCATE found the famous herd of Ayrshire cattle belonging to Mr. R. G. Stacey, of Brockville, Ont., in excellent condition and looking the picture of health and thriftiness. This is one of the very strongest herds of the breed in the Dominion, having won the first herd prize at the Toronto Industrial Exhibition last year, in the keenest competition seen in Canada for years, and this is only a repetition of the record of the herd at Toronto on previous occasions. This herd now numbers 50 head, of which 16 are high-class prize-winners as White Rose of Alticane, 1st prize and sweepstakes at Toronto last year; May Queen of Craighead, who has a son coming two, imported in dam, and a '99 heifer calf; Wylie 2nd of Lessnesock and her three daughters, one, two, and three years old; Lady Diana and two daughters, a yearling and two daughters, one and two years old. The imported champion prize bull, Cattie of Lessnesock, is still at the head of the herd, and a large proportion of the younger stock, including the 1st-prize yearling bull at Toronto Exhibition, 1899, are his progeny, and show fine breed character and type. The imported bull, Sensation of Maple Grove, has also been used with great success in the herd, the first prize for best four calves at Toronto last year being his get. Fourteen choice yearling heifers, a number of promising heifer calves and a few excellent young bulls are on hand at present, and parties requiring good dairy stock will do well to study Mr. Stacey's ad. and write him for description and prices.

ANOTHER HORSEMEN'S SOCIETY.

The Canadian Saddle and Carriage Horse Society was organized at a representative meeting of horse breeders, dealers and fanciers held in the Albion Hotel, Toronto, on Thursday, Feb. 2nd, at which there were present: Ald. Sheppard (who acted as chairman), W. Harland Smith, H. J. P. Good, W. Edwards, H. N. Crossley, Geo. Pepper, J. W. Barbour, H. J. Hill, Henry Wade, Fred Smith, J. L. Oille, L. Reinhardt, Jr., Geo. Lowes, Thos. A. Crow, Dr. Andrew Smith, J. Murray, and W. C. Brown (Meadowdale). Mr. Good acted as secretary pro tem.

Letters were read from Adam Beck, of London; S. B. Fuller, of Woodstock; J. Carson, of Kingston; Dr. J. D. O'Neill, of London; Osborne Spiers, of Galt; T. R. O'Neill, of Cobourg; Geo. Simpson, of Port Elgin; John Ross Robertson, M. P., and J. K. Macdonald, of Toronto, all of whom heartily endorsed the proposal which the meeting had been called to discuss.

The motion to form a society was put and carried, and at Mr. Smith's suggestion the name of "Saddle and Carriage Horse Society" was chosen for the new organization.

The election of officers was proceeded with and resulted as follows: President - Geo. A. Case, Toronto. First Vice-President - L. Reinhardt, Jr., Toronto. Second Vice-President - S. B. Fuller, Woodstock. Secretary - Henry Wade, Toronto. Corresponding Secretary - H. J. P. Good, Toronto.

Directors - J. D. O'Neill (London), W. H. Smith, T. A. Crow, D. T. Lowes (Brampton), Ald. Sheppard, W. C. Brown (Meadowdale), Adam Beck, E. W. Cox, Dr. Andrew Smith, Wm. Hendrie, Jr. (Hamilton). Ald. Sheppard and L. Reinhardt were elected to represent the Society on the Horse Breeders' Association, and Geo. A. Case on the Industrial Exhibition Board.

Messrs. Good, Smith and Pepper were appointed to draft a constitution. The annual fee was fixed at \$2, and all the members present paid forthwith. Leading horsemen throughout the country will be duly notified of the organization of the society.

After a vote of thanks to Mr. Good, an adjournment was made until the first Thursday in March.

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.



Our Offer. - It is now universally acknowledged by the fruit-growing community that the Aylmer Sprayer leads, all others follow. During the past two years the Aylmer has won first place at every contest at which it was shown, taking the Jubilee Award at Toronto Industrial Exhibition; also first place at St. Petersburg, Russia, and at Manchester, Eng.; Ottawa, Ont., and numerous other exhibitions. The General Public not being in a position to select the best spraying pump, we make the following offer: If you are a responsible party, we will ship you the Aylmer Sprayer to thoroughly test in competition with any other known make, and if the Aylmer is not found the most satisfactory, it may be returned at our expense, thus giving you the opportunity to judge from actual experience which is the best sprayer manufactured, no matter what anyone tells you. Agents wanted. Mention this paper.

AYLMER IRON WORKS, Aylmer, Ont.

ARTHUR JOHNSTON

Greenwood P. O. and Telegraph Office,



INDIAN CHIEF (57485).

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. Clarendon Station, C. P. R., -on- or Pickering Station, G. T. R.

John Miller & Sons, BROUGHAM P. O. and TELEGRAPH OFFICE.

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

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

-on- Correspondence Invited.

Scotch Shorthorns

FOR SALE. 100 head to select from: 15 grand young bulls by Valkyrie - 21806 -, and cows and heifers of all ages, of the most approved breeding, served by (imp.) Diamond Jubilee - 28861 -, now at the head of our herd.

T. DOUGLAS & SONS, Strathroy Station and P. O. Farm 1 mile north of the town.

SCOTCH SHORTHORNS.

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

Shore Brothers, White Oak, Ont.

SCOTCH SHORTHORN BULLS AND HEIFERS

HERD ESTABLISHED IN 1872. Such sires as imported Royal George and imported Warlike have put us where we are. Imported Blue Ribbon now heads herd.

A. & D. BROWN, ELGIN COUNTY. -on- IONA, ONTARIO.

1865 FOR SALE: 1900 Scotch Shorthorn Bulls

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

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

Hillhurst Farm.

ESTABLISHED 1864. Scotch Shorthorns.

SIREN IN SERVICE: Scottish Hero and Joy of Morning.

BRED BY W. DUTHIE, COLLYVIE. Oldest Stud of Hackneys in America. Shropshire, Dorset Horn and Hampshire Down Sheep. -on-

M. H. COCHRANE, Hillhurst Station, Compton Co., P. Q.

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.

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.

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.

Another
Fine Basement Wall
BUILT WITH
Thorold Cement.



Barn of David Almas (Ranleigh F. O.), near Norwich, Ont.
Size of basement walls 44 x 30 feet and 9 1/2 feet high.

WHAT MR. ALMAS SAYS:

RANLEIGH P. O., Oct. 26th, 1899.
Gentlemen.—It gives me great pleasure to testify to the good qualities of your Thorold Cement. During the year 1899 I built a barn 44 x 30, with walls 9 1/2 ft. high, and put a floor in the basement, using in its construction 160 bbls. of your Thorold Cement. I consider I have a first-class job, better and cheaper than either stone or brick. I also built a foundation and cellar under a house, using 25 bbls. Your traveller, M. A. Ware, superintended my work, and he did it well. I consider him a first-class man for such work.
Yours truly,
DAVID W. ALMAS.

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 Minnie, Braith, Bada, Secrets, Mysies, Beauties, Lady Mays, Lustras, etc. The home-bred herd contains Indian Statesman = 2304 =, and 15 young and ewes, ran lambs from imp. Flashlight. Any of the above will be sold at reasonable prices. Correspondence or a personal visit solicited. Catalogues on application.
Burlington Junction Station and Telegraph Office, G. T. R., within half a mile of farm.
W. G. PETTIT & SON,
FREEMAN, ONT.

SPRING GROVE STOCK FARM

Shorthorn Cattle and Lincoln Sheep. Herd prize and sweepstakes at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by Topman = 17847 =, champion at Winnipeg, Toronto, London and Ottawa, 1899. High-class Shorthorns of all ages for sale. Also prize-winning Lincolns. Apply
T. E. ROBSON, Iderton, Ont.

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

SHORTHORNS

Two choice young bulls, 17 months old; also a number of young cows and heifers.
A. F. ALTON & SON,
Burlington Jct. Station, Appleby P. O., Ont.

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 stock on imported Marr and Gordon Castle foundation, a desirable and needed line of breeding.
-om **D. ALEXANDER, Brigidon, Ont.**

JAS. DORRANCE,
SEAFORTH, ONTARIO,
BREEDER OF

Shorthorn Cattle and Berkshire Pigs
Young stock always for sale

Maple Lodge Stock Farm

ESTABLISHED 1854.

SHORTHORNS.—Exceptionally good young bulls by Caithness = 22065 = and Abbotford = 19446 =. And choice heifers in calf to Abbotford and our grand young imported bull, Knuckle Duster (7273). We have the best milking strains. **LEICESTERS.**—The very best imported and home-bred rams and ewes for sale. Write us for prices.

ALEX. W. SMITH,
-om **MAPLE LODGE P. O., ONT.**

ASHTON FRONT VIEW STOCK FARM.

Four Shorthorn Bulls for sale, from 8 to 15 months old; all of choice breeding. Also Cotswolds of all ages for sale at all times. Visitors welcome.
A. J. WATSON, Castlederg, Ont. C. P. R. Station and Telegraph Office, Bolton; or G. T. R., Palgrave.

SHORTHORNS.

Stock bull, Kinellar of York = 2504 =, by Imp. Kinellar Sort: 1 bull 16 mos. old, and one 8 mos. old, dam Nonpareil 3rd. Cows and heifers, some of them the same family as the first and second prize cows at Provincial Dairy Show, London.
F. MARTINDALE, York P. O., Ont.

Shorthorns.

At easy prices, 10 good young bulls, from 3 to 15 months old. Also 10 heifers and young cows with calf at foot or served by Imp. Prince William, now at head of herd.
R. MITCHELL & SON,
Burlington Jct. Station, Nelson, Ont.

Shorthorn Bulls and Heifers.

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

Sales of Pure-bred Live Stock
IN ENGLAND.

John Thornton & Co.,
AUCTIONEERS AND EXPORTERS,
of 7 Princes Street, Hanover Square,
LONDON, ENGLAND,

will sell by auction, amongst their various sales of different breeds of pure-bred live stock, the following Shorthorn herds:

April 12.—The Late Mr. W. T. Talbot Crosbie's Young Shorthorn Bull. The entire remainder of the herd will be sold on August 23.
April 19.—The Rt. Hon. F. J. S. Foljambe's Shorthorns.
April 25.—Mr. Wm. Graham's Shorthorns.
April 26.—Mr. J. C. Topplin's Shorthorns.
May 3.—Mr. C. A. Scott-Murray's Shorthorns.
May 4.—Mr. J. T. Hobbs' Shorthorns.

John Thornton & Co. undertake commissions to purchase at sales or privately any description of pure-bred live stock, to attend to their careful shipment, and insure on the best terms obtainable. Address:

Cablegrams: -om **7 PRINCES STREET, HANOVER SQUARE, LONDON, ENGLAND.**

10 Imported Shorthorn Bulls
ALL SCOTCH.

21
IMPORTED
HEIFERS.
ALL SCOTCH.



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.

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

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

ISALEIGH GRANGE FARM, Danville, Quebec.
J. N. GREENSHIELDS, PROP. -om **T. D. MCCALLUM, MGR.**

W. C. Edwards
AND COMPANY,
IMPORTERS AND BREEDERS
Laurentian Stock and Dairy Farm,
NORTH NATION MILLS, P. Q.
Pine Grove Stock Farm,
ROCKLAND, ONTARIO.

Ayrshires, Jerseys, Shropshires, Berkshires.
Scotch Shorthorns and Shropshires.

Our excellent aged herd of Ayrshires is headed by our noted imported bull Cyclone. Tam Glen heads the young herd, and Fawn's Son 2nd of St. Anne's heads the Jerseys. The young stock are all from time-tried dams.
A. E. SCHRYER, Manager.
We can be reached either by steamboat, the C. P. R., or C. A. R.; the C. A. R. making connections with the G. T. R. at Coteau Junction. Rockland is our station on all lines.
JOS. W. BARNETT, Manager.
7-1-y-om-

Pure-bred Ayrshire Imported Cattle.

LARGEST AND MOST EXPENSIVE IMPORTATION IN AMERICA.



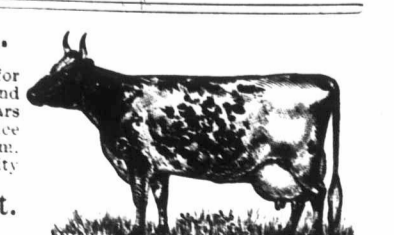
Bred for the dairy, with grand constitution, and champion prize records awarded them in Scotland and England. Sweepstakes herd, Montreal, Toronto, London, and Ottawa, in 1897; also Toronto, 1898. Awarded four years in succession herd prize at Ottawa's great exhibition, and special gold medal; at Montreal, 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 Ayrshire Stock Farm
LYN, ONT.
R. G. STEACY,
Importer and Breeder,
Brockville, Ont.
Box 720. -o

AYRSHIRES and YORKSHIRES.

We now offer, at a bargain, a few choice young bulls fit for service, also of either sex (just dropped), and a few heifers and young cows; young Yorkshire sows ready to mate; a few boars just fit for service; young pigs of either sex; also a very choice boar, 2 years in March, at a bargain, as we are through with him. Write for prices, which you will find extremely low for quality offered.

ALEX. HUME & CO., Menie P. O., Ont.
Headquarters: T. R. Station.





WORTH \$50 A BOTTLE
To This Man
 It may be worth a like sum or even more to you.....
 Royal, Essex Co., N. B., March 19, 1898.
 Dear Sir—I have used your Kendall's Spin Cure and it has cured a horse in my lot, and I would not be able to say for the best, but I will be pleased to have your book and recipe for the best horse, as I read on the contents.
 Truly yours,
 FRANK SMITH,
 Burlington, P. O., Ontario, Mar. 19, '98.
 Dr. R. J. Kendall Co.
 Dear Sir—Enclosed please find a two-cent stamp for your Kendall's Spin Cure. I had one but it is lost. I have used your Kendall's Spin Cure without any failure in years, and consider it the best medicine for use on horses in the market. Please send me the book or you advise me how to order.
 GEORGE BROWN.
 It is an absolutely reliable remedy for Spavin, Splints, Curbs, Ringbones, etc. Removes the growth and restores to use. Price, 50¢ per bottle. As a stimulant for healthy use it has no equal. Ask your druggist for KENDALL'S SPIN CURE, also "A Treatise on the Horse," the book free, or address
DR. R. J. KENDALL CO., ENDURANCE FALLS, VT.

Small Four Incubators!

That's the idea. There's nothing fancy; nothing foolish about them; just straight, practical, lasting, honest goods. The



CYPERS INCUBATORS
 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 IS YOUR MONEY BACK.** Used exclusively at Experimental Farms, Guelph and Ottawa; also six American Experimental Stations. Danieles, the renowned provider in the Poultry Supply business, has the sole agency for the Cypers 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 **FARMER'S ADVOCATE**.
C. J. DANIELES, 221 River St., Toronto, Ont.

FOR SALE.

A few choice birds, including Golden and Silver Wyandottes, Barred and White Rocks, Bronze turkeys and Pekin ducks. All bred from imported stock.—**JAMES LENTON, Park Farm, Oshawa, Ont.**

Shropshires...

I offer for sale **SHEARLING EWES**, sired by Imported Newton Stamp 99631, prizewinner at Toronto, 1897; also **RAM** and **EWES LAMBS**, by Standard, a son of Newton Lord.
GEORGE HINDMARSH,
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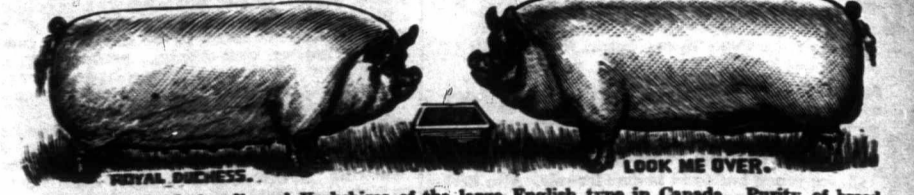
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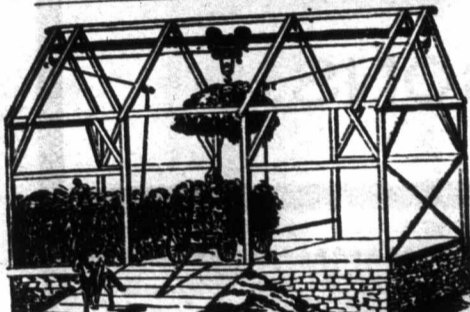
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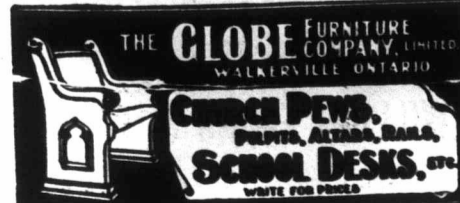
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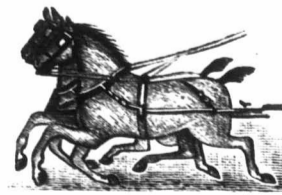
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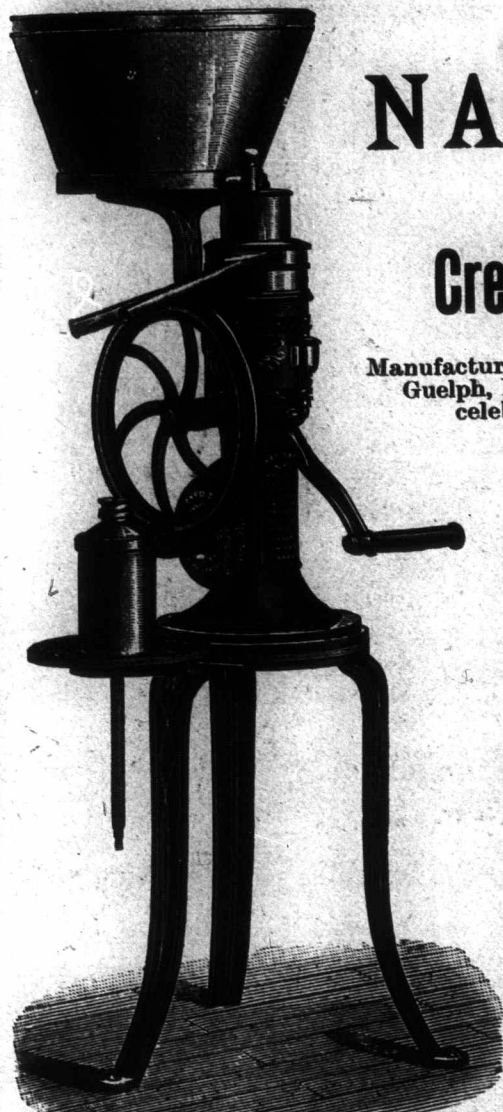
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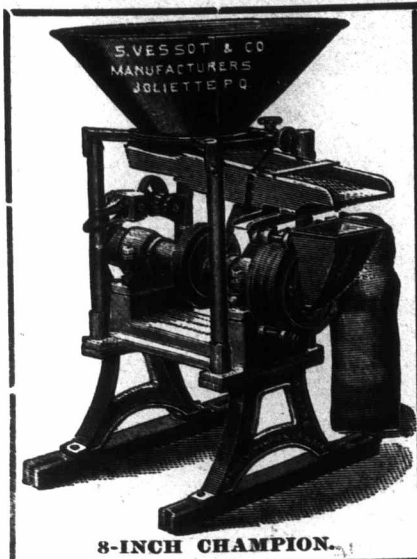
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Capacity, 330 to 350 lbs. per hour.

The Raymond Mfg. Co'y of Guelph, Ltd.
GUELPH, ONT.

...IF...
Your Fence Sags
and looks like a fish-net, you bought the wrong kind. **Page fence stays as placed.** We use special wire. Our No. 11 is as strong as ordinary No. 9. Coiling makes ours still more effective. At our prices you can't afford to use any other.
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THE
Champion Grinder
MODEL '99

IS the most improved grain-grinding machine on the market to-day; does the most work for the power used.

MADE IN FOUR SIZES.

Machines sent on trial. Full satisfaction guaranteed or no sale. Catalogues are free.

S. VESSOT & CO.,
Sole Manufacturers,

JOLIETTE, P. Q.

TORONTO
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92 BAY ST
CUTS BY ALL PROCESSES
WE STOCK A SPECIALTY.



FAMILY KNITTER!

Will do all knitting required in a family, homespun or factory yarn. **SIMPLEST KNITTER ON THE MARKET.**

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

DUNDAS KNITTING MACHINE CO.,
DUNDAS, ONTARIO.

BINDER
FARMERS'
TWINE

PURE MANILA, 650 FEET,
SPECIAL MANILA,
TIGER,
STANDARD.

Farmers! Don't be taken in. There is none "just as good." These twines will not bunch at the knotter, and a Binder will run all day without stoppage, thus saving time, annoyance and a "lot o' cussin'."

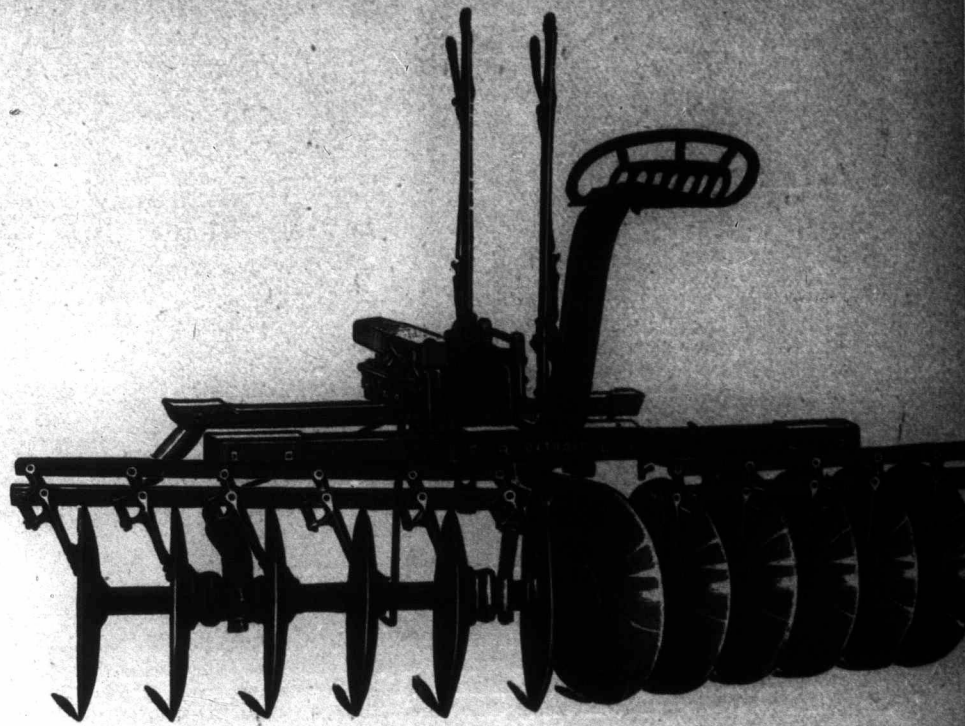
We pack our twine in bags of the size of ordinary grain bags, and we are not ashamed to put our name upon it. Don't take any other.

CONSUMERS' CORDAGE CO.

Limited.

MONTREAL.

Head and Shoulders!



THE WINDSOR DISK.

The Largest Makers of Disk Harrows in Canada.

"Why" take a flimsy, cheap-made harrow when for a few dollars extra you can buy the "Windsor," with ball bearings, double levers, double steel frames, patented pole attachment, etc. This harrow is Head and Shoulders above any other. All sizes. See sample.

THE *Frost & Wood Company*
LIMITED

Smith's Falls,
Toronto,
Winnipeg.

No instrument is more popular in Canada to-day than the

Bell Piano

And there is no better to be had.

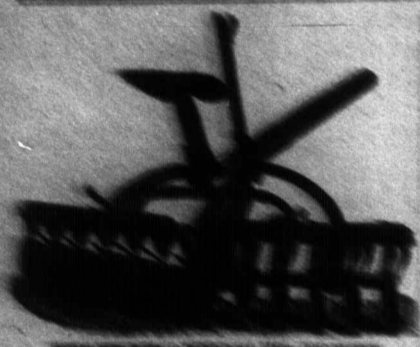
The patented attachment system permits the use of electric lighting apparatus, and is used only in the BELL brand of pianos. No other brand has it.

Write to see a list.

The BELL ORGAN & PIANO CO., Limited, GUELPH, ONTARIO.



Some advertisements should be taken with a grain of salt - Blue Ribbon Ceylon tea and only cream and sugar.



The Universal Favorite
Noxon Disc Harrow
(OUTCROW)

It will do more than any other harrow in the world. It is made of steel and is made in the U.S.A.



NOXON
New Improved
Spring Tooth
Cultivator

It will do more than any other cultivator in the world. It is made of steel and is made in the U.S.A.



THE CELEBRATED
Noxon Discs Steel Discs
and Spring Discs

It will do more than any other discs in the world. It is made of steel and is made in the U.S.A.

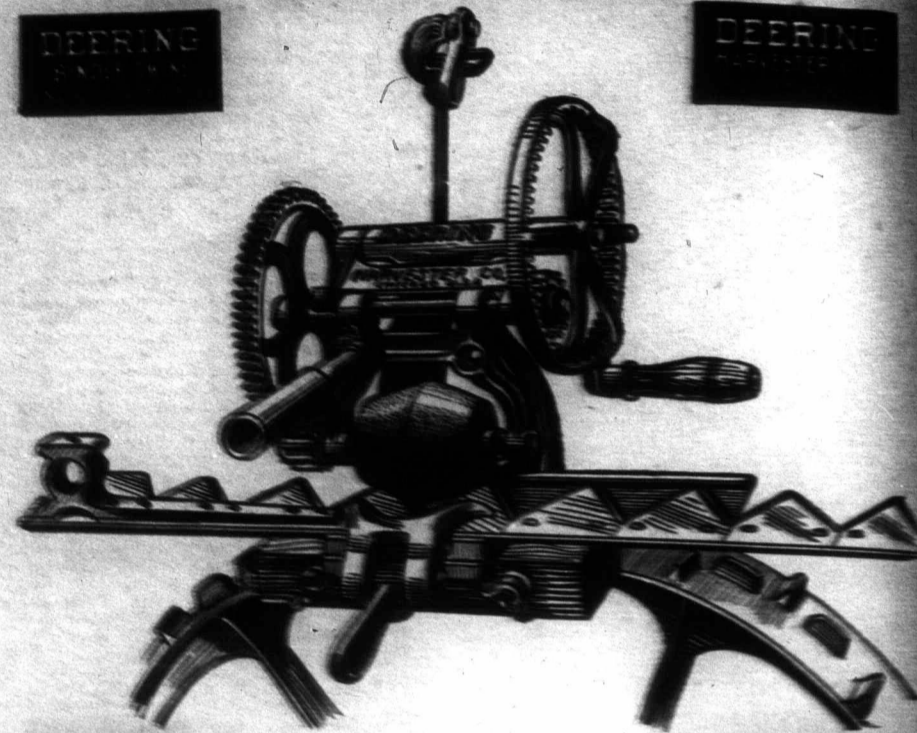
We have the largest stock of Noxon Discs, Spring Discs, Cultivators, Harrows, and other farm machinery in the world. Write to us for a list of our products and prices.

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THE MACHINES THAT MADE AMERICA FAMOUS.



Deering Knife Grinders.
You can get them from any Deering agent.

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Head Office and Factory: CHICAGO, U.S.A.
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A Cultivator

of World-Wide Renown.

THE MASSEY-HARRIS Cultivator

It has a frame of steel, which is made of the finest quality of steel. The frame is made of the finest quality of steel. The frame is made of the finest quality of steel.

MASSEY-HARRIS CO.