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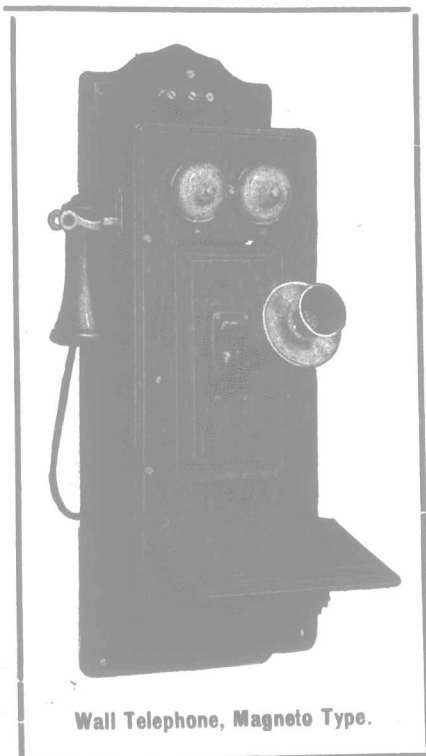
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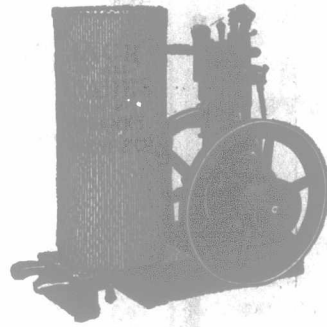
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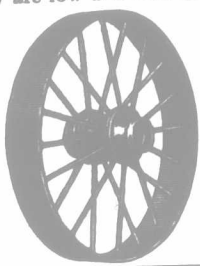
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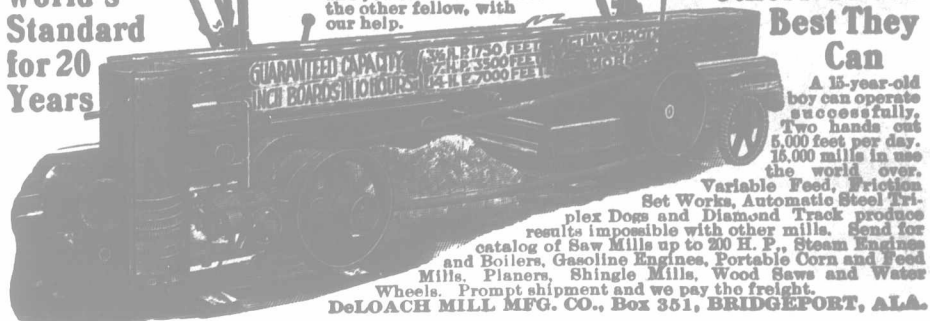
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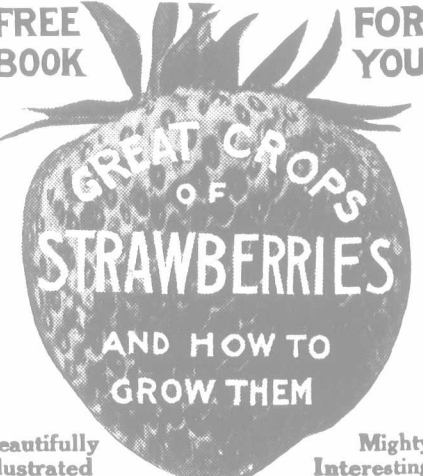
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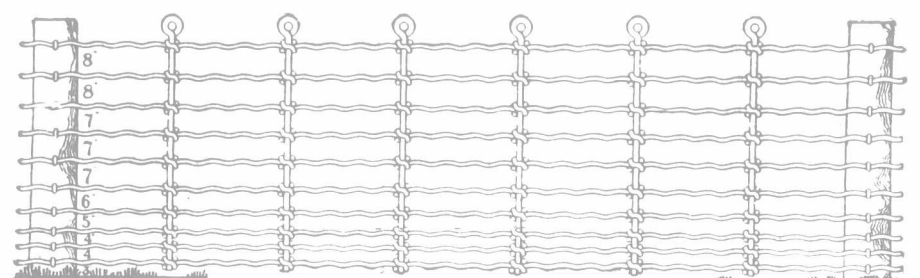
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LONDON, ONTARIO, FEBRUARY 13, 1908.

No. 803.

EDITORIAL.

LEGUME NODULES AND NITROGEN - GATHERING BACTERIA.

One common cause of indifferent success with the first attempt at seeding alfalfa is lack of inoculation. On the roots of a thrifty alfalfa, clover, pea or other leguminous plant may be found a greater or less number of swellings, from the size of pinheads up to that of wheat grains. In each of these dwell countless microscopic organisms called bacteria, which have the power of gathering for their own use, from the air circulating through the soil, some of that gas called nitrogen, which constitutes about four-fifths of the atmosphere. Having used the nitrogen, they pass it on to the plant upon whose roots they dwell, which then builds it up into its tissues. So far as known, the family of plants called legumes are the only ones thus capable of drawing upon the unlimited nitrogen of the air; all others have to depend upon the small and often insufficient amount found in chemical combination in the soil. As the legumes require an exceptionally large amount of nitrogen to build up into the valuable protein compounds, in which their seeds and fodder are so rich, the importance to them of these nitrogen-gathering bacteria is at once explained. Research has demonstrated, and ordinary observation will convince the layman that, where the bacteria are scarce and the nodules consequently few, the growth of the legume will be weak and sickly, unless the soil happens to be exceptionally well supplied with nitrogen in a combined form, in which case the plant may do tolerably well for a time without many nodules, though it will be of much less value as a soil improver. Go out in the spring, pull up a few alfalfa plants and examine the roots for nodules; if they are not abundant, the plant would very likely have been the better for artificial inoculation.

Lest too sweeping conclusions be deduced from the above statements, we hasten to add that, no matter how well the soil or seed may have been inoculated, the bacteria will not thrive in an acid soil. To insure against such a condition, liming is to be strongly recommended. No one can make a mistake in applying a ton per acre of air-slacked lime before sowing alfalfa. An application of wood ashes will also help to correct acidity, and, in addition, will increase the supply of potash, of which legumes require an abundance. For be it remembered that, of the four elements—to wit: nitrogen, potash, phosphoric acid and lime—which legumes, in common with all other plants, require, the legume bacteria collect from the air only nitrogen. The others must be gathered from the soil, and if the land is poor in these mineral elements, they must be supplied before a good crop may be expected. Given proper soil conditions, the bacteria, which may be introduced through adherence to seed or through previous applications of manure made by feeding stock on alfalfa hay, or by scattering of soil from an old alfalfa field—however or wherever they come, these bacteria will multiply at an enormous rate on the roots of the host-plant. This is one reason why liberal seeding is advisable, additional bacteria being introduced with the extra seed sown. This, too, is why a second seeding of alfalfa is usually more successful than a first, the bacteria remaining from the previous seeding (if recent enough), reinforcing those newly introduced with the seed, and resulting in the earlier formation of a sufficiently large number of nodules. This, also, is why some have advised sowing a little alfalfa as a mixture with ordinary meadow

crops, with a view to inoculating the farm through the manure and otherwise, with the bacteria necessary for a subsequent successful seeding to alfalfa.

Understand that the growing of red clover and peas or beans will not inoculate the soil with the bacteria that work on alfalfa roots. Each of the legumes appears to be the host plant of a specific kind of bacteria, and no others need apply. The one exception to this is the common weed, sweet clover, or mellilot. The bacteria on this plant appear to be practically the same as those which work on alfalfa roots, hence the application per acre of a load of soil where sweet clover has been growing is as good a means of inoculating a field for alfalfa as soil from an old alfalfa field. It may be laid down as a general principle that, to insure best results in sowing alfalfa on a farm where it has not previously grown, inoculation by one means or another is usually necessary, and is often beneficial in lesser degree on farms where it has already grown at one time or another.

Of course, inoculation is just as beneficial to other legumes as to alfalfa, but inasmuch as most farm soil is already more or less supplied with the bacteria peculiar to these crops, artificial inoculation is not so liable to be called for as in the case of a new crop, like alfalfa.

HOW TO INOCULATE ALFALFA.

As explained above, inoculation, either by natural, accidental or artificial means, is essential for best results in growing alfalfa. Natural and accidental means are by adherence of bacteria to the seed sown, the dissemination of bacteria over the farm in manure made in stables where alfalfa is used, the occurrence of odd plants of alfalfa or sweet clover in the field, and the accidental transfer of inoculated soil by stock, implement wheels, and other means. It is indeed surprising how soon a farm will become inoculated by the growing and feeding of one field of alfalfa. But it is safe to assume that on a field, or, more especially, on a farm, where alfalfa has not previously grown, artificial inoculation will probably result in sufficient increase of nodules and vigor of crop to well repay the trifling expense.

The artificial means of inoculation are two. The first is scattering over the field a few hundred pounds per acre of soil from an old alfalfa field or from a patch of sweet clover; a wagon load per acre is considered ample. The two objections to this plan are inconvenience and danger of introducing new weed seeds. When the inoculated soil can be conveniently obtained from a clean field, this method is to be highly commended. The alternative method is the application to the seed before sowing of an artificially-prepared culture of these nitrogen-gathering bacteria, called nitro-culture. There are different forms of this, and some have proven disappointing, owing to imperfect methods of preparation, or to the means of dissemination used. The U. S. Department of Agriculture tried to distribute them in absorbent cotton, but most of the bacteria died before they could be applied to the seed. The most successful nitro-culture to date appears to be the liquid form, prepared by the Bacteriological Department of the Ontario Agricultural College, and sent out in little bottles to co-operative experimenters willing to test it and report results. The price is only twenty-five cents for a bottle sufficient to treat sixty pounds of seed, or enough to sow three acres. The Department always makes it a condition that those receiving the nitro-culture shall sow a small strip with untreated seed, for comparison.

The Bacteriological Laboratory of the College

began the distribution of cultures for various sorts of legumes in 1905, during which season 246 samples were sent out. In 1906, again, 375 cultures were distributed to nine Provinces and four foreign countries, and, out of 120 reports received that afforded proper opportunity for comparison, 72 showed a benefit to the crop treated, as against 48 in which no benefit was apparent. During the spring of 1907, 372 cultures were sent out, in addition to 118 supplied through the Nova Scotia Agricultural College. Of the 372 experimenters, 124 returned reports which afforded satisfactory data on which to base conclusions, and, of these, 67 reported benefit, and 57 no benefit. Of the samples distributed from Truro, N. S., reports were even more pronounced. Fifty per cent. of the experimenters reported marked advantage from inoculation, thirty-three per cent. a slight advantage, and only 17 per cent. could see no benefit. Some of the experimenters sent very satisfactory and glowing reports of the benefits of inoculation in increasing the formation of nodules and thrift of the crop. Of these 124 experimenters reporting to Guelph, 84 had tried the nitro-culture on alfalfa, and the number of favorable and unfavorable reports was 48 and 36, respectively. The fact that benefit should occur in considerably over 57 per cent. of the cases is convincing evidence that, in some cases, at least, artificial inoculation is a decidedly important means of increasing the chances of success, especially when laying down new land to alfalfa. As announced elsewhere in this issue, by Prof. Edwards, in a preliminary review of a bulletin giving the results of Canadian experiments with legume inoculation, the Bacteriological Department is again prepared to distribute nitro-culture this spring. Read the article carefully, and, if seeding to alfalfa this year, procure a bottle of nitro-culture and give it a trial.

CAUSES OF FAILURE WITH NITRO-CULTURE.

Among the men who have had marked success inoculating alfalfa seed with nitro-culture supplied from the O. A. C., is Henry Glendinning, of Manilla, Ont., who related his experience at the recent dairymen's conventions. On his home farm he has been growing alfalfa for eleven or twelve years, and is now able to secure good catches without inoculation, but, on a new farm, purchased a few years ago, on which alfalfa had never been grown, he sowed alfalfa seed which he treated with nitro-culture, leaving a narrow strip to be sown with untreated seed. The growth was luxuriant on all except that strip, a good deal being bound up with the sheaves of barley, three pecks per acre of which had been sown as a nurse crop. On the untreated portion the growth was small and spindling, and the leaves had a yellow, sickly look, which reminded him of the appearance of his new seeding nine or ten years earlier on the home farm. The difference was so marked that it looked at first as though this strip would have to be plowed up. The next year there was a much heavier crop of hay from the part sown with treated seed than from the other strip, and the difference was again noticeable to a less extent the third season, though not to the same extent, because the roots by this time were becoming pretty well supplied with nodules; but the stand was not so good, and probably never would be. The line between the treated and untreated portions was marked to a stubble, and this experience could be duplicated by other cases.

On the other hand, some have used nitro-culture without appreciable results. Why the difference? In the first place, the soil may have been already inoculated by previous growth of the

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crop, or by other means. Mr. Glendinning would expect little or no benefit from nitro-culture on his home farm, where he has been growing alfalfa for a length of time.

In the second place, the soil may be too acid, and these nitrogen-gathering bacteria will not thrive in an acid soil. Before sowing alfalfa, it is a wise precaution to apply about thirty bushels of air-slacked lime per acre, or, if available, a few loads of finely-ground limestone. Even if the field overlies a limestone rock, that is no guarantee that it does not need liming.

A third, and probably more frequent cause of failure to secure results from nitro-culture lies in not following directions properly, especially in the matter of keeping the agar medium away from the light. Mr. Glendinning makes a strong point of this. Putting the bottle in a window, or otherwise exposing it to light, is most unwise. As a general thing, bacteria are killed by light. In reply to a letter of inquiry, Prof. Edwards, of the O. A. C., assures us that they do not know specifically just how much light these nitro-culture bacteria will stand, but they propose to investigate this particular point. Meanwhile, it is well to be on the safe side, and take no chances.

In this connection, we cannot do better than synopsise Mr. Glendinning's remarks. He sows his alfalfa seed before the grain-drill tubes, thus not only getting it between the rows of grain, where it should be, but also covering it at once. After the drill comes the harrow, and then the roller, followed by the weeder, which makes a light soil mulch. The method followed by some, of sowing behind the drill tubes and leaving the seeds exposed to the light for a day or so before harrowing, he considers liable to kill the bacteria and nullify the effect of treatment with nitro-culture. Whether or not he exaggerates the danger, his argument is reasonable, and, as he has had such great success himself from the use of nitro-culture, his method is worth trying, es-

pecially as it has every other advantage to commend it. Sow before the drill, and try a little the other way for sake of comparison.

THE FARM AND THE CITY AS THEY ARE.

The day has passed when we can hope to keep the young people on the farm by holding them aloof from the city. Schools, newspapers, magazines, railroads—steam and electric—together with freer economic conditions and increased spending money, have brought them into touch with urban centers, urban thought, urban opportunities, and urban privileges, and these they are bound to prize. The trouble is they have acquired distorted and perverted impressions. On the one hand, they have been consciously or unconsciously schooled and influenced to discount the advantages and privileges of the farm, and to magnify its drawbacks; on the other hand, to overrate the inducements of the town, overlooking the seamy side of city life, the vanity of its display, and the strenuous, wearing monotony of many of its occupations. The remedy is to show our young people the facts as they are; to open their minds by means of improved rural schools, agricultural press, and parental interest, to the engrossing beauties, laws and processes of nature, as exemplified in country life, animal husbandry, and farm practice; to awaken an appreciation of the poetry of the farm, and to reveal to them the solid, enduring attractions of rural life, as an offset to the toil and deprivations. Take them into the city; show it to them in all its phases—the slum as well as the mansion, the kitchen as well as the drawing-room, the factory as well as the theatre, the back yard as well as the park. Let them experience enough of city life to perceive how much of the humdrum, the nausea, and the gnawing of insatiable ambition lies beneath the furor, the fine clothes, the gaiety of society, and the bustle of commerce.

Then bring them back. Give them as good an education as possible for the farm; keep agricultural literature within reach, encourage them to attend the agricultural college; hold up the best examples of farming in contrast to the worst; point out the improvements every year being made; encourage them to study the possibilities of up-to-date agriculture, and to improve on the methods of their fathers. Arouse their interest in the new agriculture, and teach them to prize the farm not only for what it is, but for what it may be made. Combine with the advantages of the farm as many as possible of those city privileges which modern enterprise is bringing to our doors. Then give them their choice. Refrain from all semblance of coercion or demands; let them size the matter up impartially for themselves, and see if some of the wisest boys and girls do not decide to remain on the homestead. Their example and enthusiasm will help others. The man who farms from choice is the only one we hope to see in future on the homesteads of this fair country. There will be plenty to choose the occupation once we succeed in inculcating sane ideas of things.

Better a foot of the mossy turf
Than miles of pavement bare,
Better a moment of country life
Than an hour of hustle and bustle and strife,
Or the lure of the footlights' glare.

THE PLAGUE-SPOT IN RURAL LIFE.

Editor "The Farmer's Advocate":
When the automobile was being introduced into this Province, we were told by its friends that it would be a great boon to all people; that old methods of transportation were so to be done away with, that the commerce of this country was to move along a new channel. But, after some years of actual operation upon the country roads of Ontario, viewed from any intelligent standpoint, the auto, as a means of transportation, compared with other methods in use, is an utter and miserable failure. If its failure to be of any use to the general public were all, we could well afford to say nothing; but it is like the disabled but floating ship abandoned at sea, useless, but still upon the highway of commerce, a danger and a menace to life and property, and the farmers of Ontario have not yet realized what a baneful, blighting and destroying influence the automobile is having upon the farm life of this Province, and it is a fact almost incredible that a few abnor-

mally selfish people (I am speaking of them as a class), who do not exceed two per cent. of our population, should be allowed to go out upon our highways with an automobile or any machine of that kind, and drive a large per cent. of the people found upon our country roads—men, women and children, old and young, rich and poor, learned and unlearned—off the roads they themselves have built, and into the swamps, barnyards, side lines and ditches, thus insulting all, destroying the property of many, and occasionally killing someone; and all the possible gain for all this sacrifice on the part of the farmer, so far as I can see, is that a few very selfish people may make a vulgar display. And we ask, why are they not restrained? We have in this Province—and in every land, I presume—people who have to be restrained on account of their selfishness. Thieves and burglars are only people who are so selfish that they occasionally fail to recognize the rights of others, and have to be sent to prison. I do not know that thieves and burglars are any more selfish than automobilists. But be that as it may, one thing is certain, the automobile is directly opposed to every interest dear to the farmer and his friends, and every additional auto launched upon our country highways throws additional restraint around the freedom of country life, and adds another menace to the life and property of the farmer; and the fact that they are not properly protected brings discontent, and an inclination to leave the farm. And surely every farmer understands that any influence that tends to drive people off our farms, or causes a greater tendency to centralization of our mercantile trade into a few large cities, injures every farmer, by lowering the price of his lands, and decreases the amount of help obtainable on the farm. And as our real wealth as a people must come from the farm, how utterly foolish to allow the great well-spring of national wealth and greatness to be tampered with or choked up by an insignificant fraction of the people. Some one will ask, How are we to get rid of this plague-spot upon rural life? Well, sir, in every land with responsible government, like ours, the ballot is a sure cure for all such ills, and I am sure I am not claiming too much for the farmers of this Province when I say they are, as a class, the most intelligent farmers on earth. And should we not be intelligent enough to elect fifty or sixty men for our next Provincial House from our rural constituencies, pledged to vote and to use their utmost influence to protect our rural highways from the automobile and all machines of that kind. And to the farmers I wish to say, do not mix politics with this question (politics is too cheap to mix with a question affecting the rights and home-life of more than half the people of this Province), but if any would-be candidate refuses to pledge himself, whether he be Grit or Tory, drop him out of the count, and work and vote for the man who will pledge himself to protect your rights. Remember, you will be opposed by some of our city newspapers, and by hirings of automobile manufacturing companies, and probably by some men who mean well, but mistake nonsense for practical common sense. They will tell you that the auto has a supposed speed limit of fifteen miles an hour, and no farmer or his family ought to feel hurt at being run over by an automobile at the rate of fifteen miles an hour, and that farmers themselves will be using automobiles in a few thousand years at longest. One thing we should all remember is, that this question, so far as the farmer is concerned, is of ten times more importance than any question that will come up in our Local House for the next four years.

In conclusion, Mr. Editor, I wish to suggest that each municipal council appoint one man from each political party in that municipality, and that the county council appoint a chairman and secretary to act for the whole constituency in connection with the men appointed by the various municipal councils, the whole to be known as the Rural Highways Protective Committee, to interview each candidate coming into the field in their constituency on the automobile question, and that only.

Prince Edward Co., Ont.

FARMER.

HELPING A FRIEND.

The enclosed \$1.50 is for a new subscription to your valuable paper. I am myself a subscriber since I started farming, four years ago, and would not be without it, so I have got a friend just starting farming to take it, hoping he will gain knowledge by it, as I have done many times.

Simcoe Co., Ont.

LEWIS PIERCY.

The existence of a non-elective body like the Senate is a travesty on the idea of responsible government. It is admittedly an expensive nuisance as it is, and no one has yet suggested an acceptable plan for its reformation. Some time consensus of opinion will arrive at the logical conclusion—i. e., abolition.

The master of cowardice is resolution.

HORSES.

OUR SCOTTISH LETTER.

WELL-BRED CLYDESDALES.

I have been asked to say something about the breeding of Clydesdale horses, and to indicate what lines of breeding are most in favor. The task assigned may be executed in a way that is invidious, and yet I am aware that it may be executed in the other way. It will be my aim to adopt the other way.

Does a long, recorded pedigree entitle an animal to be regarded as well bred? The supposition in some quarters is that it does. Hence the so-called advanced registers for Shorthorns, and possibly for other breeds as well. These registers are based on an essential fallacy. They confound two things which are ever distinct: a lineage composed of merit, and a lineage which has been carefully recorded for an exceptional length of time. There is no necessary connection between the two. In the one case you may have a short record embracing animals of high merit; in the other, a long record embracing animals, not one of which was above mediocrity. A person ignorant of the history of a breed might call the latter evidence of better breeding than the former, but a person acquainted with the history would discriminate to better purpose. The advanced registers prove nothing. They may be aiming at the possession of well-bred stock, but they are not likely to get them along that road. Nor are Clydesdale breeders in Canada likely to improve their horses by imagining that a pedigree with a number in it is better than the same pedigree without the number in it. In Scotland, we want to be sure about what we do know regarding a pedigree. In some countries to which Clydesdales are exported, the idea seems to be that Scotsmen who have bred and made the Clydesdale do not know how they have done it. The first essential in a pedigree record is a determination to secure accuracy, as absolute as human fallibility can make it. Given that, then, let us go on to perfection; that is, to know something definite about the merits of the animals composing the pedigree. To aid fanciers of Clydesdales in doing this, is the purpose of what follows.

Errors are made in showyard judging. It is not always the best animal in a class that gets the first prize; but, after nearly thirty years of observation and experience in analyzing showyard results, I am convinced that, as a rule, the animals which get the tickets in a class are the best animals in the class. Consequently, if we take a conjunct view of all the facts connected with a season's judging, we will arrive at a fairly accurate opinion regarding the best lines of breeding among Clydesdales. Looking over these 30 years, I find there has been a succession of waves of popularity in the showyard, and that those who find pedigrees to-day embracing animals belonging to the successive popular families will be justified in calling the animals to which these pedigrees belong "well-bred" animals. In 1878, the first year in which I saw a show of the Highland and Agricultural Society, three lines of breeding were successful in the prize-list. These were the lines of Lochfergus Champion (449), Prince of Wales (673), and Crown Prince—Lochburnie—(207). The first was represented by horses bred from Drumflower Farmer (286), and by Darnley (222), himself a grandson of Lochfergus Champion; the second by horses got by the Merryton horses, and fillies got by him and his sons or cousins; and the third by the champion mare of the succeeding year, as she was the reserve champion mare of that year. In general, it may be said that a well-bred pedigree of 30 years ago should include the blood of either or all of these strains. The champion mare, Lochwood Jess, was got by Steel's Prince Charlie (628), and the champion stallion was Darnley (222). He was also champion in the preceding year. Both Darnley, Prince of Wales, Steel's Prince Charlie, and Old Times (579), had for their dams four daughters of Samson (741), and any pedigree which includes that blood is "well-bred." A few years later, the chief honors in the female classes, especially, were being won by the produce of Lord Lyon (489). These females were characterized by exceptionally good hind legs; they had beautiful flat bones, and that was the day of the ascendancy of "feather" among Clydesdales. Generally, a Lord Lyon cross in a pedigree means substance and a right formation of hind leg. Otherwise, it may mean softness, and a tendency to laminitis. In those days—the early "eighties"—it was no uncommon thing to hear of stallions "foundering." Such a thing is scarcely ever heard of now. In those days, the legs of show animals were "blistered" during winter to make the hair grow on their limbs; to-day, "blistering" is an expedient never resorted to by men who know their business. Excess of hair on limbs is not wanted.

The Darnley and Prince of Wales ascendancy began about the year 1881 or 1882. Ten years

earlier, the produce of Prince of Wales (673) were sweeping the boards. His best representatives then were mostly females; in the early eighties his best representatives—and they were in the very front—were males. But, at the Highland Society's Show at Glasgow, in 1882, Darnley achieved a notable victory. There was a special prize for the best group of five Clydesdales, either sex and any age, got by one sire. The competitors were Darnley, Prince of Wales, and Lord Lyon. The first award went to Darnley. His five were, Macgregor (1487), Top Gallant (1850), Sanquhar (2293), Clan Campbell, and the mare Louisa. The two last named need not concern us much. Clan Campbell was own brother to the dam of the champion stallion of a later day, the £3,000 horse, Prince of Albion (6178). He was himself exported to Australia in 1882. Louisa became dam of the useful little horse, Lothian King (6985), and so faded from memory. The three stallions first named all made history. They were each champions in heavy competition, and first-prize winners both at Glasgow and the H. & A. S. shows. Wherever their names, or the names of their sons or daughters occur in pedigrees, the term "well-bred" may be applied. Of the three, the strongest influence of the past ten years in the Clydesdale world traces to a combination of the blood of Top Gallant and Prince of Wales, in Sir Everard (5353), and that again crossed on the Darnley line, gave the world Baron's Pride (9122). The most striking first successes in breeding with the last-named sire were got by mating him with Macgregor mares. His later successes have come both in that way and by mating him with mares tracing in direct line from Prince of Wales (673).

Looking back over the lists of winning Clydesdale sires for the past decade, we find that in 1899 Baron's Pride was leading, with Prince Alexander (8899) in second place; Sir Everard, (5353), the sire of Baron's Pride, third; Prince of Carruchan (8151), a phenomenal show horse, fourth; Macgregor (1487), which died during 1899, fifth (he was then 21 years old); Lord Stewart (10084), the Seaham Harbor Stud horse, is sixth, and Royal Gartly (9844), seventh. Prince Alexander and Prince of Carruchan were both sons of Prince of Wales (673), invincible in the showyard. The dam of the former was got by Darnley (222), and the dam of the latter by Old Times (529). The relationship between these sires has already been explained. In Prince of Carruchan's pedigree there also appears the cross by Lord Lyon (489), and the cross by Farmer (286). Lord Stewart and Royal Gartly, although not directly got by Prince of Wales, were strongly inbred on both sides to that horse. In the former there was also a Darnley cross. In the following year, 1900, Baron's Pride again headed the list, and has continued to do so until the close of 1907. Next to him stood his sire, Sir Everard (5353), and in third place Montrave Mac (9958), the son of Macgregor and Montrave

Maud, the daughter of Prince of Wales (673), and the most outstanding show Clydesdale mare on record, Moss Rose (6203). After him came, in succession, Prince of Carruchan, Royal Gartly, Handsome Prince (10356), a Prince of Wales-Darnley horse; Lord Stewart (10084); Macgregor (1487), then, of course, tapering off; Prince of Brunstane (9977), a son of Prince Alexander (8899); Lord Lothian (5998), a son of Top Gallant; Royal Carrick (10270), to some extent an outlander; and Prince Robert (7135), a big horse, by Prince of Wales (673) and a mare by Steel's Prince Charlie (628). There is comparatively little that is fresh in that list. The dominant lines of breeding are still those named in the preceding.

The first year of the new century saw the inclusion among the first half-dozen sires of the most distinguished show Clydesdale the world has ever seen. This is Hiawatha (10067). He stands fifth on the list in that year, the four in front of him being Baron's Pride, Sir Everard, Prince of Carruchan, and Montrave Mac. Now, what is Hiawatha, as concerns breeding? His sire was Prince Robert (7135), already referred to. His dam, Darling, was the best mare in Galloway in her time. She won numerous prizes at Stranraer Show. She had a full sister that did the same. Their sire was Auchleach Tom (877), a local horse with a good reputation, and the further analysis of the pedigree gives the Lord Lyon and the Drumflower Farmer cross predominant. This is first-class breeding, according to the canon laid down. Auchleach Tom was all right, but showyard honors were not in his line. He had in his veins the blood of a notable horse of earlier days, Young Garibaldi (972), a favorite breeding horse, whose sire was reputed the grandest horse of his generation. His career was short, but it included H. & A. S. first honors. Prince Thomas (10262), a great, massive, H. & A. S. champion, followed Hiawatha as a breeding sire in 1901. He was of the Prince of Wales and Darnley combination and descent, but various out-crosses came in, giving him unusual substance and weight. He was "well-bred," and a thorough cart-horse in every line.

The list in 1902 was much the same as in 1901, but for the sudden leap into popular favor of the young sire, Royal Favorite (10630). He stood second to Baron's Pride. He is a son of Royal Gartly (9844), and his dam is by Brooklyn, a horse whose dam was by Darnley; and his sire was inbred to Prince of Wales. Royal Favorite is more of Prince of Wales than almost any other living sire. He breeds heavy, big-boned stock, and keeps his place among the leading sires. In 1903, Baron's Pride and Royal Favorite kept their places as respectively first and second. Hiawatha came up to third place, and his son, Marcellus (11110), was fifth. Montrave Mac divided them. The first eight sires introduced no new element, but the ninth was Lord Fauntleroy (10870), and the tenth Clan Chattan (10527).



Baron's Pride (9122).

Most successful sire of prizewinning Clydesdales.

Much of the stock of both of these horses has gone to Canada. They are both very well-bred, sires and dams, and the generations further back on various lines, running into the Prince of Wales-Darnley combination, with an occasional out-cross which did no harm. It is just possible that in the case of the former inbreeding was carried to an extreme. In 1904 the list became stereotyped, so far as the first three sires are concerned. Baron's Pride, Hiawatha and Royal Favorite are the trio. They held that order in 1905, but the first and second continued to hold it through 1906 and 1907 as well. In 1904, sons of Baron's Pride began to press into the first ten. Balmedie Queen's Guard (10966), a great horse, out of a choice Macgregor mare, would have carried his sire's name to victory, but was, unfortunately, hurt when a foal, and could only be used for breeding purposes. He got fifth place, and Pride of Blacon (10837) got seventh place. Labori (10791), a notable son of Hiawatha, and the first horse to win the 100-gs. Brydon Shield, stood ninth, and a horse which introduces a much-needed out-cross came next. This is Marmon (11429), a son of Prince of Brunstane and a noted prize mare. He is big and weighty, and breeds first-class stock. Mr. Bryce's champion mare, Rosadora, is his daughter. Nineteen hundred and five witnessed the further aggression of the Baron's Pride second generation. Baron o' Buchlyvie (11263) was fourth, and Everlasting (11831) fifth. The positions of these two horses were reversed in 1906, Everlasting getting up to third place, and Baron o' Buchlyvie retaining his place as fourth. Another son, Silver Cup (11184), came in as seventh; and yet another, Revelanta (11876), as ninth. No new sire came into the first ten. The results of 1907 were very similar. Baron o' Buchlyvie and Everlasting exchanged places, standing in the order now named; Royal Favorite was fifth, Sir Hugo (10924) sixth, Revelanta seventh, Acme (10485) eighth, Silver Cup ninth, and Royal Chattan (11489) tenth. The last, unfortunately, also died in July. He was got by Clan Chattan, out of a daughter of Baron's Pride. All the horses above named are of the one race and family, except Royal Favorite. Hiawatha stood second, as I have already indicated. Sir Hugo is a great breeding horse, got by Sir Everard (5353), and out of a mare descended from Prince of Wales (673) and an old Scots tribe of mares.

These notes will enable anyone to trace clearly the families and strains of blood in the Clydesdale world which are of outstanding merit. Any animal bred on the lines thus outlined is "well-bred," provided the mating of the representatives of the strains is judicious. This is an all-important proviso. Cases have been known in which the very best sire and the very best dam have been mated, and only "weeds" have resulted. Can a "weed" be well-bred? This is a puzzling question. Is the excellence of the breeding marred when the mating is unsuccessful? Those who are curious can investigate this question. My present task is done.

"SCOTLAND YET."

HORSEMEN'S EXPERIENCE: THIRD-PRIZE ESSAY.

By Walter R. Broadfoot, Huron Co., Ont.

In January of 1895, when very low prices were prevailing, is the starting point of my horse experience. That year we purchased for \$10 a grade Clydesdale mare, which I shall term mare No. 1. She was ten years old, and weighed about 1,200 pounds. The following June we bred her to an imported, Clydesdale stallion, the service fee of which was \$8. The result was a strong filly, No. 2, born in May, 1896. Being short of funds, we were unable to buy a horse to help the mare during the nursing season, consequently our mare No. 1 had to nurse the foal, and at the same time had to take her place on the farm team during the summer months, this team doing all the work on a farm of 100 acres.

No. 1 mare was bred to the same stallion as the previous season, at the same service fee. She foaled a horse foal in June, 1897, which, on account of our carelessness we were unfortunate enough to lose. The foal was kept in the stable day and night the first three weeks, which seemed to make it rather soft and unaccustomed to any bad weather. We foolishly let it out some rather cold nights in June, losing it from inflammation of the lungs.

We again bred the mare to the same stallion, and she dropped another fine filly foal, No. 3, in June, 1898. We bred No. 1 mare again to the same stallion, and, in December of 1898, while we were drawing out manure in deep snow, the mare strained herself sufficiently to result in abortion the next morning. The mare was bred again in May, 1899, to same stallion; but in the meantime she had been lamed, caused by her kicking at a loose horse standing in the stable behind her, with part of his manger hanging to him, in which there were some nails. A nail entered her back joint, allowing the joint oil to run out. This, in my estimation, was the ruining of the mare, as she got so stiff in this one

leg when not at steady work that it was almost impossible to give her sufficient exercise, something which is most essential for a mare carrying a foal. In this case the foal was deformed at time of birth, no doubt due to lack of exercise, and it required the aid of three men, besides a competent veterinarian. However, this did not remedy the trouble, as both mare and foal died, the mare having hurt herself inwardly. Thus, we were left with only two young mares bred from the old mare, No. 1. They were, No. 2, foaled in 1896, now four years old; and No. 3, foaled in 1898, now being 2 years old.

Not caring to invest in more brood mares while having two fine young mares at our disposal, we bred No. 2 mare in July, 1900, to her own sire, something I have been sorry for ever since. The colt, No. 6, was foaled the following June, 1901; he had good quality, but had not the desired size that the present horse market demands. He was worked off and on after three years old, and sold when four years old for \$160, where, if better judgment had been used in breeding his dam, he might easily have brought \$200. During the summer of 1901, after No. 1 mare died, we purchased another mare, No. 4, for \$115. She was in foal to a Canadian-bred Clydesdale stallion, and foaled a horse foal, No. 5, in May, 1901. This colt was started to work at two years old, and used whenever needed, until three years old, when he entered the farm team, and held his place there until five years of age, when he was sold, in good working condition, for \$195. This horse's mother, mare No. 4, we were not able to get in foal, and, consequently, she was sold for \$85 in fall of 1901. Although we sold this mare for \$30 less than she cost, we were returned good value for the \$30 by the season's work out of the mare, and also the foal.

We bred No. 2 mare in the season of 1901 to an imported Clydesdale stallion, fee \$10, and she foaled mare No. 7 in June, 1902. She was bred again to the same stallion, and No. 3 mare, now being four years old, was bred to an imported Shire stallion, service fee \$14. Both mares were fortunate enough to raise a foal each the following year. No. 2 mare had a mare foal, No. 9, which weighed 1,450 pounds when 25 months old, and was sold when 32 months old for \$225. No. 3 mare's foal, horse No. 8, a half Shire, was worked on the farm from the time he was three years old until he was three years and nine months of age, and then sold—not fat, but in good condition—for \$215.

We bred both mares in season of 1903, but got neither in foal, and in the fall of 1903 we were unfortunate enough to lose No. 3 mare in a runaway accident, leaving us with only the other mare and a two-year-old colt to do our work. The next season, No. 7 mare was two years old, and, having read of the good results obtained by Scottish horsemen in breeding two-year-olds, we decided to breed her to a Clydesdale stallion, at a fee of \$11. She foaled horse No. 10 in June, 1905, but had it not been for our constant watch over her we might easily have lost both mare and foal. She was unable to foal herself, necessitating the services of a veterinarian, which we were not long in procuring, and, although it required the strength of five men to deliver the foal alive, we at last accomplished the task.

No. 2 mare, due to foal in June, 1905, aborted in January, caused, I think, by our attempting to disinfect the stable by burning sulphur after a cow had aborted. We did not breed mare No. 7 this season, intending to give her a rest and a chance to fill out, but No. 2 mare was bred to a Clyde stallion, at a fee of \$11, and she foaled mare No. 11 in May, 1906. Both mares were bred in 1906 to Clydesdale stallions, No. 2 mare to an \$11 one, and No. 7 mare to one at \$14. Last summer they both raised their foals.

A study of the above will prove that, out of twelve foals born on the farm in twelve years, that we had a chance to save, we lost only one, and that one through carelessness. I believe that 75 per cent., or even more of the foals that die before being one month old are killed with navel ill, sometimes called joint trouble. Everybody who attempts to raise foals should be prepared with a bottle of disinfectant. Creolin, or a five-per-cent. solution of carbolic acid, are recommended, and be sure to treat the navel before it touches any foreign matter, such as manure or unclean straw. The navel should be treated three or four times a day until almost dried up.

As soon as the foals show a tendency to eat, they are given about all the whole oats they will eat up clean, which is supplemented with good clean clover hay. The oats are increased as the colts grow older, until about six months old, when they will be getting about six pounds each per day. This is continued until spring, when they go out to pasture, where they remain until the following autumn, when they are again stabled and put on a ration of clover hay and oats—3 pounds per day I consider quite sufficient to winter a yearling, and keep him in good growing condition. The two-year-olds are fed almost the same as the yearlings. The breeding mares are not kept very fleshy, but are fed throughout the

winter months on three pounds oats per day, and increased if any extra work is to be done. But the work is divided as evenly as possible, to enable us to give them regular exercise, our work consisting of hauling out manure, and such like. This is also a very good job to do with the colts while training.

With oats at 34 cents per bushel, clover hay at \$6 per ton, pasture at \$1.50 per month, and service fee of stallion averaging \$12, I consider it costs \$120 to produce a colt three years old, when they will be able to earn their own feed. No allowance is made for price of turnips, which is trifling. Of these, they get two each every day, excepting the foals, which receive about half quantity. And we also boil about two gallons of oats and barley every day, which is included in above figures, and feed this mixed with chopped oats quite freely to foals, giving balance to older horses. All horses other than foals should not get any more hay than they will eat up clean in two hours after being fed. Hay, when dusty, should always be dampened enough with water to allow all dust to pass through the stomach, where it does no harm. Salt should also be supplied at least twice a week, as it improves the appetite and aids digestion. The young colts are generally halter-broken and tied in stalls before they are a year old, when it is much easier done than later on.

The last four horses sold brought \$795, and, raised at a cost of only \$480, proved horse-raising to be a very profitable business. Five mares and one gelding are still on hand, valued at \$950; No. 2 mare, now 11 years old, valued at \$150; No. 7 mare, 5 years old, at \$275; No. 10 horse, 2 years past, at \$200; No. 11 mare, 1 year past, at \$125; and two foals at \$100 each.

I consider it more economical, with the help of young colts, to work mares while suckling their foals than to keep aged horses for this purpose.

STALLION INSPECTION.

Editor "The Farmer's Advocate":

Seeing letters from different rural points on various subjects, I write, hoping my letter escapes the waste basket, and that it does not weary you or readers of your valuable paper. I am glad to see that our Provincial Government is willing to lend a helping hand to the farmers. Every other class and profession have received consideration, either directly from the Government, or a bonus from town, city or country. Even the teaching profession, which up to quite recently was adjusted by supply and demand, now receives consideration.

In the near future, I believe, we are to receive some valuable help and guidance in the horse industry, which at present is a very important one to our fair Dominion, but I confess I am at a loss to see which, the farmer, the horse importer, the stallion owner, or the professional horse inspector (who is at present out of a job), will receive the greatest benefit. The farmers and breeders who have, in the past, been using the best heavy sires obtainable, have had their reward, and have met with a good home market at from \$200 to \$300 for their horses. The other class of farmers, that have been guided by their consciences, and patronized the cheaper horses, and thought that a horseman who would ask over a \$10 service fee wanted to rob his patrons, have also enjoyed the good markets, and disposed of their surplus horses at from \$150 to \$225, but yet fail to see that the cheap service cost, at day of delivery, from \$50 to \$75. Now, Mr. Editor, which class of farmers are going to be benefited by an inspector and a licensing law, and the grading of stallions 1 and 2? A horse is pretty well picked to pieces before he makes his second round of a route. If inspection could be so arranged and controlled that this country could not be used for a dumping ground by importers for a lot of imported culs that would not compare favorably with our Canadian-bred fillies with only one and two crosses, there might be some benefit derived from it, but these can scarce help but deteriorate our horse stock. The fact that they are pure-bred (if they are) leaves them more likely to imprint their undesirable qualities. There is, however, plenty of room for good quality stallions and mares, and also for a better class of farm help, but deliver Canada from the scum and pauper population of the Old Country, in the form of horses or men. And why discriminate against our own Canadian grade stallions, when some of the imported horses have not even one numbered, recorded dam, though some have one and two, and some more. I am of the opinion that, if the men in the stallion business were to receive more encouragement from their patrons, and had not to tramp their horses over such long routes as some have to cover, and also to contend with all the old screws that are annually resurrected and peddled at \$10 and less, the men in the business would offer to the public the best that could be procured in the British Isles. An instance of this can be seen in the destination of the last Clydesdale International champion.

MIDDLESEX HORSEMAN.

CHAMPIONS THE PERCHERON.

Editor "The Farmer's Advocate":
I am glad you have opened a column for the purpose of discussing the draft horse of this country. In the January 23rd issue there is an article written by a London Times correspondent which I do not think is very sound doctrine. He advises the crossing of Shires and Clydesdales to produce a better draft horse. It is a well-established fact that the Clydesdale is a model dray horse. This is on account of his splendid feet and well-sprung hocks and fetlocks. How could this be improved on by crossing with the Shire? He also claims that the Clydesdale has harder bone, tighter legs, freer action, greater activity, and altogether a gayer and more stylish appearance than the Percheron. In this he shows that he knows very little, if anything, about the Percheron, as the very reverse is the case, and that is one reason why the Yankee prefers him. And, again, they are more intelligent, more docile, have more stamina, and are altogether a more pleasant horse to drive than either the Shire or the Clydesdale. While perhaps a little lighter in bone, they are seldom known to have scratches or sappy legs, complaints so common with other breeds. Yet, withal, I do not think it wise to cross them with high-grades of either breeds. The Percheron is an excellent horse to cross on the small chunks of mares that are so plentiful throughout the country. In so doing, farmers are taking a step in the direction of developing a draft horse, as well as producing a very useful animal. One notable feature about the Percheron is that he is able to impart to his offspring size and ruggedness, without detracting from their elegance.
Grey Co., Ont. WM. A. ATCHESON.

GOOD HORSES AND BOYS.

Editor "The Farmer's Advocate":
The letter in your issue of January 9th, re "Imported Horse and Boys," seems to have drawn out a good deal of criticism from some of our new citizens. Until it is necessary to import horses to keep up and improve our stock, one cannot help deploring the number of inferior and blemished horses that are being brought to this country. Many good horsemen think as I do, that a good registered, Canadian-bred horse is preferable to an inferior imported one, and a little too much preference is given to many horses merely because they are imported.
As regards boys, we want all the good ones we can get, but, as in the case of horses, too many of the inferior are being dumped in Canada. Many of them are little good here, and I do not believe they were any good where they came from. These are the ones that are the cause of any prejudice that exists. The good ones soon become Canadianized, and that is what we want. If some of the immigrants were a little less inclined to compare the finished condition of England with the unfinished condition of Canada, and had less to say about how they did things at home, and learn how to do things as we do them, it would be better for them and their employers.
In conclusion, I would say, good horses and boys for me, either Canadian or imported; the best is none too good for Canada.
Grey Co., Ont. CANADIAN FARMER.

LIVE STOCK.

CONDITIONS OF THE PORK INDUSTRY.

Editor "The Farmer's Advocate":
I have been reading with great interest the various suggestions and expressions of ideas with regard to the difficult situation in which the farmer who has any pigs on hand finds himself placed. I had the pleasure of hearing all that was said on this question at the Guelph Fat-stock Show, and am not one of those whom Prof. Day says have no use for the experimental stations, as I believe they are of incalculable benefit to the farming community. But, at the same time, I must beg to differ from the opinion of the Professor and others who state and attempt to show that the farmers are acting like madmen in disposing of their hogs, and that money can be made out of hogs, even under the present condition of things. I have been more than forty years handling and experimenting with hogs, and state to-day, as I did when the bacon-hog fad (for fad I still call it) swept over the country, that that class of hog cannot be produced under from 6 to 8 cents per pound, according to the price of grain. It will take the 8 cents now to let the farmer out with ordinary workman's wages for his time.
I remember conducting a test of my own a few years ago, in which I selected, fed and cared for the hogs myself, carefully weighing all food consumed, and using every means to economize and still keep the hogs going ahead. Wheat was worth 70 cents, barley 45 cents, peas 65 cents, and corn 52 to 56 cents; turnips and mangels I bought for 5 and 6 cents per bushel for the hogs under test. The season was from early fall

through winter. The hogs did well, and I sold in the spring at \$6.50. After deducting expense of food, which, you notice, was very cheap—about two-thirds the present price—I had \$1.30 per hog for my time, skim milk, and other little extras.

The fact is, the farming community have been testing the matter from a business standpoint, and all the juggling of the packers with the prices, such as has been going on lately, will not alter their opinion. They are out of the business to stay. There will not be hogs enough within twenty miles of this place to supply the local trade. No farmer is fool enough to believe that the real value of hogs can alter from day to day, from 50 to 75 cents or a dollar, when the slight difference in the price of bacon in England would not make a difference of more than perhaps 5 or 10 cents per cwt., at most. The few hogs that will be kept from henceforth will be for local use, and of the Berkshire, Chester and Poland-China type. The high-backed, long-jawed brute (the packers' darling, though he does not love him well enough to pay for the cost of producing him) has made his final grunt and disappeared from the scene.
R. L. HOLDSWORTH.
Durham Co., Ont.

THE FEEDING OF FARM ANIMALS.

[Synopsis of an address before the New Brunswick Farmers' and Dairymen's Convention, by Prof. M. Cumming, Principal Nova Scotia Agricultural College, Truro.]

In the previous discussions at the convention, no point had been more strongly put forward than the value and importance of the various breeds of live stock to the Maritime farmer, for they not only provided a sure source of revenue, but would yield that revenue at little expense to the fertility of the farm. A feeding steer would have in his voidings 90 per cent. of the fertility which was in food. A dairy cow giving an aver-

and which was costing about \$80 a year for feed. The visitor considered this an outrageous amount, compared with the \$40 his own cows cost him; but when it was pointed out to him that the cow was giving as great a return for the \$80 she was costing as 3½ of his cows, costing \$135 for feed, were doing, he began to appreciate the value of profitable stock rather more than he had previously.

RELATIVE ADVANTAGES OF BEEF-RAISING AND DAIRYING.

There had been a discussion at the convention on beef cattle, and, incidentally, as to whether there was more profit in that branch of farming than in dairying. Some time ago the students at the College were arguing the same question, and those who favored beef production did so for the following reasons: Beef cattle required (1) less labor, (2) less skilled labor, (3) more could be kept with the same amount of labor because coarser products were consumed, and more manure produced; (4) made holidays and Sundays less irksome; (5) required less capital in buildings and equipment; (6) their manure was more valuable; (7) less trouble with "blanks," and (8) help out the man of mature years who is resting on his oars, and is satisfied to keep up his farm with a fair income.

Those in favor of dairying claim that that industry (1) presents many instances of much more individual profit, even making full allowance for labor; (2) they gave this revenue regularly, thus helping out the man of limited capital; (3) it affords a better chance to keep skilled labor at a profit the year round; (4) it gives a man a better chance to keep pigs and poultry, etc., at a profit; (5) when only butter is sold, the manure product is fully equal to that of beef cattle; (6) in beef production there was trouble, as evidenced by the markets, in competing with Western beef, but dairying afforded a better chance, even if the cost of production were higher and the products of a perishable nature; (7) it affords a better opportunity.

If those arguments were solid, then the best farming outlook was along the dairy line, but there are whole sections, and parts, perhaps, of every section, where beef-raising ought to be and can be carried on at a profit. A good deal had been said that day about the dual-purpose cow. For his (the speaker's) part, if he were a beef farmer, he would own beef cows capable of giving a good flow of milk, but would call them good-milking beef cattle. If he were a dairyman, he would keep that sort of cow as far away from his farm as possible. Then, as to feeds, the Maritime Provinces were essentially adapted to the raising of hay, green fodder and roots, but, with some exceptions, they did not produce grain as cheaply as places further west, and the farmer ought so to arrange his farm as to get the greatest profit from those products.

CLOVER HAY BETTER THAN TIMOTHY.

With regard to hay, if they were to grow it at all, it would certainly be more profitable to grow only the best quality. Whether for dairy or beef cattle, clover hay was much the most efficient, and would help to save the grain bill, at less expense to the fertility of the soil. In roots, these Provinces easily excel the West. They form a most cheap and desirable feed for fattening cattle and also inducing a good milk flow. With roots, it was possible to use cheaper and coarser feed, and they ministered to the health of all stock. The quantity to be fed varied, of course, with the animal. In some cases, one or even two bushels per cow would not be too much, but about 40 pounds a day would be found an economical amount. Too much could not be said as to the value of forage crops. Peas and oats mixed were particularly valuable, and perhaps more easily grown in some parts than corn. If cows are milking, their use will maintain the milk flow, and, if dry, they would promote condition, and were most valuable for beef cattle and sheep.

The winter, which, up to February 1st, had been mild throughout the Dominion, took a sudden change about that date, and low temperatures, accompanied by heavy snowstorms and drifts, have prevailed throughout Ontario and Quebec.



Berkshire Sows.

Winners of first prize and breed cup for pair under twelve months, and reserve for championship, Smithfield Show, 1907. One of these was grand champion as best single pig in the Show. Shown by J. A. Fricker.

WANTS DUAL-PURPOSE SHORTHORNS IN MUSKOKA.

Editor "The Farmer's Advocate":

The editorial in your issue of January 9th, re the dual-purpose cow, interested me very much, for the reason that I believe, if acted upon, the result will be of very great benefit to a large number of stock-raisers. Ever since coming to this country, just twenty years since, notwithstanding the opinion of dairymen and speakers at Farmers' Institute meetings, I have held solidly to my opinion, and expressed same, that the Shorthorn cow can fill the dual purpose as a good milker and a beef animal as well, my opinion being based on experience of many years in England, where I had a herd of 26 Shorthorn cows, which filled the bill exactly. It was a sight to see them leaving the pasture field for the milking shed, with their immense udders, that inconvenienced them in their movements. These cows, I might say, were pure-bred, although not registered, the practice being to purchase every year a Shorthorn bull, not registered, but pure-bred, from the Derbyshire district (the cheesemaking district), using him one season and grazing him the next, rearing our heifer calves from the best milkers in the herd. We, as farmers, were not accustomed to weigh or test the milk from these cows, but I am positive that any one of them would have reached the 7,000 pounds a year, and many of them considerably more. The steer calves, and heifers not needed for the dairy, were raised up to first-class beef at two to two and a half years old. In our farm and business here we need, for four months in the summer, as much milk and cream as twelve to fifteen good cows can produce. In that same period we need twenty of the best beef cattle that can be grazed. In the winter we have a good market for butter. I am well sure that, could we procure the milking strain of Shorthorn, or Shorthorn grades, we could meet these requirements. Unfortunately, in the past years, from the standpoint of the dairymen and the judges in the show-ring, the beef type of the Shorthorn animal has crowded out the milking strain. In my opinion, this is to be deplored, as there are many districts—Muskoka one of them—in which the dual-purpose animal would be an advantage, there being so much rough ground for pasturing young cattle. We would like to get a male animal from a dam that has proved herself a good milker, but one does not know where to find that milking strain. The Shorthorn advertisements we read run, I might say, without exception, on the beef type—"heavy-fleshed, deep-set animals," from which we should not expect to produce a dairy cow. On reading your editorial, which coincided so exactly with my own views of the matter, I felt I must express my appreciation of the remarks. I trust those in favor of the milking strain of the Shorthorn cow will have the effect of producing many more of these profitable animals than the farmer has of late years been able to secure.

MUSKOKA FARMER.

"BLACKS" AT THE BLOCK.

The Aberdeen-Angus breed of cattle and its crosses have won more championships at the fat-stock shows of the United Kingdom and America than any other two pure breeds and their grades put together.

Official reports from Scotland for the Board of Agriculture combine to repeat for the fat-stock markets the old story that the Aberdeen-Angus and their crosses keep the lead for price per live cwt.

As a sample, the mid-December report from Dundee says that the top quotation for an Angus bullock of 12½ cwt. was 42s. 2d. per live cwt., while 11 of the same order fetched 41s. 6d. on the average. At Glasgow, twenty Angus crosses brought 40s. 6d., and three nice, light-weighted ones 42s. 9d. At Perth, the first Angus bullocks were reserved for the local shows, but the fair run of the polled bullocks in the market averaged 40s. per live cwt. The Aberdeen Sales had a consignment of pure-bred polled steers from His Majesty's Abergeldie herd, which brought from 50s. to almost 60s. per live cwt. for the "tops." These were, of course, exceptional animals from a noted herd.

In thirty-eight years, a pure-bred Aberdeen-Angus has been champion at the Smithfield Show eleven times, while a first cross of the breed with the Shorthorn has won twice. A more remarkable fact is that a pure-bred Aberdeen-Angus has taken the heifer championship sixteen times. Then, for best beast at Smithfield, bred by exhibitor, the late Queen Victoria granted a Challenge Cup for this in 1894, and, after a year's interval, the Cup was continued by King Edward. In thirteen years, an Aberdeen-Angus has proved victorious in this contest seven times, a Shorthorn-Aberdeen-Angus cross once, and an Aberdeen-Angus-Shorthorn cross once, Polled blood being thus in the ascendancy nine times out of thirteen trials.

The result of the carcass competition, conducted under the auspices of the Smithfield Club, need only be referred to in passing. In 1904 the London Butchers' Company granted a Challenge Cup for best carcass in the show. The wins in order have gone twice in succession to an Aberdeen-Angus-Shorthorn cross, and once to a pure Aberdeen-Angus. The outcome of the recent carcass competition was that the Aberdeen-Angus took first and championship with a steer under two years; also second; while an Aberdeen-Angus and Shorthorn cross was reserve. In older steers, an animal with two crosses of Angus blood to one of Shorthorn, won, while one of the same breeding came fourth. For the heifer class, an Aberdeen-Angus took second, a Galloway-Aberdeen-Angus cross third, and an Aberdeen-Angus and Shorthorn cross fourth. At the sale, the second-prize heifer carcass fetched 6s. per stone of 8 pounds, against 5s. 2d. made by the first, a Sussex and Shorthorn cross. The champion animal weighed 1,264 pounds alive, and his carcass result was 864 pounds.

At eight International Christmas Shows in Chicago, a pure Aberdeen-Angus has won thrice, and been reserve thrice; a heifer grade of the breed has won once, and an Aberdeen-Angus-Shorthorn cross has been reserve once. For 20 years in succession, the Chicago Christmas Show championship for car lots has gone to the Aberdeen-Angus or their high grades, almost pure-bred Polls. The December carcass competition (1907), at Chicago, was to a great extent a variant on awards made in recent years. In yearlings, first and second went to grade Angus, and fourth to an Angus. In two-year-olds, a grade Angus led, and an Angus came second, fourth and fifth. The leading young steer weighed 1,096 pounds alive, and the carcass was 691 pounds, or 63 per cent. The second dressed 64.8 per cent., and the fourth 65.8 per cent. In the two-year-old class, the winning steer scaled alive 1,310 pounds, and dressed 873 pounds, or 66.6 per cent. The second dressed 65.8 per cent., and fourth 62.8 per cent.

The Smithfield "marvel" was Mr. Clement Stephenson's heifer, *Luxury*, the 1885 champion, which dressed a fraction over 75 per cent. Is it any wonder that the practical Americans class the Aberdeen-Angus as the "breed that beats the record," and the one that provides "market-toppers"?
Glasgow, Scotland. JAS. CAMERON.

EXPERIMENTS FOR COMPARISON OF FEED VALUES.

Editor "The Farmer's Advocate":

I believe in the value of experiments, as opposed to guesswork, and I also believe that many of the experiments that have been conducted at the O. A. C. and the different experimental farms are of great value to the farmers of Canada, especially those that have resulted in the introduction of improved varieties of grain, etc. But one class of experiments that has always impressed me as being "a weariness of the flesh," without corresponding results, is that which seeks to show, through feeding, the comparative value of the different feeds and mixtures for farm stock.

Let us take, as an example, an experiment in feeding swine, with this object in view. In most cases that have come under my notice, the general plan is to select one or more groups of pigs that are supposed to be uniform (?), select anywhere from two to a half-dozen—or even more—different rations of single or mixed feeds, ground or unground, etc., and then extend the period of feeding over the same length of time for each group.

In order to get the necessary uniformity, let us notice the different qualities that enter into the proposition. The following are some of them: Age, size, weight, shape, management previous to test, feeding capacity (which varies greatly in individual animals from the same litter), constitution, and possibly breed. A few questions suggest themselves here:

1. Will experimenters ever get such uniformity?
2. If, by any chance, they should get it, would they know they had it?
3. If they could be sure of this, could they know, at the end of the experiment, that there had been no conditions affecting the health of one or more of the animals in one group, that may have escaped notice?

I need not answer these questions, but will suggest a plan which, I believe, will prove much simpler, and will, at the same time, make it possible to arrive at conclusions that will be more conclusive. I would suggest, first of all, the selection of one group only, of about eight to ten pigs, of a type which would seem to give promise of carrying the test along successfully to the end of the feeding period. Then, two rations only should be used for the first test, one of which should be a standard ration, and which should form the basis for similar tests until each of the likely feeds or mixtures have their comparative values placed upon them.

Now, as to feeding, if we suppose that the

test is to be extended over a period of three months, let the rations be fed alternately in periods of from one to two weeks; but, as the daily gain will likely be either increasing or decreasing during the test, according to the weight of the pigs, let an extra week be added for the ration that began the test, averaging this ration up for seven weeks, and the other for six weeks, the pigs, of course, being weighed at the end of each week or two weeks, as the case may be. Since however, the effects of one ration will extend into the period for feeding the next ration, it might be well to make the weighing a day or two after making the change. This method would require one group less of pigs for a given number of feeds to be tested, as the standard ration would enter into each test; and, since the groups need not be uniform, several feeds could be tested at one time as readily as by the usual method, and more reliable information gained in a much shorter time. If one or more pigs become more or less indisposed during the test, the condition could not continue many days without entering the period for the next ration, so would not materially affect the final results; and if the sudden change of rations show more adverse results in the case of one feed, this would simply help to lower its comparative value, although probably not in exact proportion.

There may be other conditions that affect the relative value of the two methods, and of which I would willingly be reminded, but I think it must be conceded that, with so many groups of animals in one test, the conditions are so far from being uniform that the results obtained will, necessarily, be very unreliable.
N. E. BODY.

Brant Co., Ont.

[Note.—Our correspondent has drawn pointed attention to some sources and elements of error, but we fear his alternate plan would only render confusion worse confounded. To our mind, the only way to minimize error is to average the results of a large number of experiments. There is nothing much more misleading than dogmatic conclusions drawn from a single experiment or from a limited personal experience.—Editor.]

THE FARM.

ENGLISHMEN OF THE RIGHT KIND.

Editor "The Farmer's Advocate":

"The Farmer's Advocate" is the most welcome friend of any periodical that enters our home. Congratulations on the Christmas Number, and the masterly way in which it is edited. I take notice, in a recent issue, of a subscriber who has no use for Englishmen. I think it is no more than fair, as a Canadian farmer, to give my experience, which is quite to the contrary. Last winter I made application to Dr. Barnado's Home for a boy. The application was accepted, and the boy proved to be a bright little fellow, with plenty of ambition, which required some control. I wrote to the boy's mother, inquiring if she could give me information where I could get a good honest young man that knew a little about farming and carpentering. I received word by return mail of just the kind of a man I was looking for, who had long wished to come to Canada, but could not get money enough to come out with. After exchanging a few letters, I sent him the required money, and with great promptness he arrived. After the thirty days' trial, I was convinced that I had got the right man. The ways of this country are quite different from what he was used to, but, with a little showing and patience, I had no trouble in getting him into the ways of doing work. Once showing is all that is necessary. I would rather have him now than one-half of the Canadian boys in our neighborhood. He has been here now about three months. He plowed side by side with me last fall, and, in fact, is working side by side with me every day, both on the farm and in the sawmill. He brought his carpenter tools with him, and has put the outbuildings in shape for me to my entire satisfaction. The young people of our church choir have invited him into the choir. He seems to be the favorite of all who have made his acquaintance. I think the emigrant agencies have made a mistake in not making a better selection, sending us out bookkeepers and clerks and young men from the cities who have no knowledge of hard work and the rough-and-tumble of our Canadian farm life, for we, as farmers, certainly have to work hard; and we have the same experience with our young men from our towns and cities, who are not worth their board and lodging, but I know by experience that there are plenty of worthy young men in England of the right kind who would make a good showing if they could only get the chance. I am interested in the future welfare of "The Farmer's Advocate," which has my sincere respect.
Kent Co., Ont. EASTGATE HUMPHREY.

ALFALFA AS A PASTURE CROP.

Editor "The Farmer's Advocate":

The growing of alfalfa in this part of the County of Peterborough is at present rather a vexed question. As a rule, when we seed with grass seed for hay, we expect to pasture the meadow after the hay is taken off (very few engage in the soiling method). We were told by one of the speakers sent to assist at the meetings of the Farmers' Institute this year, and one last year, that we must not pasture the alfalfa. As I have been growing alfalfa for a number of years in a mixture of seeds for hay, also in a smaller way as a crop by itself, and have always pastured it, and have found it the best pasture we can get, I would like to hear from some practical farmers who have grown it for a number of years as to their experience, not what someone else has told them, as to pasturing it after it has been cut for hay. As "The Farmer's Advocate" is taken by a great many of the progressive farmers in this County, anything brought out as to alfalfa as a pasture, would be of benefit to them.

R. E. BIRDSALL.

[Note.—Alfalfa is unquestionably one of the best pasture crops grown, furnishing a large amount of exceedingly nutritious feed. It should not, however, be grown alone for pasture, as it is liable to cause bloating—rather more liable than clover, we believe. In a mixture with grasses, it is quite safe. The danger of injury to alfalfa by pasturing has been somewhat over-emphasized by some speakers. It is true that pasturing, especially in the autumn, is rather hard on alfalfa, and may injure the stand, if it does not lead to outright winter-killing. For this reason, it is extremely unwise to pasture an alfalfa meadow intended for soiling or for the production of hay, as such a meadow is too valuable to take any chances with; but the man who makes use of alfalfa in a pasture mixture is doing a wise thing, even although it does eventually succumb to grazing and give place to white clover and grass. It is so valuable while it lasts that it should be omitted from no permanent pasture mixture on reasonably well-drained soils. The one disadvantage of growing it in a mixture for hay is that it is almost certain to become over-mature and woody before the hay is cut. Experience of readers in this and all other points concerning alfalfa is freely invited.—Editor.]

BUILDING INQUIRIES.

Editor "The Farmer's Advocate":

As I am thinking of building a cement-concrete house this summer, and have been advised to write to you for information, I would like to know if you have ever heard of or seen a concrete house built with, say, about a 2-inch air-space in center of wall, and if you think the wall would be as strong built in that way, tied together with irons, same as brick, if the foundation was built of two 6-in. walls, with 2-inch air-space between, next story two 5-in. walls, and top story two 4-in. walls. I know they build with cement blocks, but think this would make a better air-space, and think that I would not need to lath for plaster, but could plaster on wall, which would save quite a little in the expense of lath strips and bond timber. If so, please let me know what is the best way to build, and what is the best material to use, crushed stone and sand, or gravel, and what proportions should be used?

R. H. W.

Editor "The Farmer's Advocate":

As I am intending building over my barn, taking two down, and building one large one with basement, I would like if you would be good enough to publish some good barn plans, both of upper and lower part of barn. My barn for cattle will be 60 x 44 feet. Possibly there was some new barn built last year that would be an improvement on older ones; and if you would kindly publish some plans, it would be a great help to those building this spring.

W. T.

In addition to the above, we have received a request for a barn plan about 100 x 46 feet; also for one 36 by 75 feet, to accommodate 20 milch cows and 10 horses.

Subscribers who have built up-to-date and satisfactory barns, which they think would answer any of these needs, are invited to send us plans and description, together with particulars as to material and cost. Those who send good plans, available for publication, will be compensated for their trouble.

Attention is also directed to the inquiry regarding hollow cement walls for a house. Plans, photos and descriptions of new houses, especially those of moderate size and cost, are invited, on the same terms as the barn plans.

LEGUME BACTERIA.

SEED INOCULATION BY CANADIAN FARMERS IN 1906 AND 1907.

Prepared for "The Farmer's Advocate" by Prof. S. F. Edwards, Bacteriologist, O. A. C., Guelph, Ont.

The Bacteriological Laboratory of the Ontario Agricultural College has in press a bulletin giving the results of Canadian experimental work on the inoculation of seed. The process consists in the application to the seed to be sown of a culture of a certain species of bacteria which, in conjunction with the plant, has the power to draw nitrogen from the air and store it up in the plant. The method is applicable to plants of the bean family, or what are commonly spoken of as the pod-bearing plants, the commonest of which that man uses are the clovers, lucerne (alfalfa), vetches, beans, soy beans, sweet peas, locust, peas, winter flat peas.

DISTRIBUTION OF CULTURES IN CANADA.

The Bacteriological Laboratory began the distribution of cultures to Canadian farmers in the spring of 1905, and during that season 246 cultures were sent out. A circular letter was sent to all who had received cultures asking for a report of the success or failure of the experiment. These results were received and tabulated by Harrison and Barlow, and published, with a short historical account and discussion, as Bulletin 148 of the Ontario Agricultural College.

During the season of 1906, cultures were again sent out from this laboratory, three hundred and seventy-five cultures being distributed to nine Provinces and four foreign countries. As in the previous years, blanks were sent to the recipients of the cultures, asking for a report as to their success or failure with the experiment. Of a total of 120 reports received, 72 showed a benefit to the crop by the application of the bacteria to the seed, as against 48 in which no benefit was apparent.

During the spring of 1907, the distribution of cultures was continued, applications being received from ten Provinces, United States, England and Scotland.

The total number of cultures sent, with the exception of 118 cultures sent for the Agricultural College at Truro, N. S., reports of which were received by that college, was 372. In answer to a request for a report upon the use of the cultures, two hundred and fifty-seven replies were received. In many cases no untreated seed was planted for comparison. Owing to a late, wet spring, some farmers did not sow the crop intended; in some cases the entire crop failed, by reason of the unfavorable season, etc. Eliminating, then, all reports which did not give actual results as to the success or failure of the cultures to aid the crop, the number available for judging results is 124, the results being shown in the table, which follows:

RESULTS OF SEED INOCULATION.

Province	Benefit	No Benefit	Total
Ontario	36	28	64
New Brunswick	2	1	3
Saskatchewan	1	1	2
Alberta	1	1	2
P. E. Island	2	1	3
British Columbia	1	1	2
Quebec	3	1	4
Manitoba	1	1	2
Nova Scotia	1	0	1
Indiana	1	0	1
England	1	0	1
Ohio	1	0	1
Total	48	36	84

As seen from the table computing the total number of reports available, the number in which benefit was derived from the application of the culture to the seed is to the number in which no benefit was apparent as 67 to 57.

The bulletin will also give extracts from the farmers' reports, some of which are very favorable for the use of cultures.

Discussing the use of the cultures, the bulletin will say, further:

"The cultures which we have sent out to Canadian farmers have been isolated and cultivated in this laboratory, and each culture was from its appropriate host-plant. Thus, the alfalfa culture was isolated from a nodule on the root of an alfalfa plant, the vetch culture from the vetch nodule, and so for the red clover, white clover, pea, field bean, etc.

"When a pure culture was once obtained, it was transplanted at intervals, and a record of each transplantation was kept, so that each mother culture, and therefore each culture which we sent out, can be traced back to its original nodule.

"The cultures were isolated in the spring and summer of 1904, and had, therefore, been grown on artificial media from two years and a half to nearly three years, and in that time had been transplanted several times. The longest period between two successive transplantations was in some cases more than a year.

"In preparing the culture media, we took pains to exclude combined nitrogen, and the media was all nitrogen-poor. Five of the eight cultures were proved; that is, they formed nodules on the roots of their appropriate host-plants in the absence of all other bacteria.

"During the spring of 1908, cultures of the nodule-forming bacteria will again be distributed from this laboratory to Canadian farmers, upon receipt of twenty-five cents for each culture, which is sufficient to treat sixty pounds of seed. It is expected, further, that the recipient of the cultures will report the results of his experiment, sowing some uninoculated seed for comparison."

Those who intend to use the culture, should read what follows:

These bacteria, under natural conditions, combine the free nitrogen of the air only in association with plants of the bean family. Therefore, it is only a waste of time and material to apply the culture to potatoes, oats, wheat, etc. As plainly stated on each bottle, the cultures are carefully prepared for one species of plant, and if used for other species failure of the experiment may be expected. Plain directions for the use of the culture accompany each bottle, and these directions must be implicitly followed if good results are to be expected.

WHEN INOCULATION IS OF BENEFIT.

If a crop is thriving, it indicates that either the soil is plentifully inoculated with the bacteria necessary to produce nodules on that particular species, or else that the soil already contains an abundant supply of nitrogen upon which the plants can live. In either case, the use of artificial cultures would be of little if any benefit. On the other hand, if the crop fails to thrive, and upon examination, no nodules are found on the roots, it is an indication that the culture should be used. Sometimes the use of the culture proves beneficial to the crop when a few nodules are already present. Of course, failure to thrive may be due to other causes than lack of nitrogen. The soil may lack available potash or phosphoric acid, or may be deficient in lime. Inoculation does not and can not remedy this.

When it is intended to sow seed of a legume which never has been grown upon the soil, inoculation of the seed should prove beneficial. This is true, even if other legumes have been grown on the same soil, as the bacteria forming root nodules on one species do not necessarily form nodules on the roots of other species.

If soil once becomes thoroughly inoculated, as indicated by a successful crop and the presence of numerous nodules, the use of artificial inoculation with later seedings is considered unnecessary if a three-year, four-year or five-year rotation is followed.

It should be definitely understood that the use of artificial inoculation with bacterial cultures will in no way compensate for carelessness in selection of seed, preparation of the soil, or subsequent care of the crop.

ADVANTAGES OF SEED INOCULATION.

There are certain advantages over other methods to be gained in the inoculation of seed. Soil may be transplanted from a field which has successfully grown legumes, and used as a top-dressing on the field to be sown, but the method, especially if the soil is brought from a distance, is cumbersome and expensive. Furthermore, noxious weed seeds may be carried in such soil, and gain a foothold in sections not previously infested.

When inoculation of the seed is practiced, the bacteria remain in intimate association with each seed, and the chances of early root infection and consequent nitrogen assimilation are enhanced.

The cultures distributed from this laboratory are for seed inoculation.

The cultures are sent in glass bottles, securely packed in a mailing case, each one accompanied by a sheet of directions for its use.

Cultures will again be distributed from the Bacteriological Laboratory during the coming spring for the inoculation of seed of alfalfa (lucerne), red clover, alsike clover, peas, beans. Those desiring to use the culture should state the kind of seed to be treated, the amount of seed to be treated, and, as nearly as possible, the date of seeding, sending these data, with name and address, to the Bacteriological Laboratory, O. A. C., Guelph, Canada.

CORN-GROWING IN THE NIAGARA DISTRICT.

Editor "The Farmer's Advocate":

While much has already been written on how to grow corn, almost everyone has had something new to offer, so I thought I might not be out of order to add my quota. Corn has got to be such an important crop, whether for silage, or grain or fodder, that we cannot give it too much attention. In a season like the present, when hay and other feeds are high, the man who has a good supply of silage or corn fodder can manage to pull his stock through the winter in good condition very cheaply; while he who has to rely upon the old-fashioned feed—hay—will find, by spring, that his stock has grown quite valuable, according to his way of reckoning.

PLOWING THE GROUND.

I have tried plowing the ground in the fall, and also in the spring, for corn, and find, usually, that, with heavy or clay soil, I get the best results from fall plowing; but, on lighter soil, which is really the ideal soil for corn, I prefer the spring. I delay the plowing till just before planting time, in order to get as much growth of clover as possible to plow under, which enriches the soil in humus, etc. My choice is a clover sod, upon which has been applied in the winter a dressing of farmyard manure—fresh from the stable, for that matter. I say fresh or newly-made manure, because it has been proven from experiments conducted at experimental stations and agricultural colleges that fresh manure contains about as much manurial value per ton as such as has been subjected to decay. In the process of decay a loss of valuable manurial ingredients takes place; therefore, the earlier the manure is applied to the soil, the sooner this loss is arrested. I find, by applying the manure during the winter, I get very much better results than when applied in the spring, just before plowing the ground. The reason I attribute is that, when applied during the winter, the rains in the spring assist in preparing and distributing the plant food in the manure through the soil, where it can be utilized by the growing plant. The old theory that, by hauling out the manure during the winter, and spreading it on the land, there was too much waste, by the valuable ingredients being carried away by the rains, has been exploded. I do not approve of deep plowing; it is well to have a skimmer on your plow.

PREPARING THE GROUND AFTER BEING PLOWED.

I put a roller on the ground as soon as plowed, and follow that with a disk harrow, spring-tooth cultivator or drag harrow, until I have the ground thoroughly pulverized. Do not be afraid of doing too much work; a little extra work right here will well repay you. In marking out the ground, see that you set the rows perfectly straight. A little attention to this matter makes the cultivating more pleasant; you can also do better work, and all through the season it will be a source of pleasure to look along the straight rows. And, besides, it shows the man's ability, and the care and pride he takes in his work; and you can expect to see his other farm work, as well as his business, generally correspond. We Canadian farmers are inclined to be a little careless, or, I might say, reckless, and often do our work too hastily to do it well and profitably. We might learn a useful lesson right here from our English brethren, who live more up to the motto, "What is worth doing at all, is worth doing well."

PLANTING.

The time for planting varies with the season and the locality. Here, in the Niagara district, we aim to plant from the 15th of May up to the 1st of June. As soon as the ground is dry and warm, you can plant, but corn will not grow or thrive during cold or wet weather. The distance between rows, apart depends on the varieties of corn. Some require much more room than others. In general, most people put the rows too close together for the best results. With the exception of a few of the best varieties, the rows should be spaced at least 3 feet apart. If those who have been planting corn in 2 feet rows would, to satisfy

themselves, try 3½ feet, and note carefully the results, they would never go back to the 3 feet; while, with many varieties, the 4 feet apart will give better results in yield, and very much finer corn—practically no nubbins. What applies to corn for the grain, is equally applicable for the silo. If not more than three stalks are allowed in each hill, you will get a better yield of grain; and, while you may not get so large a quantity of fodder, it will be of far greater value. The seed should be carefully selected at harvest time, taking only the very choicest ears that are well matured, and stored in a dry, airy place, where it will thoroughly season. By exercising care in the selection of your seed, you can improve the quality of your corn from year to year, very much more than changing your seed or getting it from some other section. It is well to be guided by the varieties that have proven best in your locality, and test new varieties cautiously; preferably, let the "other fellow" do most of that.

CULTIVATION.

As soon as the planting is done, if the soil is quite dry, I roll it down and begin the cultivation at once. Years ago, after planting, we waited patiently about two weeks, till the rows could be seen, before starting the cultivation. Occasionally a man more daring would go over his field with a harrow about the time the corn was coming up, which was a decided advantage, and imitated gradually by up-to-date farmers. My plan is to start cultivation with a weeder as soon as the corn is planted, the sooner the better. Especially is this very important in a dry season, as you then create a dry-earth mulch, which conserves the moisture in the soil, and the corn germinates rapidly, and in a surprisingly short time is up. I keep the weeder going over the ground about every other day right along, till the corn is six or eight inches high, and often higher. One man and horse can do fifteen acres in a day. Sometimes, after a rain, I do it over twice, once crosswise, especially when the soil has become compact and I wish to create a fresh-earth mulch. I sometimes take out one or two teeth of the weeder that come directly over the corn rows, when I find the corn is being pulled over too much, but you need not have much fear on that score; it soon rights itself again. There are occasions, especially on some soils, after a heavy rain, that a light harrow can be used to good advantage, if the corn is not too far advanced, and then followed with the weeder. If a harrow cannot be used, use the ordinary cultivator, and then always follow up with the weeder the same or following day. There is frequently a great deal of injury done to corn by too deep cultivation; especially is this the case after the corn has attained some size, as the small, fibrous roots spread out rapidly in search of plant food, and, by injuring or severing these, you harm the plant. I have noticed instances of this kind when you could see the injury being done at the time, as the corn plant is very sensitive, and responds readily to any injury. We are doing each year more work with the weeder, and less with the cultivator, and find a saving in time, as well as a better crop. With the weeder, you take the weeds before they get established; unless you do that, it is a useless tool. Herein lies the secret of its usefulness as a "weeder" proper. It is also a good implement for potatoes, strawberries, etc.; in fact, it is indispensable on a fruit farm, and no farmer can afford even to be without a weeder.

HARVESTING.

Just a word about harvesting. Those who have a silo (which is undoubtedly the most profitable way of caring for the fodder, etc.) have a decided advantage over those who have none. Where corn is grown for the grain, as well as fodder, it can also be cut with the corn harvester, thus leaving it in good shape to be put up in stooks for curing. If the season is favorable, and it gets fairly well cured, a good way is to have it put through the husker and shredder, and have it blown into the mow. By this operation, you get the corn husked, and have the stalks in good condition for feeding. I find, by getting a large quantity together, it saves all right, and makes splendid fodder. I have frequently noticed that, while the heating process is going on, there are usually several places where the heat escapes more freely, as through a funnel. By allowing that to go on for some time, and then digging out the core, as it were, and spreading that about, you can generally preserve it all in good order—beyond your expectation.

Lincoln Co., Ont. W. B. RITTENHOUSE

IMPROVING EVERY ISSUE.

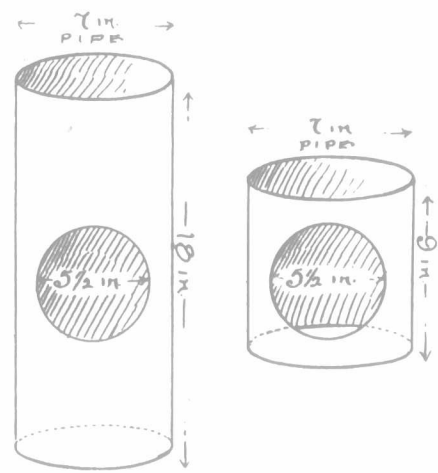
"The Farmer's Advocate," notwithstanding the high standard it has already attained, is improving with every issue. A year's subscription to it is, if carefully read, a good start towards an agricultural education. The Home Magazine is one of the very best family papers I know of. Your Christmas Number was simply grand.

Quebec Co., P. E. I. WALTER SIMPSON.

REMEDY FOR LEAKY STOVEPIPE.

Editor "The Farmer's Advocate":

One of your subscribers wanted to know how to stop a stovepipe from sweating. Instead of putting the stove closer to the chimney, or by making the room warmer where the stovepipe is, if your correspondent gets stovepipe length fixed as I have, he not only would never have a sweaty pipe, but have one of the best methods of checking the draught of the stove, either wood or coal; and no gas will ever escape from the stove, because he can leave more checks turned on it, and, by using the pipe with the hole open, the draught comes more in the pipe than in the stove. I have had one for a couple of years. You can get them made for 25 cents, and I would not give one of them for three or four of the ordinary pipe dampers. By leaving the hole in the pipe open when you retire, or when you do not want



it to burn too much, the draught is from the hole to the chimney, and the air passing through the pipe keeps it dry. I will try to give you a cut which will explain.

Take an ordinary length of stovepipe (18 in. long), and get a hole cut in it about the center, 5½ inches in diameter; then get another one about 9 inches long, with the same-sized hole in it and slip over the other one. Get a little tip riveted on the short piece on the opposite side of the pipe from the hole, so you can slide the short piece around. When you want to keep your stove from burning, turn the short piece so the hole in it comes over the hole in the other one, and you will have a check for your stove that will never let it sweat. This short piece will suit on the ordinary stovepipe length between the ribs.

G. B. P.

LIKES THE GASOLINE ENGINE.

Editor "The Farmer's Advocate":

In your Jan. 9th issue I noticed an inquiry as to farm power, and, as I have used gasoline power on my farm for the last 15 months, I will give you my experience. I use a 9 h.-p., with water-cooler holding only 4 pails, which greatly reduces the labor, as compared with the large three-barrel tanks used in some cases, especially if you have not a frostproof building. The engine is located in front of barn. The power-house, being 12 by 10 feet, is just in line with front of mow, and 15 feet clear of barn. I use 45 feet of 6-inch rubber belting to grinder, which is immediately inside, and about 4 feet 6 inches from edge of threshing floor. The meal is taken off in sacks in room in basement below. I also use engine for cutting feed by using extra belting. I set box back in barn, just off the threshing floor. For cutting wood, I set wood saw in yard at the other end of power-house, the belt running through the door. I also use engine on seed grader in spring, by means of a shaft just in front of grinder. I consider the gasoline engine the most satisfactory power—unless we get electric power from Niagara Falls—and, to fully explain how satisfactory it is, I will state how I do my work with it. I can easily grind from 6 to 12 sacks per hour, according to fineness of meal required, without any help whatever. I can cut wood with one man to help, or cut straw in barn with two men to help. All the attention the engine requires is to start, fill oil cups and oil holes, and four pails of water, with addition of one pail every 1½ hours. I can grade all my seed grain myself in a shorter time than formerly done with a man's assistance.

The engine has proved to me very easy to operate, and I consider it much more simple than the binder, with which we are all more or less familiar. I can generally start engine in summer in about two minutes; in winter, in about five to ten minutes, as in cold weather, everything being frosted. I generally give it a drunch of four quarts of boiling water, when it will start in a few minutes. I would highly recommend gasoline power to anyone wanting the most satisfactory power. Certainly, the outfit is more expensive at

the start, but, allowing that an engine will run twelve years in a factory every working day in the year, and an average farmer would use one two days every three weeks, this would mean an engine on a farm to wear 108 years.
Dufferin Co., Ont. J. H. M.

FARM PROBLEMS IN NEW BRUNSWICK.

[From a paper read before the New Brunswick Farmers' and Dairymen's Association, in January, 1908, by J. R. Oastler, Superintendent of Sir William Van Horne's farm, at St. Andrews, N. B.]

UP-TO-DATE SYSTEM, ROTATION, AND MANAGEMENT.

The first great problem for present consideration is the planning of a general progressive farm system and rotation. No business man would expect success if he followed in detail the system of his father, and no farmer can expect success who is following, without care or thought, in his father's footsteps. To get the best out of each farm, requires on the part of the farmer, a most careful consideration of its present condition, an earnest, unprejudiced search for things which make for improvement, and the establishment in his own mind of a working ideal. In many cases, before we can make improvements in our farm operations, simple mechanical barriers must first be removed before we can cultivate the soil properly. I have noticed farms which have been under cultivation for the past one hundred years, where rocks remain on the surface of the ground that a team could easily remove, old stone piles, old fences, the remains of old stumps are allowed to occupy the ground, and are passed by with a reverence worthy of a better cause. It is marvellous how tenaciously some farmers cling to the things of the past which have become obsolete, and regard with suspicion any new innovation. Before we can use modern machinery to advantage, all movable, useless obstructions must be removed from the fields which we are to cultivate.

LIVE STOCK AND FERTILITY.

Probably the most serious problem our farmers have to cope with to-day is the partially exhausted condition of the soil. In order to restore and maintain the soil's fertility, the keeping of all the live stock the farm will support is, with the majority of farmers, the only practical solution of the problem. I do not for an instant imply that we should keep live stock for the sole purpose of maintaining fertility. By giving careful consideration to general conditions, by choosing the breeds of live stock best suited to our farm and district, by breeding and caring for them properly, and by marketing their products advantageously, there is always profit in live stock themselves, and the good they do in maintaining soil fertility is clear gain. I believe there is a place on almost every farm in these Provinces for some horses, cattle, sheep, swine and poultry. In the economy of farm management, each class can be made to fill a special place. The choice of breed may safely be left to the individual preference of the farmer. I may add, however, that if we choose a breed which is already widely distributed and popular, we may expect quicker profits and a stimulating effect from keen competition, which is very wholesome. There is one point which I wish particularly to emphasize in the keeping of live stock; that is, only the feed and care which we give an animal above that which is required for maintenance is turned into profit. To illustrate briefly: A milch cow which is kept in a cold stable, fed on hay or straw, and turned out to drink in cold water, may keep alive, but her owner will be keeping her at a loss. It is only good food and care which pay.

LEGUMES AS SOIL IMPROVERS.

Another great help in maintaining the fertility of the farm is the growing of crops of the legume family, such as peas, vetches and clovers. They can make use of the free nitrogen of the air, and nitrogen in its commercial form is by far the most expensive fertilizer. In my opinion, however, it is a waste of money and effort to try to get a good catch of clover on a worn-out soil, in poor mechanical condition. We must have a fairly rich, well-drained and well-cultivated soil if we are to get good results from clover. Its value as a fodder is, I think, greatly underestimated by our farmers. I consider well-cured clover hay much superior to timothy for cattle, but the majority of our farmers consider it an inferior article. In maintaining the soil in good form for the growing of other crops, the value of clover cannot be overestimated.

CORN AS A SOILING CROP.

Another problem which confronts our farmers is the short period of good pasturage in summer. To supplement the pastures in early fall, some fodder crop must be grown, and I know of no crop which can take the place of corn for that purpose. It gives an immense yield of rich, succulent food per acre, and especially for those engaged in dairy farming it is an invaluable crop.

MAKE FARM LIFE ATTRACTIVE.

Another problem before us is the making of farm life more attractive to those who are engaged in it, and inducing others to settle on the land, also. Is it not a fact that farmers, as a class, fail to recognize and make use of their many advantages? We are only going through this world once, and I believe that Divine Providence meant us to make use of the best as we journey along. No class of people have the same advantages for a royal life as a farmer. The sweet, fresh butter, the cream, the fresh eggs, poultry, meats and fruits, which we find on the tables of our city cousins, are so often absent from the farmer's every-day bill of fare, and salted products and cured fruits put in their place. It may be said that the farmer derives much of his cash from the sale of these fresh eatables, but, by systematic planning, sufficient can be grown for sale and home consumption also. The better we live, the more work of a higher class we can accomplish, and we will take a more cheerful, hopeful outlook on life.

CO-OPERATION.

Another problem before the farmer to-day is the extent to which he can make use of the co-operative system. By co-operation, we usually mean the joining together for mutual benefit. It is a union of efforts, the fruits of which are to be divided among the members. We usually consider it a defensive measure to protect ourselves against other combines, and insure a just price for our salable products.

THE PROGRESS OF FIFTY YEARS.

In regard to the educational advantages of co-operation, many farmers are unconscious of the great changes which the past fifty years have wrought in the agricultural world. With proper cultivation, the cultivated varieties of grains can be made to produce twice the yield that was

fruits, we must be acquainted with the history of the particular thing under our care, and also have a full appreciation of its possibilities and the dangers that threaten it. Keeping pace with the great development in agriculture has been a corresponding development of new conditions and dangers. Or stock, our crops, are threatened with diseases of various kinds, unknown fifty years ago. In its primal state, the main function of a plant or animal is to reproduce itself. Man has directed Nature into new ways for his own benefit, but in doing so he has weakened the vital functions, and we find our highly-developed plants and animals threatened with dangers which did not appear before development commenced. In a sense, unnatural conditions have been created, and, to give full protection, a special knowledge is required on the part of the farmer. Injurious insects, blights, rusts and diseases must be combated with successfully if the farmer is going to win out.

Where is he going to get this knowledge necessary to success.

THREE GREAT MEANS OF AGRICULTURAL EDUCATION.

There are at present three great means of disseminating agricultural knowledge, and first of these I would place the agricultural press. In these papers, topics of every variety of interest to farmers are discussed, and, while we have to allow for conditions and individual preferences, yet, the information they impart is, in the main, correct, and is of inestimable value.

If we look into the future, it is plain that our agricultural colleges are starting influences which will have a constantly-growing field of power in the future. The thousands of young men who are receiving a training to-day will be the leaders in agricultural thought and practice to-morrow. We have been accused of stagnation in these Maritime Provinces, but the wonderful success of the agricultural college at Truro, and the enthusiasm exhibited by its students, proves that we are becoming alive to the great opportunities before us in agriculture, not only in winning from nature greater financial returns, but in enabling us to recognize the fullness and beauty of country life.

The third great medium is the Farmers' Institute and our agricultural exhibitions. In the Institute we can hear the very latest development in scientific thought, while at the exhibitions we have examples of what knowledge and trained ability can produce.

PLAN, PURPOSE AND IDEAL.

I believe our first problem is to get a broad, intelligent grasp of the situation, and a fixed, definite plan of improvement. Then we can take

full advantage of detailed descriptions of procedure in certain farm operations and profit by them, while, without this fixed ideal in our minds, attempts to improve our condition along advertised lines is apt to be desultory and short-lived.

GREETINGS FROM ORANGE RIVER COLONY.

Editor "The Farmer's Advocate":

I am enclosing you order for £1 1s. 6d. (twelve shillings) for "The Farmer's Advocate" for 1908 and 1909, and six for two books on "Veterinary Elements," by A. G. Hopkins. We are having a very fine summer: plenty of moisture; crops are looking splendid; the wheat is extra, the like has not been seen since the war; farmers are busy with harvest; the live stock is in fine condition, owing to the veldt being so good after the continual rains. My very best wishes for success for "The Farmer's Advocate."

THOS. BRADSHAW.

Bloemfontein, O. R. C., South Africa.

One lesson to be learned from the shortage of feed this winter is the value to the farmer of a silo full of corn ensilage. Those who have a good supply of this palatable and succulent feed, the cheapest that can be raised on the farm, taking into consideration the bulk it yields per acre, will carry their stock through the winter with much less expense than those who have not this fortunate provision. We predict that more silos will be built and more corn grown this year than usual.



Golden Fern's Sensation.

Grand champion Jersey female, National Dairy Show, Chicago, 1907. A model of dairy type.

expected of them half a century ago, and the quality is vastly superior; there is such an improvement in farm machinery that, where it can be made use of to advantage, one man can now accomplish in a day as much work as could five men before the introduction of machinery.

In fruits and vegetables, there has been wonderful increase in the number of varieties and an ever-improving standard of quality. In live stock, we have the dairy cow, which can be made (in exceptional instances) to produce about 1,000 pounds of butter per year, in place of the old stand-by, who considered she was doing her duty if she produced 125 pounds. In poultry, we have hens producing 225 eggs per year, in place of the old barnyard fowl who produced 100, and the varieties of poultry and poultry products put on the market are astonishing. The total value of such on sale in the United States amounted last year to over five hundred million dollars. In beef cattle, the high-grade steer can be made to weigh as much at two years old as the old range steer did at five years, and the quality is decidedly in favor of the younger animal.

THE FARMER MUST BE A STUDENT.

To keep in touch with all the improvements which may be utilized in benefiting the circumstances of each individual farmer, calls for no small order of intelligence and trained ability. Where is the farmer to get the knowledge necessary to plan and successfully practice in the most up-to-date manner his farm operations? To get the best results from our stock or grain or

A PLANK-FRAME BARN.

Editor "The Farmer's Advocate":

Having had our barn burnt by lightning last summer, in the middle of haying, and not being able to secure timber at that time of the year, I decided to build a balloon frame, and found it to be much cheaper than a timber frame, as timber is scarce in this section of the country. I built in September and October. Stone foundation, sills framed and put on the foundation, with cement floor half way up the sill; size 36 by 74 feet. Framed four bents; the posts 2 x 5, 16 feet long; the beams 2 x 8, 12 feet long. Quantity, 233 pieces 16 feet long for studding; 156 pieces 12 feet long, 2 x 5. Spruce cost \$23 a thousand; 512 lineal feet, 2 x 6, for plates. Roofed with cull lumber, elm and ash, at \$12 a thousand; enclosed with rustic clapboards, pine, 5,000 feet, at \$26 a thousand. Roof may be covered with metal or felt. Fitted and framed all before they put it up; studded 2 feet apart. Time of completing, 5 men, 30 days. I might also state that over the stabling are 62 pieces of joists, 2 x 10 in., 16 feet long; and 31 pieces 2 x 16 in., 14 feet long; hemlock, at \$23 a thousand.

As for strength, the carpenter said it was the strongest barn he ever built. The advantages are quicker construction, and cheaper than timber frame. It has a shingled roof, about 37 thousand. I enclose a crude sketch of this barn and of the stabling. I find it very convenient for feeding and cleaning, as we put the horse manure behind the cows for mixing. The stabling, 36 by 44 feet, will hold 20 cows and 8 horses.

Dundas Co., Ont.

K. G.

ARTIFICIAL FERTILIZERS: THEIR NATURE AND USE.

By B. Leslie Emslie.

The question as to whether it pays to use artificial fertilizers in Canada, is being answered in very tangible form by the rapid increase in their consumption of late years, and there can be no doubt that this rate of increase will be more than maintained for years to come. The use of fertilizers in Canada has been permanently adopted, just as some 50 years ago in Europe, and 25 years ago in the United States, artificial fertilizers came to stay, despite the fact that then, as now, many otherwise apparently reasonable and intelligent men condemned their use. But then, nothing of universal importance was ever introduced without receiving severe and adverse criticism; no measure for the advancement of the welfare of any community was ever adopted without it, so it is not to be expected that anything affecting the prosperity of the large agricultural populace of any land will be allowed to go unchallenged.

CAUSES OF PREJUDICE.

The prejudice which some may entertain against artificial fertilizers has, in many cases, arisen through failure to obtain the desired results from their use, which failure is, in the majority of cases, due to an insufficient knowledge of the nature and functions of the various fertilizing ingredients. It is essential that the farmer know something of what constitutes the fertility of a soil in order to properly understand the use of artificial fertilizers.

That there may be other causes of prejudice, suggests to my mind an incident, related in a well-known book in my "mither tongue," of two farmers going to kirk one Sabbath morning, and taking a "short-cut" through a neighbor's farm, discovered some "manure in bags," which their neighbor had got to apply to his turnip land. Never having seen "Guano" before, they became deeply interested, and closely examined the wonderful stuff. One of them, surnamed Peter, not anticipating the consequences of his rash act, placed a handful of the Guano in his pocket for future reference, and the two hurried off to church, where they arrived rather late, and took their places beside their respective spouses, who had arrived some time previously in a wheeled conveyance.

Now, Guano, unlike the more popular concentrated fertilizers of to-day, has a very strong and decided odor, and the sample in Peter's pocket, being true to kind, emitted a stench which pervaded the whole building, seriously interrupting the attempt at devotion on the part of the worshippers.

Peter's better half, being ready at any time to lay blame on her husband for any misfortune, of which he was, of course, not always guilty, was not kept long in doubt as to the origin of the disturbance, and, on arriving home, her righteous indignation had full sway in the most awful curtain lecture which Peter ever endured.

As Mrs. Peter held the purse-strings, it is unlikely that her spouse ever summoned up courage enough to suggest the purchase of some Guano for the farm, and, to those without "inside information," he would naturally have been known as "prejudiced."

Well, as already mentioned, in order to use fertilizers intelligently, one must have some

knowledge of what constitutes the fertility of a soil.

THE ELEMENTS OF FERTILITY.

Now, the farmer's object is to make his soil grow plants of various kinds, and the substances entering into the composition of the plant will indicate approximately what substances must be present in a "fertile" soil. If we take any living plant and reduce it to its elements, we find only a small range of substances. Water forms the greatest portion of the plant; the rest is almost wholly composed of compounds of carbon, with hydrogen and oxygen.

Nitrogen constitutes, on an average, about 2 per cent. of the dry matter; the others, which are found in the ash when the plant is burnt, make up a further 2 per cent.

The ash constituents comprise potassium, sodium, calcium, magnesium, phosphorus, sulphur, silicon, chlorine, and a little iron and manganese. Traces of other substances occasionally occur in the ash of plants growing on soils which happen to contain them, but they are not essential.

Carbon is the chief element in the plant's composition, and this is obtained from the carbonic acid gas in the atmosphere by means of specialized cells in the leaves of the plants. With the exception of nitrogen, potassium (or potash), phosphorus (or phosphoric acid) and calcium (or lime), the average soil contains sufficient amounts of plant-food substances for crop requirements.

The four essentials mentioned, however, of which the soil becomes depleted in the ordinary process of cropping, must be returned to the soil

fertilizing ingredients of the manure is in the liquid portion, great loss is certain to occur through leaching, so that in the end the stable manure contains a small percentage indeed of fertilizing matter.

Perhaps the greatest value of stable manure lies in its physical action, whereby a stiff clay soil is rendered more open and porous, and a light, sandy soil is bound together thereby, and made more retentive of moisture. Besides this action, farmyard manure provides the soil with humus, and furnishes a feeding-ground for the valuable bacteria.

SPECIAL DEMANDS OF CERTAIN CROPS.

Some people may contend that, where a large supply of farmyard manure is available, it is unnecessary to apply artificial fertilizers, but this argument doesn't always apply. Take, for example, the turnip crop, the success of which depends so much on a large, readily-available supply of phosphoric acid; to apply the required quantity of farmyard manure, supplying the necessary amount of phosphoric acid, would incur a great waste of nitrogen, the latter ingredient being much in excess of the needs of the crop. It is quite evident, then, that the most economical practice will be to apply a light dressing of stable manure, balancing the same with some artificial fertilizer containing phosphoric acid and potash, and the extra stable manure could be profitably applied on another part of the farm.

ONE ELEMENT CANNOT SUBSTITUTE FOR ANOTHER.

The most important fact for the farmer to know and remember in connection with artificial fertilizers is that one ingredient cannot replace another, and to ignorance of this fact is due almost all cases of failure to get profitable returns.

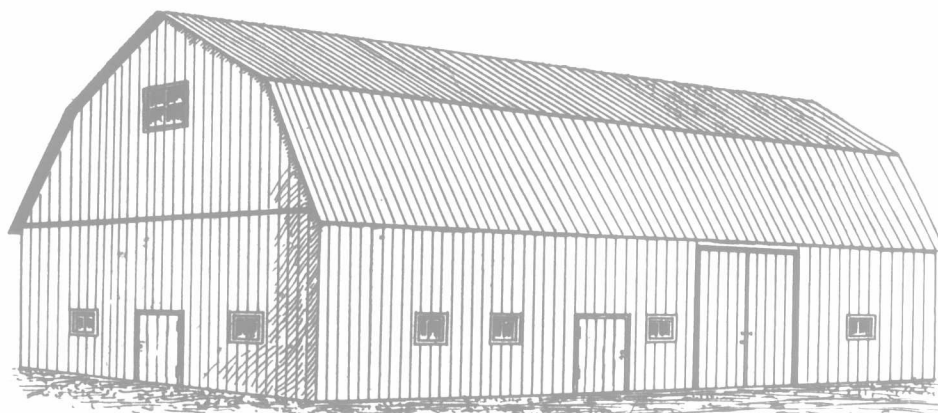
To many farmers in Canada to-day, all fertilizers, be they nitrogenous, phosphatic or potassic, are simply known as "phosphates," for the reason that phosphatic fertilizers were the first introduced, just as in Scotland any kind of fertilizer was known as "Guano," because the latter was one of the first forms of commercial fertilizers which came into use there.

Bear in mind Liebig's "Law of Minimum," viz., "The substance in minimum rules the crop," which means that the plant-food substance present in the soil in smallest quantity will determine the amount of crop which can be grown on that soil. For instance, if the soil be deficient in either one

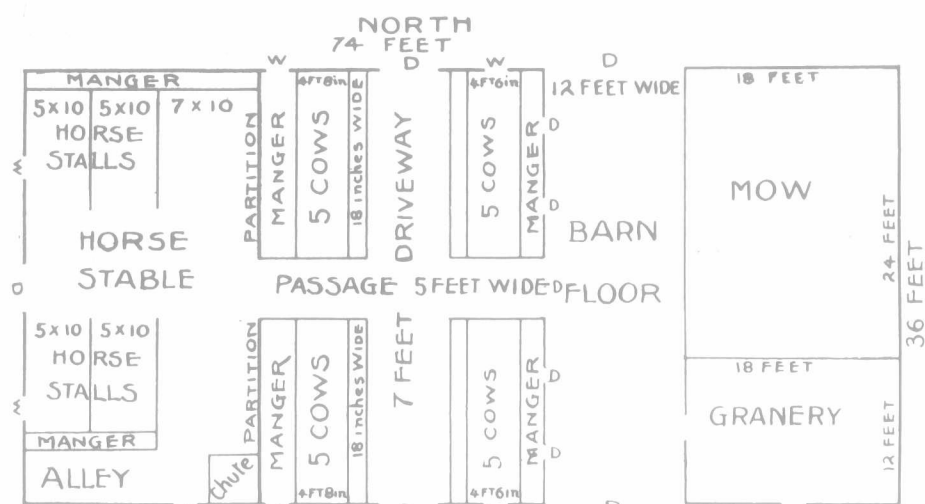
of the three essentials (nitrogen, potash, or phosphoric acid), then, no matter how much of the other two ingredients were applied, maximum yields could not be obtained, since this is only possible when the plant's appetite for each essential has been satisfied. Another way of expressing the above-mentioned law is, "The strength of a chain is that of its weakest link."

If a farmer wishes to fatten a bullock, he does not reason thus: "Well, straw is cheap, and water doesn't cost anything; I'll just give the bullock all the straw he can eat and all the water he can drink until he is fat." No, the feeder knows that straw and water do not contain all the essential elements required to fatten a bullock; although straw or hay is a valuable part of the diet, he knows that other materials are necessary in order to produce a fat bullock. Then, why does not he exercise the same judgment in the case of his plants, for the same law holds good in both the plant and animal kingdoms?

As one kind of animal differs from another in respect to its requirements and uses of the different elements of nutrition, so one kind of plant differs from another in its demands upon the various fertilizer ingredients in the soil. The benefits of a crop rotation are due to the fact that different crops have different requirements, e. g., a crop of clover will chiefly depend on its available supply of phosphoric acid and potash,



Outside View of K. Graham's Plank-frame Barn.



Inside Plan of K. Graham's Barn.

in some form if the fertility of that soil is to be maintained. The value of a fertilizer, therefore, must be assessed on the amounts of nitrogen, phosphoric acid, potash, and (in some cases, also) lime, which it contains.

Here it may be mentioned that lime is only in a very small measure a direct plant food, its chief virtue lying in the fact that it has a beneficial influence in counteracting the harmful effect of an excess of vegetable acids in the soil, and also to some extent in liberating plant-food substances.

Every pound of butter, every bushel of grain, every hundredweight of beef, pork or mutton, and every ton of hay, sold off the farm removes so much fertilizing material, and, unless the latter be returned to the soil in some form, the soil will ultimately become exhausted and barren.

COMPOSITION OF STABLE MANURE.

In ordinary farm practice, the stable manure produced on the farm is applied to the soil, and by this means some fertilizing material is restored. One ton of stable manure may contain, on an average, 12 pounds nitrogen, 12 pounds potash, and 7 pounds phosphoric acid, or as much nitrogen as is contained in 75 pounds of nitrate of soda, as much potash as is contained in 24 pounds of muriate of potash, and as much phosphoric acid as is contained in 40 pounds acid phosphate. Since the most valuable part of the

but has no difficulty in obtaining its nitrogen, since the clover belongs to an order of plants (Leguminosæ) which can assimilate the free nitrogen of the atmosphere with the aid of certain bacteria living in little nodules on their roots.

Clover, then, not only secures all the nitrogen necessary for its own growth, but leaves in the soil, in the remains of its deeply-ramifying roots, a valuable stock of organic nitrogen for the next crop.

Now, wheat is a crop which greatly depends for its success on a large supply of nitrogen, so the clover crop is obviously a desirable predecessor for wheat.

Turnips seem to have most difficulty in getting their phosphoric acid, and, therefore, respond readily to an application of phosphoric acid in an easily-available form, such as acid phosphate (superphosphate).

Of course, some nitrogen and potash ought, also, as a rule, to be applied, but phosphoric acid is the dominant ingredient in a fertilizer for turnips. Potash is an important ingredient of a fertilizer for all crops, especially for clover, peas, beans and root crops, and is the dominant essential in a fertilizer for potatoes, tobacco, etc.

SPECIAL NEEDS OF VARIOUS SOILS.

The character of the soil is a very important factor in determining the proportions of nitrogen, potash and phosphoric acid which a fertilizer in-

tended for application to a certain crop on that soil shall contain.

A light, sandy soil will naturally be poor in all elements of fertility, and especially poor in potash. On the other hand, a clay soil will be naturally comparatively rich in potash, although the latter is frequently largely present in unavailable forms.

A peaty or swampy soil will be rich in nitrogen and poor in potash, lime and phosphoric acid. On such soils, basic slag, as a source of phosphoric acid, in conjunction with a potash fertilizer, has given very good results, on account of the free lime which the slag contains destroying the harmful effect of the vegetable acids naturally present in such soils.

SUMMARY.

If the reader has been able to follow these reasonings clearly, he will know:

That plants, as well as animals, require a variety of substances for their proper nourishment and growth.

That the ordinary soil contains a sufficiency of these for crop requirements, except nitrogen, potash, phosphoric acid and lime, of which the soil becomes depleted in the ordinary process of cropping.

That these substances are not interchangeable; one ingredient cannot replace another, but a complete fertilizer must contain proportions of all the essentials.

That the value of an artificial fertilizer, therefore, depends on the amounts of these substances which it contains.

That different kinds of crops have different requirements in respect to nitrogen, phosphoric acid, potash and lime, and that the various classes of soil differ in the amounts of these substances entering into their composition.

(To be continued.)

THE DAIRY.

A DANISH OPINION OF CANADIAN DAIRY PROSPECTS.

Dr. Ellbrecht, the famous Danish dairy expert, who lately visited Canada, in a recent speech in his own country, said: "I do not anticipate that Canada will become a serious competitor to Denmark so long as her immigration is so great, and through it a large home consumption developed; but, on the other hand, the Canadians are working energetically and with determination toward increasing their exports, and the time is not far distant when it will be possible to land Canadian butter in England within eight days after it is made; and as the quality of their dairy products is steadily being improved, we may well keep a watchful eye on Canada."

Bacteria in Relation to Agriculture and Dairying.

[From an address by Dr. W. T. Connell, Bacteriologist of the Eastern Dairy School, Kingston, before the Eastern Dairymen's Convention, January, 1908.]

In the mind of most people, when one speaks of bacteria, germs or microbes, there is conjured up a vision of horrible creatures, with legs innumerable, and whose effects are destructive, or even deadly. Let me say that, in reality, they are very simple-looking objects when seen under a microscope; in fact, so small, simple and harmless-looking, that one seeing them is very apt to say, what good or harm could such insignificant objects possibly effect? The individual germs consist of single-celled plants, microscopic in size, and, indeed, visible only with a powerful microscope (Fig. 1.). But, by the massing together of large numbers of these cells, we can get masses visible to the eye, or their presence is made manifest by various changes which they are able to effect in the material in or on which they are developing. Nearly three thousand different species of bacteria have been described, and have been found to be active agents in the production of many processes, most of which are highly advantageous to man, or to soil or water, etc. On the other hand, they have been found to be active in many processes which we ordinarily look upon as destructive and dangerous, or at least highly undesirable. When we come to consider some of these processes in which bacteria are active, we can readily understand how it is that there are some which we look upon as highly desirable forms, and others which we must place in the opposite category.

With most people, to speak of bacteria is to bring up the spectre of disease, for we now know that most of the common infectious diseases of animals and man are of bacterial origin, even such conditions as boils and abscesses, colds and sore throats, appendicitis and gall stones.

Another large group of bacteria are engaged in the processes of decomposition, decay, or putrefaction. When an animal dies, its tissues, unless preserved by chemicals, or by cold, or by drying, begin to decay, to putrefy. This is due to the entrance and growth of bacteria, which bring about marked destructive alterations in the tissues. The actual disintegration of such a body is materially assisted by bugs, beetles and worms; yet the main destructive changes are due to bacteria. In the same manner a tree falls and gradually decays, the decay being due to bacteria and moulds, assisted again by beetles, worms, etc. It is a process in which organized material (matter of complex structure) is reduced again to simple elements, which pass off into the air as gases, or into the soil as dust and ashes. These simple elements—the gases, dust and ashes—are now in a position to form fresh combinations, to enter again into the structure of plants and trees, of animals and man. It is Nature's method of keeping the working material of the universe in circulation. It will be hardly necessary for me to say that the putrefaction of meat, the rotting of eggs, and certain decomposition changes in milk, butter and cheese are due to these putrefactive bacteria.

Another process, and one of vast importance to agriculture, due to bacteria in great part, is the process known as nitrification, which goes on in the soil, and in some waters and manures. Into the structure of the cell constituents of plants and trees nitrogen enters, so that a supply

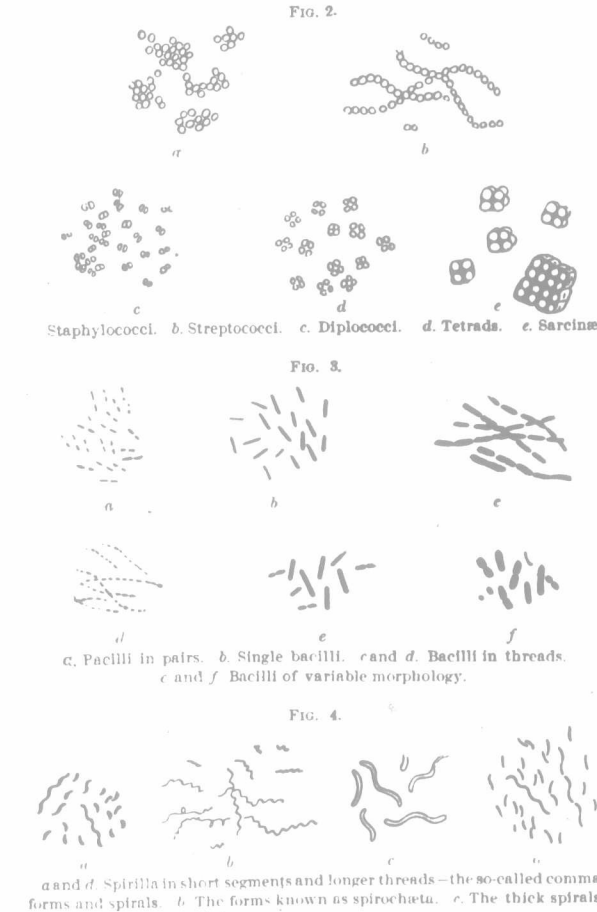


FIG. 1. DIFFERENT TYPES OF BACTERIA (MAGNIFIED 1000 TIMES)

of this in available form is requisite for the nourishment and growth of plants. There is an abundance of nitrogen in the air (over 78 per cent. of the air being this gas), but such nitrogen is not available for plant nourishment. Now, certain soil bacteria, known as nitrifying bacteria, have the property of causing the inert nitrogen of the air to enter into combinations with other elements forming nitrates ("Nitrate"), which combination is now available as plant foods. Without this process, most soils would rapidly become sterile. Attempts are now being made, with only fair success so far, to inoculate land with cultures of these nitrifying germs. It will require much work and experimentation yet to get this important matter on a good working basis.

Another important group of bacteria are active in many processes, classed as fermentations. This is, in reality, a peculiar type of decomposition, whereby simple bodies (chemically speaking) are produced from these of somewhat more complex structure. Among the fermentations one commonly sees is the fermentation of solutions containing sugar into alcohol, as in the making of beer and wine. The further fermentation which such alcoholic solutions may undergo in their transformation into acetic acid (vinegar) is also a well-known process. Another very common process is the "raising" of bread by the use of yeast. In

butter, and especially in cheesemaking, the entire process is practically one of control of fermentation. Souring and curdling of milk, the ripening of cream, and acid production in cheesemaking, may be instanced as common examples. Of course, all the fermentations in cheesemaking are not of bacterial origin, as the curdling is due to the rennet ferment added, and the ripening of the cheese is also due mainly to the digestive ferments added in the rennet.

BACTERIA IN MILK.

Considering now the bacteria in milk, let me first state that, while the milk in the udder of healthy cows is free from bacteria, it is not possible, by the ordinary methods of milking, to secure milk that is free from these germs. Why? Because it has been shown that many germs can and do thrive about the lower ends of the cow's teats, just within the opening, as well as on the surface, and these, almost of necessity, will be washed into the milk. Many more will come from hairs and stable dust, particles of manure and straw, from pails or milk vessels not thoroughly sterilized, and like sources. But while, by ordinary methods of milking, milk cannot be secured free from bacteria, yet there is a direct relationship between the numbers of bacteria so found and the cleanliness exercised in milking. It has been shown many times that the greater the care and cleanliness exercised in securing milk, the fewer bacteria there will be present, and, as a rule, there will be less chance of undesirable forms of bacteria being present. The difference is frequently very marked, even in the same herd, under different conditions of care and cleanliness in milking, being in proportion of from 1 to 6, up to 1 to 30, between careful and slovenly methods.

TABLE I.

Bacterial content of mixed milk of herd of 30 cows immediately after milking, under different conditions of cleanliness in milking. Number of bacteria in 1 c. c. (1-30 ounce) samples in each case.

A	B	C
4,500	15,500	30,000

A.—Stable thoroughly clean, free from dust. Cows well brushed down, udders washed if any visible dirt. Milk pails small-mouthed, thoroughly cleaned and sterilized by steaming. Milkers clothed in clean suits, and hands washed before milking, and during milking if any sign of soiling. First two or three streams of milk rejected. Cows milked dry.

B.—Stable well cleaned. Cows brushed down. Ordinary milk pails, but sterilized by steaming. Milkers in ordinary clothing, but hands washed before milking. Cows milked dry.

C.—Stable fairly clean. Cows not groomed, except by hands of milker. Ordinary milk pails, sterilized by steaming. Milkers in ordinary clothing, with no special care of hands. Cows milked dry.

Now, the effects which the bacteria which have been introduced will bring about will depend, first upon the character of the germs introduced, and secondly, upon the opportunities afforded them to develop. One great group of bacteria is the group of acid-producing bacteria, which lead to souring and curdling of milk if they are allowed to develop long enough. In this acid-producing group are found the desirable species of bacteria requisite for butter and cheese making, but also

some highly undesirable species. The desirable forms of the acid-producing group are those which produce lactic acid, without by-products, such as gases; etc. The great type of this species is the bacterium so prevalent in Eastern Ontario, and which is known as the lactic-acid bacillus (Esten). This bacterium, when introduced into milk and allowed to develop, produces a clean-flavored souring, without gas, and the whey which separates out from the curd is watery. This is the only desirable bacterium for butter and cheese making, and, in good cheese, it is found that over 99 per cent. of the bacteria present belong to this species. But there are also some bacteria which produce more or less acid, and yet are undesirable. These are the bacteria which, when introduced into milk, sour it, but the curd is torn with gas holes, or gives off a bad flavor, and the whey which separates is somewhat milky. Or, if present, and the usual curd-fermentation test is carried out, gas formation and bad flavor become much more marked. In small numbers, these bacteria are found in the milk brought to most factories. They come particularly from manure and stable dust, but they readily habituate themselves to milk. When these bacteria gain the upper hand in cheesemaking, we always have an inferior article, more or less tainted, varying from a "not clean" flavor, through the various grades of "off" flavor to a distinct rank, rancid article. Some of these bacteria may kill out the desirable acid-formers about a factory and its tributary dairies, and lead to very serious results, not readily eradicated. Such cases require, at the factory, a supply of "starter" of the desirable acid-producing type, thorough cleansing of all factory vats and whey tanks; and, at the farms, require extra care in washing and scalding of cans and pails, extra care in milking, and also thorough cooling of the milk; for bacteria require for growth not only a suitable food material like milk, but the temperature conditions must be favorable. By cooling the milk, bacterial development is largely checked, and, if low enough, entirely prevented, so that cooling of milk ranks equal with cleanliness of milking in the production of a first-class article of milk at the factory doors. Milk, in the summer season, should be cooled to 65 degrees F., at least, as rapidly as possible after milking.

TABLE II.

Samples of milkings A and C (Table I.); kept at different temperatures for 24 hours, and bacterial content per each 1 c. c. then estimated.

Number bacteria at time of milking.	Number of bacteria after twenty-four hours per each 1 c. c.			
	50° F.	55° F.	60° F.	68° F.
A.....	4,500	4,300	18,800	180,000
C.....	30,000	48,000	187,000	900,000
				4,000,000
				86° F.
				1,400,000,000 (turning sour)
				14,400,000,000 (sour)
				98° F.
				25,000,000,000 (sour and curdled).
				25,000,000,000 (sour and curdled).

SLIME IN MILK.

But, besides the acid-producing bacteria, other forms occasionally gain entry to milk. Of these, the slime-producing or sweet-curdling bacteria are seen not uncommonly. These bacteria either make the milk slimy and stringy, or else curdle it without it becoming sour. This condition may be met with either in summer or winter, and may be brought by several different bacterial forms. Some of these act by producing a ferment like rennet, while others act by their having about them a glue-like covering, and, by these coverings sticking together, the milk rapidly becomes filled with a stringy mass. I had a number of samples of this kind of milk sent me for examination last summer. One was particularly interesting, as it was in the milk of a large dairyman supplying milk in Kingston. This man's milk for several weeks was quite stringy when allowed to stand over night at temperatures of 70 degrees F. or over. He was a fairly careful man, and took very good care of his milk, and made an extra effort to get rid of the trouble, but at first without much success. Later on, examining the milk of each cow separately, it was found that one cow's milk almost invariably became slimy on standing. No special cause could be assigned for this, as the udder was healthy and the other conditions the same. It was evident that the germ had habituated itself to grow in the lower ends of teats of this cow, and, on rejection of her milk, the condition cleared up. This is not the usual source of this trouble, however, as it is more apt to come from bacteria found in hay dust and from the scum of stagnant, grassy pools, the scum blowing into the milk cans and pails, the scum dropping in, when dried, from udders, sides and teats of cows during milking.

The most common germ infection of milk are at present attributed to yeast infection, rusty spot, etc., and are discussed here.

REVELATIONS OF SOME CHEESE FACTORIES.

During the past year I have again had opportunities to see most of the usual types of "taint" or "defect" in cheese, and in a number of instances have had the opportunity, along with Mr. Publow, of making a personal investigation of the local conditions.

One factory visited by us had marked "rusty-spot" cheese. To the casual observer, the factory and utensils were clean, but, on careful examination of strainer racks, mill, floors and gutters, a different tale was told. On the floors (cement) and gutters, particularly, little rusty points were not difficult to detect, and these points were largely made up of the rusty-spot bacillus. In this factory, too, there had been some yeasty, open cheese, and a yeast corresponding to usual type of yeast met with in this condition was isolated from a strainer rack, gutter and whey tank; so that the one investigation disclosed the fact that this factory was quite capable of seeding itself, and also, through the whey, of infecting all milk put into cans which were not thoroughly cleaned. While on this point, I may say that the ordinary cleaning given milk cans never frees them from bacteria and yeast, and, if these are present in the whey, they will come back in the milk in at least two-thirds of the cans, and very frequently will return, some five, some twenty, and some a hundredfold.

At another factory, the cheese was decidedly "off flavor," or, as Mr. Publow more emphatically termed it, were "stinkers." Here, on applying the fermentation test to a number of samples of patrons' milk, it was evident that several were seeding the factory with a choice lot of the usual type of bacteria found in such conditions (*B. lactis aerogenes*). But there were conditions about this factory itself which were not of the best. Thus, the water used for cleansing purposes came from a near-by creek. From this, a short way up, cattle drank, and the shores were swampy. This water, at the time of our visit, smelt sharply of the cow stable, and showed much floating vegetable and animal matters. Bacteriological examination showed the presence of bacteria characteristic of manure in this water, as well as an abundance of these bacteria found in water with much vegetable organic matter. This water was certainly not fit to use, even after boiling.

Too many of our factories have a poor factory supply. I know that two-thirds of the factory water sent me for examination is unfit for use; that is, contains bacteria which are directly harmful to butter or cheese, or, indeed, which make the water as dirty as the substance supposed to be cleaned by it. Of course, it is probable that only the suspicious samples are sent me, and that those not under suspicion would, no doubt, be better.

Of course, the matter of factory water supply is very intimately bound up with that of factory drainage, for it is from the waste matter about factories that the wells are most frequently infected. To the credit of our factories, be it said that drainage conditions are rapidly improving, and, no doubt, in a few years all recollection of the fact that a cheese factory was as soon appreciable to the nose as to the eye, will die out.

SOME POINTS IN CONNECTION WITH BACTERIA IN DAIRYING.

1. Bacteria are invariably present in milk, and the development of certain species therein is necessary for the production of essential or desirable fermentations in butter and cheese making, consisting in the former (butter) of the ripening process, and in the latter (cheese) of acid development.

2. Bacteria of desirable character are widespread, and are almost certain to be present under normal, natural conditions.

3. It is essential that bacteria of undesirable character—i. e., those capable of inciting taints or defects in milk or its products—should be excluded.

4. Bacteria of undesirable character are derived from sources the reverse of cleanly, from manure and manure dust, from bad water, from improperly-cleaned pails and cans, etc. Hence, to avoid these, it is essential that care and cleanliness be exercised in milking, handling and storing milk.

5. For bacterial development to occur, besides suitable food, the temperature conditions must be favorable, and practically we find that, for most bacteria developing in milk, the temperature becomes more favorable the more nearly it approaches the temperatures of our bodies, 98 to 100 degrees F.; hence, to prevent such bacterial development, it is essential, during the warmer months, to cool milk below the point of rapid development; i. e., down to or below 65 degrees F.

6. While such temperatures also prevent the rapid development of the normal acid-forming bacteria, yet it interferes with these less than with most of the undesirable bacteria in the period during which milk is usually kept for cheese-factory use.

7. It is as possible to infect milk during manufacture with undesirable forms of bacteria as it is at the farm; hence, it is essential that care be taken in handling the milk at the factory, and that everything which comes in contact with same during manufacture be as clean as possible.

WINTER VS. SUMMER DAIRYING.

My experience is that winter dairying is much more profitable than summer. In winter dairying, one has all-the-year-round dairying, provided he feeds and cares for his herd as he should during the winter. I like to have cows fresh between October 1st and January 1st; then, with plenty of good ensilage fed twice a day, good clover hay once a day, and bran, gluten or some other protein feed, selected according to the price in the locality, letting the cow be the judge as to the amount she will digest properly, you can look her in the eye and say, "You pay for your board, or you will go to the butcher." If she is a dairy cow, she will comply with your request every day throughout the winter, will go onto grass in good shape, and will do nearly as well through the summer as a cow that comes fresh in spring. She will take her yearly vacation in the fall, when the pasture is dry, while her spring-calving sister will shrink in her milk. Then, a dairyman has more time to take care of his calves during the winter than in summer, and, with good light, comfortable quarters, they will do better in winter than in summer, and by spring will be ready to go onto grass able to stand the hot sun and flies better than a young calf. This plan will also leave the summer skim milk for calves and pigs. Whenever your cows come fresh, feed them so as to keep them doing their best. Do not think you can let them shrink in their milk for a week or a month, and then have them make up for lost time, for they will not do it. They must do their work every day, or they will run you in debt. We formerly sold our milk for shipment to the city, but the shipper who was buying it changed his location to another road, and dropped the men who were supplying him with milk. Then I went to making butter, and I figure that it pays better to make butter than to sell milk for shipment to the city. I estimate that I make at least 50 cents more on a can of milk by keeping it myself, making butter from the cream, and feeding the skim milk to calves and pigs. Moreover, I save the disagreeable duty of daily hauling my milk 2½ miles to the railroad station. Not only was much of my time thus taken up, but I had to keep an extra horse for the purpose. If I did not do that, I would have to keep a team from working in the field while I was driving to the station with one of the horses.

Some farmers believe that the silo is too expensive a structure for them to have on the farm, but the men who hold such opinion have not investigated the matter. A well-built, permanent silo can be put up for about \$1.50 per ton of capacity; that is, a cost of \$300 for a silo that will hold 200 tons of feed. This amount of feed will supply 20 cows with all the silage they should have, even if they are big cows, and are fed the year around. If the farmer is to build a barn that will hold hay for 20 cows, even for the winter, can he build it for \$300? Not at all. He will have to invest very much more than that sum. So, we see that ensilage is the cheapest thing possible to feed, if we are to consider the cost of the structure that contains it. The farmer who intends to largely increase the number of his cows will have to put hundreds of dollars into a barn structure if he intends to confine himself to the feeding of hay for roughage. It will be far easier for him to extend his stables and build a silo than to construct a stable sufficiently high to hold the hay. When a man is freed from the necessity of providing for bulk feed, he can then construct his dairy stable with the one object of getting cleanliness and light. He can build his stable long and low, and secure a flood of light from three sides. This structure does not have to be heavy, as it must be if it is to sustain a heavy superstructure. A silo is thus not expensive, and, moreover, it is a great encourager of the development of dairying. It solves the problem of how a dairyman can make a living off 50 to 100 acres of land. That is going to be the great question in the not-distant future, for the farms are already being cut up into smaller ones.

Fulton Co., N. Y.

JOHN FLETCHER.

The test of milk is of no service unless one knows the quantity. We often see the statement that a cow's milk tests 5.0, but who can tell if she is better than another cow unless he knows how much she yielded at time of test? Of what account is a 6-per-cent. test if there is only a quart or two of milk? It is not presumed that an honest man would advertise a cow by such a substance, but it ought to be stated, in sale catalogues, or in advertisements, or anywhere else, in connection with the test of a cow's milk, how much she was yielding at the time. It is quantity and quality combined that counts for the most in estimating the value of a dairy cow.

POULTRY.

SUMMARY OF INCUBATION EXPERIMENTS AT THE O.A.C.

In the Poultry Department of our January 2nd issue, there appeared an article on the "Principles of Artificial Incubation," synopsising an address by Prof. W. H. Day, of the Department of Physics at the O. A. C., who has been working in collaboration with the Poultry Manager in an investigation of some of these problems, with a special view to determining the cause of that mysterious disease of incubator-hatched chicks known as white diarrhea. In the third edition of Bulletin 151, on Farm Poultry, published by the Ontario Department of Agriculture, Toronto, Prof. Graham discusses the subject briefly from his standpoint, and we quote in full what he has to say:

INCUBATION EXPERIMENTS.

For two years we have been making a study of how a hen hatches eggs, and have been trying to apply what we learned to artificial hatching. We have also been trying to find out the cause or causes of white diarrhea in young chicks. I do not propose, in this bulletin, to go into the details of these experiments, or to deal with the scientific questions that have come up from time to time, but to simply give the practical results, as found, so far.

We found that hens evaporate eggs less than most incubators, and, further, that we got larger hatches where moisture was used in the incubators. We have failed to use sufficient moisture in incubators to drown the chicks or lessen the hatch. We have got good results by using a moisture pan one inch deep filled with water and placed in the bottom of the machine. The pan or pans practically cover the entire bottom of the machine. These are kept in the machine until the eggs begin to hatch.

We have succeeded in hatching chickens that grow and live well by washing the machine with a ten-per-cent. solution of Zenoleum before putting in the eggs; i. e., after the machine is heated to the required temperature, the machine is washed all over the inside, including egg-tray and everything. Do not be afraid of using too much of the mixture; if it stands in pools in the bottom of the machine, no harm will be done. We have had two co-operative experimenters report favorable results, one from Jay's Fluid, and the other from creolin. Possibly any tarry compound will do. We have only used Zenoleum. We believe the beneficial results are of a chemical nature, rather than as a disinfectant.

The following table gives a general summary of the incubation experiments of 1907. The reader will note that this table not only gives the number of eggs set and the number of chicks hatched, but also gives the mortality for the first four weeks. Usually, if a chick lives to be four weeks old, and has then a healthy appearance, it is likely to mature. The table also gives the number of live chicks at four weeks of age, to the hundred eggs set.

The writer is well aware that the mortality in young chicks is not serious on many farms where incubators are in use, yet, at the same time, he knows too truly that the losses in artificially-hatched chicks are enormous. Some operators of incubators have success for a year or so, then the chicks die of this common bowel trouble. Farmer after farmer comes in this office during the year with this story: "I can hatch the chickens, but they get a chalky diarrhea and then die." We have experimented for years with feeds, different methods of brooding, chicks hatched from eggs from a great many places, including large growers and the farm flock, with practically the same result; that is, if we hatched the eggs under hens, setting on earth, the chicks were healthy and vigorous, and if we hatched them in a dry incubator the majority were of little or no use. From the work that has been done by the kindly co-operation of other departments at this College, the trouble appears to be one of ash or lime assimilation, or, in other words, the chemists find much more lime in a hen-hatched chick than one hatched in a dry incubator; and, further, the vitality of chicks hatched in the various machines operated, as indicated in the table, is shown by the lime content of the chick; the more lime or ash in a chick, the better it grows or lives, and the less lime or ash, the weaker the chick. The food given to the old fowl may influence the contents of the egg, so that at certain seasons of the year the eggs may be better than at other seasons; and, moreover, the air of the incubator room may have some influence.

The writer has seen a few hen-hatched chicks with white diarrhea. A few have been hatched in our experimental rooms, but were not produced under normal incubation. Those we have had were hatched by setting hens on the cloth screen in an open-bottom incubator, or there was just a piece of bran sacking between the bottom of the eggs and the air of the room. A few hen-hatched chickens have been sent in from outside sources.

COMPARISON OF METHODS OF HATCHING.

HOW TREATED.	No. of eggs set.	% infertile.	% fully formed dead in shell.	% hatched of total eggs set.	% of chicks dead in 4 weeks.	Live chicks at 4 weeks in % of eggs set.	No. of hatches.
Hens—							
Earth nest	23	13.1	4.3	60.9	14.3	52.2	2
Straw nest	23	8.7	8.7	52.6	16.6	43.5	2
Ventilated nests	23	13.1	13.1	60.8	35.7	39.1	2
Roomy nests	123	10.6	7.3	66.6	20.7	52.8	11
Crowded nests	176	15.9	4.0	50.0	12.5	43.7	16
All hens	299	13.7	5.4	56.9	16.5	47.5	27
Incubators—							
Buttermilk and Zenoleum	61	8.2	19.7	49.1	80.0	45.9	1
Whole milk and Zenoleum	110	17.3	10.0	58.2	21.8	45.5	2
Water, carbon-dioxide and Zenoleum	44	13.6	11.3	52.2	13.0	45.4	1
Water and Zenoleum	464	32.0	11.4	52.8	16.7	44.0	6
Buttermilk	583	18.3	10.0	52.0	28.0	37.4	8
Water and carbon-dioxide	129	20.1	7.8	48.1	22.5	37.2	2
Water only	1,221	13.9	11.3	51.9	37.0	32.7	13
Lamp fumes, dry	112	24.1	14.3	38.4	16.3	32.1	2
Zenoleum, dry	327	13.1	13.7	47.4	32.2	32.1	3
Skim milk	330	13.6	13.0	40.6	26.1	30.0	3
Water, milk and Zenoleum	83	12.0	14.5	32.5	15.3	27.5	1
Lamp fumes, water and Zenoleum	61	21.3	14.7	34.4	23.5	26.2	1
Whole milk	353	15.3	12.2	48.7	52.3	23.2	4
Dry or no treatment	1,406	16.3	12.6	40.7	60.5	16.1	12

NOTES ON THE ABOVE TABLE.

The most and the best chicks were produced from hens set in roomy or large nests. The nests were nearly two feet square, and would have about four inches of earth in the bottom of them.

All the milk experiments were tested with the idea that, by putting certain germs in the milk, we could produce the carbon dioxide found under hens. The results show some increase of gas, but not enough.

Zenoleum was used as a disinfectant in a test alongside of mercuric chloride. The results were that the chicks from the machine washed with the tarry compound lived, while most of the others died.

Lamp fumes were used, with the idea that they would probably lower the hatch and produce poor chicks. They reduced the hatch, but what chicks came out were fairly thrifty; in fact, they grew as well as any.

SYMPTOMS OF WHITE DIARRHEA.

In the third edition of Bulletin 151, on Farm Poultry, published by the Department of Agriculture, Toronto, the author, W. R. Graham, Poultry Manager of the Ontario Agricultural College, thus describes the disease of young chicks called white diarrhea, in a way that should enable anyone to diagnose it.

"When the chicks are about twenty-four to ninety-six hours old, they resemble one another very much in appearance, with the exception that we have noticed that hen-hatched chickens and those hatched in moist incubators were longer in the down, or looked larger and fluffier. The trouble generally begins about the fifth day. Some of the chicks will have a thin white discharge from the vent, the chick is not active, it has a sleepy look, also the head appears to settle back towards the body; one would think the chick was cold or in great pain. Some of the chickens get in the warmest spot under the hover; others have intense thirst. The white discharge from the vent is not always present. The chicks may die in large numbers between the fifth and the tenth days, or there may be a gradual dropping off each day until they are perhaps six weeks of age. The disease kills some quickly, others linger for a week or more. A few chicks appear to recover, but seldom, if ever, make good birds—they are small, unthrifty, and are good subjects for roup or any other epidemic.

To the ordinary observer, a post-mortem examination will reveal the following conditions: The lungs will usually show small white spots in them; these are generally seen on the side of the lungs next to the ribs. The white spots are generally quite hard and cheesy. These spots are not always present, but, from our examinations, I would judge they are in fifty per cent. of the cases. I have seen these in chicks on every poultry farm where I have been this year, where they hatch chickens with incubators. Some livers have no white spots, but are red, sometimes fleshy. These, in our experience, are not very common, unless the chickens get chilled. The yolk is often hard and cheesy. It varies greatly—some yolks are of a gelatinous nature, or almost like the white of the eggs; others are hard and cheesy and very yellow in color, sometimes these are greatly inflamed; other yolks appear like a custard that has curdled, and they have usually a very offensive odor. The caeca or blind intestine is frequently filled with a cheesy substance.

We have written notes on 463 post-mortems.

held between April and August of 1907. It may be interesting to many to know what are the general conditions, as found in these chicks. If we tabulate the results as to the common conditions found—i. e., cheesy spots in the lungs, hardened yolks, and hardened or cheesy accumulations in the caeca—we found 207 chicks had cheesy spots in their lungs, 138 had hardened yolks, and 113 had abnormal caeca. Again, if we take a combination of the conditions found, say where the lungs, yolk and caeca are abnormal, we find 102 in this class; where the lungs and yolk only are diseased there are 164, and 117 with diseased lungs and caeca.

GUARDING AGAINST WHITE DIARRHEA.

Editor "The Farmer's Advocate":

I do not know whether it is appropriate for a mere layman to undertake saying anything re this question. A certain writer recently made considerable sport of the idea of anyone but a scientist trying to find a cause for this wholesale trouble to young chicks. Well, the scientists and professors seem to be at sea (and they admit it) in respect to this problem, and who knows but what it may yet devolve upon a poor, insignificant egg-gatherer to throw out the "life-line." It may be, if our professors would fold up and lay aside their scientific theories for a while, and do some real, old-fashioned, common-sense thinking, they could get at the root of the matter.

Now, my suggestion is, let us look to what we have done and are still doing. We have been turning nature upside-down, and inside-out. We, in this day and generation, are not content to do things as nature intended us to do, but we have been using our scientific knowledge (theories and notions, often) to set aside Mother Nature's ways and take full control ourselves. In the good old days, when hens were healthy and chicks hatched strong, we did not get eggs all fall and winter. But we have been showing Bidly how she should be making money for us all the year round. She must moult in the unnatural season, and that in only a few days, instead of the 60 to 90 days she formerly required for the work. Then, she must lay from 24 to 30 eggs each month during the short, dull days of November, December and January. Is there any person living who will say, candidly, that a hen can have her system well stored with the greatest vitality after producing eggs under unnatural conditions for five or six months. This extra work has often been done, too, under the most unfavorable conditions. For instance, a closed-up house, where the air is foul, and sometimes artificially heated in some way. If we would expect healthy chicks, the eggs' germs must be so. To insure this, the birds must be in the most vigorous condition possible. Every drop of the parent-stock's blood must be rich and pure to insure thoroughly-developed, healthy chicks. Then, the incubator, what of it? It is now admitted by the best authorities that the hen hatches a larger percentage of eggs than the machine. This being the case, when there are so many conditions re the hen not under man's control, and the incubator can be controlled, it does stand to reason that those hatched under the hen must have at least a few degrees of stamina more than those coming from an artificial means.

Now, it seems that we should have a proper place to keep the hens or early pullets we intend for breeding purposes, where they would have pure air night and day, and be made to exercise

for their food during the fall and winter months. At the same time, they should have food supplied only in such quantities and variety as to warrant vigorous health, and not sufficient to permit of laying to any extent whatever. And, by all means, the food should be of such kinds as to keep them from becoming fat, in the least. Then, when eggs were wanted, the rations should be increased. With this method in vogue, the hens would be in the pink of condition, and, the natural laying season being at hand, they would lay well, and lay their finest quality of eggs, either from appearance or from the standpoint of vitality. They would then put the best of themselves into their product.

Any poultryman with an observing eye can see that a hen, having laid heavily all winter, has a faded, withered, frail appearance, compared with what she had in the fall, when commencing to lay. Does anyone maintain that, with this lack of gloss of plumage, and this shrunken appearance, she has stored into her system the essential materials to transmit to the offspring, which they require to withstand the troubles they are heir to.

Again, who has not observed the difference between the first dozen eggs (brown eggs) a hen lays after moulting and those she lays three or four months hence? The first are so rarely rich in color, and the latter so much paler and faded in appearance. Now, if deterioration can be noticed in the appearance of the shell, will anyone assume that that which the shell contains has all the ingredients in their proper proportions necessary to produce the best?

This may not be the whole of the trouble. No doubt there are other things closely allied to these, but it is wonderful what hardship and exposure to disease a bird can withstand if only there is the truly vigorous, faultless constitution at its back. J. R. HENRY.

Wentworth Co., Ont.

[Note.—There is food for thought in this article, but, if egg-laying is to be retarded in the pullets or hens from which it was intended later to secure eggs for hatching, what about the ultimate effect on the laying qualities of the strain? And how would this plan work in with the advice to trap-nest all hens, and breed only from the best layers? What do other poultrymen say to this?—Editor.]

GARDEN & ORCHARD.

NEW BRUNSWICK FRUIT-GROWERS' ASSOCIATION.

The annual meeting of this Association took place at Fredericton on January 24th, under the presidency of Mr. J. C. Gilman, of Kingsclear. In addition to the addresses, there was an exhibition of fruit grown by the members, which formed a most tempting, and, considering the unfavorable season, a most creditable display. In his opening address, the President referred to the peculiar climatic conditions of the past year, with its oddity and extremes. There had been little sunshine, but an excess of moisture, with low temperature and local hailstorms of great violence. But, notwithstanding such adverse conditions, the fruit crop had given ample evidence of being one of the most reliable and profitable to produce in many sections of the Province. Strawberries had maintained their reputation for giving good returns, while the raspberry crop, having had abundance of moisture, was better than usual. Other small fruits were hardly an average. Apples, though somewhat uneven, were about the average, and the orchard trees had made a good growth; young trees particularly so. From various sources of information, he was inclined to believe that the planting of apple trees, and small fruits, also, would be done on a more extensive scale than usual the coming season. And he must also say that never in his memory had the outlook been more encouraging for increasing the acreage of fruit and giving additional care to that already set. Perhaps one mistake that had hindered fruit-growing in the Province more than any other was the indiscriminate planting of varieties. Experience had now proved what were the best varieties suited to the Province, and it was not wise to go outside those varieties; and it was to their own advantage to profit by the experimental work already done, and avoid wasting time and money in planting varieties of the tender and half-hardy classes.

Mr. W. McIntosh, the Curator of the Natural History Museum at St. John, then gave a most interesting and instructive address on the subject of "Insect Pests in Orchard and Farm," in which he described fully the various insects with which the farmer and orchardist is usually troubled, including the bud moth, the codling moth, the aphid or green fly, the oyster-shell bark-louse, the borers and the tent moth, which might sometimes be mistaken for the brown-tail moth, the caterpillar of which being somewhat alike, but not exactly. The caterpillar of the brown-tail moth had two red spots on its back, near the tail, which the

tent caterpillar had not. Besides, the brown-tail moth usually made its nest at the end of a branch, whilst the tent caterpillar usually chose a spot where a branch joined the stem of a tree, or in the fork between two branches. Referring to the subject of nature study generally, the speaker said it was most valuable, because of the knowledge gained of the various insect pests which damage a farmer's crops; and, as such knowledge increased, so would the knowledge of farming, and better crops and more money would, as a consequence, result to the farmer. Mr. McIntosh's remarks were illustrated by mounted specimens and large, colored drawings of the several moths and caterpillars described, which made the subject most interesting and intelligible to his audience.

Mr. S. B. Hatheway, of Kingsclear, then gave a short address on his experience as an amateur orchardist, in which he said that, some four or five years ago, he laid out an orchard of about six acres, and he planted three varieties—McIntosh Red, Gaus, and Dudley Winter. He had given a good deal of time and attention to it, and it was in a most thriving and healthy condition at the present time. He had, however, found the matter of cultivation a rather expensive item; so much so that he proposed to adopt another method of keeping the trees clear of weeds which would cost considerably less. He thought of adopting the method pursued by his neighbor, the president, who had, within the last year or so, found it necessary to plant several young trees to fill up some gaps in his orchard. The method he referred to was to lay a thick mulch round the young trees, a course which the president had found very satisfactory so far. He had

end bud was always on the top of the branch. Frequent, thorough cultivation was, of course, very necessary, though it was not necessary to do this too close to the roots of the trees, as the roots would run after the nourishment fast enough. He did not intend to say much about spraying, beyond impressing on them that, unless a man was prepared to spray, and that thoroughly, he had better leave the orchard business alone. If properly attended to, in five or six years the trees should be bearing fruit; and, having got the fruit, he advised them to go into the "box" business, and to do it in such a manner as to make a reputation for themselves. When a man has got a reputation for selling only the best fruit, he would never find himself without customers, and, more often than not, he would have more than he could supply. The English market was always open, and was almost unlimited, and, to a man who knew his business, and was prepared to make the best use of his opportunities, the industry would be found not only a very pleasant one, but most profitable as well.

The meeting then appointed the following officers for the ensuing year:

President.—Isaac W. Stephenson, of Sheffield, Sunbury Co.

Vice-President.—W. B. Gilman, Kingsclear.

Treasurer.—Henry Wilmot, Lincoln, Sunbury Co.

Secretary.—S. B. Hatheway, Kingsclear.

The new secretary is one of the most enthusiastic and "go-ahead" young farmers and orchardists in the district, and has already outlined some suggestions he proposes to adopt to quicken an interest in fruit culture and increase the number of orchards in the Province.



I. W. Stephenson, Sheffield, N. B.

President New Brunswick Fruit-growers' Association.

found it advisable to look over the trees frequently, clipping off shoots here and there, which made the training of the young trees very much easier. He would like to see more interest taken by farmers in the subject of apple-growing. It was a most interesting and—if properly attended to, could be made—a most profitable branch of farming.

Mr. G. H. Vroom, Dominion Fruit Inspector, of Middleton, N. S., was then called upon to give an address on "General Orchard Practice," and, in complying, said, before beginning the subject on which he was asked to speak, he would like to say a few words upon the excellent exhibit of apples which he had just had the honor of judging. He could truthfully say that, in all his experience, never had he seen finer apples than the specimens in some of the classes which were then before them. The collections, too, were very fine; so much so that he had found it necessary to award an extra prize. The packed boxes contained some very good fruit, but the manner of packing was not in the best style. He then proceeded to explain how packing should be done in a very clear and appreciative way. Coming to the subject of his address, the speaker said, in starting orcharding, it was necessary to success that one should start with good trees, the best that could be got, and, if possible, locally grown. The varieties selected should only be those which had been proved to be suited to the locality. The trees should be planted thirty feet apart each way, and headed low—not more than two feet or so. Low-headed trees were much more convenient in every way, whether for pruning, spraying, gathering, or aught else, and were, moreover, much less liable to damage from winds than the higher-headed trees. In pruning, which should be done in May or early June, it was desirable to cut off at least half the growth every year, as it grew, and trim the branches in such a way that the

WESTERN NEW YORK HORTICULTURAL SOCIETY.

The fifty-third annual convention of the Western New York Fruit-growers' Association took place at Rochester Jan. 22nd and 23rd, and was well attended, there being upward of one thousand paid-up members in attendance, and a full programme and question box of all subjects of vital interest to fruit-growers and fruit-growing was taken up. There was also an instructive fruit exhibit from the New York State Experiment Station at Geneva, and members had the privilege of sending in an exhibit, which were mostly of apples, while Ellwanger & Barry made a splendid display of numerous varieties of grapes and pears. The apple section fell far short of what we are accustomed to see in our own Ontario Horticultural Exhibition in November, although one or two individual collections were very creditable.

Many growers expressed their regrets at not being able to see a full exhibit of spraying machinery, such as was given in the Armories a year ago. But the Association is hopeful that in another year the City of Rochester will have a convention hall where there will be ample accommodation for the ever-increasing attendance.

TILLAGE VS. SOD MULCH FOR ORCHARDS.

One of the most interesting and instructive papers was a short account of the work conducted by the New York Agricultural Experiment Station, entitled, "Tillage vs. Sod Mulch," by Prof. U. P. Hedrick, Horticulturist of that Station. A ten-acre apple orchard was selected as being typical of the average orchard of Western New York, and, with the consent of the owner, part was plowed up each spring, cultivated thoroughly until midsummer, then seeded down to a cover crop, which was allowed to remain until the following spring, when it was plowed again, cultivated, and again, in midsummer, seeded as before. The other part of the orchard, however, was left in sod, the grass cut frequently with a mowing machine, and allowed to remain where cut. This practice was followed for several years, and the results were as follows: For the first year no appreciable difference was noticeable in the yield of apples from the two parts of the orchard. The second year gave a slight increase in favor of the cultivated part. This has been noticeable every year since, until now, the seventh year, the increased crop of apples is almost double that of the part treated as a sod mulch. The increase is not so much in the number of apples as the size of the fruit. There is now also a very marked difference in the appearance of the trees. The cultivated ones are larger, the foliage is of a darker shade, and retains its color much longer in the season, the wood on the cultivated trees is plumper, and the whole trees have an appearance of thrift. While these on the sod mulch take on the autumnal tints of the foliage much earlier, the fruit also colors up earlier in the season, although much inferior in size. The experimenters conclude that, although there may be orchards so situated that it would be possible, perhaps, to have fair crops of apples under the sod-mulch system, still, these conditions are so limited that, for the average orchard in Western New York, where there is no excessive rainfall, nor where the land is naturally not blessed with a superabundance of moisture during the summer

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months, that the sod-mulch culture is not the method best adapted for the needs of progressive fruit-growers, as the saving of labor in the care of the orchard is so little that the increase of crop of the tilled orchard covers many times the amount of difference in labor.

ARTIFICIAL SUBSTITUTES FOR NITRATE OF SODA.

A very interesting paper, given by Dr. L. L. Van Slyke, Chemist, New York Agricultural Experimental Station, on "Atmospheric Nitrogen as a Future Commercial Source of Plant Food."

The speaker referred to the present sources of nitrogen used as fertilizers, dividing them into vegetable and mineral. The most commonly used of the mineral forms was nitrate of soda, and, to a limited extent, sulphate of ammonia, the latter of which is a by-product of a manufacturing process, while the former came chiefly from Chili. This nitrate of soda, at the present rate of mining, will be about exhausted by 1923, unless other deposits are found elsewhere; hence, scientists have been devoting much time in experiments to see how the free nitrogen of the air could be induced to combine chemically with other substances, so as to become available sources of plant food.

Nitrogen, which forms four-fifths of the common air, is a gas, which is conspicuous by its tendency not to combine, under any ordinary conditions, with very many substances. By experiment, the chemists have been able to produce a substance called calcium cyanamide, which is produced by heating calcium carbide (the substance used for producing acetylene gas) in the presence of air, the nitrogen combining and forming this compound, calcium cyanamide, with the accompanying by-products. Chemically pure, this substance contains 35 per cent. of nitrogen, but, commercially manufactured, 14 to 22 per cent. When this substance is heated in presence of water, the nitrogen changes to ammonia, which is a compound available for plant food. Commercially manufactured, at present, the nitrogen costs 13½ to 15 cents a pound. It is a substance which left exposed to the air, will absorb moisture and lose nitrogen in the form of ammonia; it will injure seeds if it comes in contact with them in the soil, and is not suitable as a top-dressing, nor can it be mixed with other fertilizers.

There is still another nitrogenous product, formed by passing air through a heated receptacle charged with electricity. The nitrogen and oxygen combine, forming nitric oxide; this is further combined with oxygen in the presence of water, and forms nitric acid, a liquid which, when mixed with lime, combines chemically, forming nitrate of lime. This, also, is a salt, which is treated with an excess of lime, which partly prevents it from absorbing moisture from the air. This latter substance, nitrate of lime, is available as a plant food, and contains about 15 per cent. of nitrogen. Should manufacturers be able to get the former substance, called calcium cyanamide, to give up its nitrogen in the form of ammonia, and combine it with the nitric acid, instead of using the lime to make the salt, then we should have a substance, nitrate of ammonia, which would contain 30 to 33 per cent. of nitrogen, and be very readily available as plant food, and some cheap way of producing this substance would readily solve the problem of supplying nitrogen to take the place of the present sources of nitrogen in the nitrates from Chili, which will soon be exhausted.

The other parts of the programme dealt with the insect and fungous pests of the orchard, their treatment; relation of birds to horticulture, and the apple situation in Western New York.

A very interesting paper was given by M. C. Burrett, of Cornell University, on the co-operation in the packing and marketing of orchard fruits, and gave a complete outline of the methods adopted by the fruit-growers in Oregon, and also some of our leading Ontario co-operative apple-packing stations, and pointed out the many advantages of such a scheme.

Prof. Lowell Judson, of Cornell, gave an address and practical demonstrations of box-packing for apples, and how to fit up the packing-house and tables.

RE A FEDERAL FRUIT-MARKS ACT.

The Committee on Resolutions, which reported a year ago on the advisability of enacting a Federal Law to define the different grades of apples, and appoint inspectors to see that apples were properly packed and marked," again reported this year.

A year ago they reported that the suggestion of honest packing, according to a Government standard, was not in accordance with the freedom enjoyed under the American Flag, also of the possibly hopeless task of appointing inspectors who might not be looking for graft, and would do the honest work, and ended up by saying that the proposed law savored strongly of the Fruit Marks Act under which some growers across the line, in Canada, do business. Is it any wonder that the properly-packed Oregon apples are replacing the Western New York apples in the large centers?

The sooner this progressive Society relegates

this "Committee on Resolutions" to the rank of "honorary members," and get their places filled with younger, up-to-date members, the better for the growers who are trying to bring the apple-growing industry of New York State to where it should rightly belong.

G. A. R.
Lincoln Co., Ont.

AMERICAN POMOLOGICAL SOCIETY TO MEET IN ONTARIO.

At the annual meeting of the Ontario Fruit-growers' Association, held January 14th, an invitation was sent to the American Pomological Society to hold their next bi-annual meeting in St. Catharines in September, 1909. A formal acceptance of this invitation, on behalf of the Society, has been received by the secretary of the Ontario Fruit-growers' Association, and preparations will be begun at once so as to make this one of the best meetings that the Association has ever held.

The American Pomological Society is composed of professors and lecturers in horticultural colleges of the United States and Canada, together with prominent fruit-growers scattered throughout both countries. It is one of the most prominent associations of its kind in the world, and its rules of nomenclature are adopted by every horticultural association of prominence on this continent.

The meeting of this Society in Ontario will be a splendid advertisement for the fruit-growing industry here, and every effort will be put forth to suitably entertain the members of this association when they are in our midst.

The Fruit Division finds, from the reports of the Inspectors, that apples are not keeping well in the packing-houses of Nova Scotia. The weather in the Maritime Provinces has been mild and damp, and the apples have suffered accordingly. The season has been very favorable so far for the Georgian Bay District. Apples are reported there in prime condition. They are also keeping well in the storehouses along the north shore of Lake Ontario, but, unfortunately, a large quantity of exceedingly low-grade apples was stored last year, in anticipation of high prices. These are not keeping well, nor will there be much profit in shipping them.

THE FARM BULLETIN.

NOVA SCOTIA FARMERS MEET.

The twelfth annual convention of the Nova Scotia Farmers' Association was held in Antigonishe, on Jan. 28th to 30th; the President, C. H. Black, of Amherst, in the chair. The President, in his opening address, after referring to the peculiarities of the past season and the consequent scarcity and high prices of farm products, and also to the stringency of the money market, urged the necessity of more education to make us proficient in our profession, and more co-operation in carrying on our business and in protecting our interests.

Dr. Standish, of Walkerton, Ont., addressed the Association upon "Some Diseases of the Digestive Organs of Cattle," and gave a few symptoms and common and effective remedies for some of the most common disorders of cattle.

The discussion on this address was interesting and spirited, and a great deal of information was gained from Dr. Standish as to the prevention as well as the cure of some of these troubles, which, while not often resulting in death, are very often serious enough to make a loss instead of a profit in handling cattle.

The Tuesday evening session was interspersed by music and recitations, given by the people of Antigonishe. The programme included an address of welcome from Mayor McDonald, which was full of sound sense, well thought out, and well put together, and was replied to in a happy manner by E. J. Elliott, Vice-President of the Association. An address by Hon. Geo. H. Murray, Premier of the Province, and an address by Prof. Cumming, President of the Agricultural College, Truro, followed.

The Wednesday morning session was taken up with reports of the Directors, with the financial statement, the report of the exhibition commissioners, and the report of the various county farmers' associations.

On Wednesday afternoon, Dr. Standish gave an address on unsoundness in horses, every sentence of which was listened to with the greatest of interest, and the delegates showed they knew a good thing when they found it by holding on to Dr. Standish and plying him with questions until the President was obliged to call off the discussion in order to make room for the remainder of the programme.

Mr. F. L. Fuller, the newly-appointed Superintendent of Agricultural Associations, gave a short address, outlining some proposed changes in regard to the management of agricultural societies. After considerable discussion, Mr. Fuller's recommendations were accepted by the Association.

Mr. Percy Shaw, Horticulturist of the Agricultural College, gave a very interesting and instructive address upon "Birds in Relation to Agriculture." The points brought out in this address showed that we are much more indebted to our friends, the birds, for the keeping

down of insect and weed nuisances than we had ever thought before. After the adjournment of the afternoon meeting, Mayor McDonald, being also Inspector of Schools, escorted the members of the Association through the educational institutions of the town, which are in a high state of efficiency and doing splendid work for the education of the young people of this Province. The features which appeared to interest the members most were the department of electrical engineering in connection with St. Francois Xavier College, and the musical training given at the Convent.

The Wednesday evening session opened with an address by F. W. Foster, of Kingston, N. S., on "Dairying." Mr. Foster tried farming in the West, having lived in Alberta and Saskatchewan for seven years, and has returned to Nova Scotia, and is now one of our most successful dairymen, having last year obtained an income of more than \$8,000 from a sixty-acre farm. His address was full of valuable information, and he backed his statements by his own experience. He advocated liberal feeding at all times of the year, and especially urged growing soiling crops for supplementing the pastures during the latter part of the summer, and the use of corn silage and roots to supply succulent food during the winter. Mr. Foster strongly advocated growing some corn and using it for soiling, and, if a farmer did not have a silo, shock what was left, and use it for fodder during the autumn and early winter. Mr. Foster urged Nova Scotia farmers to raise more roots and clover hay.

In answer to a question, Mr. Foster said he sowed 1 bushel of oats, 1 of vetches and 6 quarts of buckwheat per acre for a soiling crop. This was seeded to clover. When asked how to bring up worn-out land without manure, Mr. Foster replied, "Get some cows."

Staff Capt. Jennings, of the Immigration Dept. of the Salvation Army, addressed the Association on the work of the Army in bringing immigrants to Canada, and Arthur S. Barnstead, Secretary of the Provincial Dept. of Immigration, outlined the proposed work of the Department in securing farm laborers for Nova Scotia, and read a few extracts from letters of English and Scotch immigrants who had spent a year or two in this Province and are well pleased with the change they had made.

Jas. P. Landry, of the Agricultural College staff, gave an interesting and instructive address on "Poultry on the Farm," showing the advantages of plenty of exercise to keep hens healthy; a warm roosting place, and not too close and warm scratching pens, though they must be free from any drafts. He explained how breeders of pure-bred poultry should use the trap nest, and set only the eggs from good layers.

The last session was held Thursday morning, when reports of committees was the first order of business. A resolution was passed deprecating the action of the exhibition in holding the exhibition too early to show fruit and vegetables in a mature condition, and asking Nova Scotia farmers to refrain from exhibiting next autumn unless the date is made later than that now proposed.

The following officers were elected: President, E. J. Elliott, Clarence; 1st Vice-President, Albert McMan, Aylsford; 2nd Vice-President, H. S. Kennedy, Alma. Directors—S. A. Cook, Yarmouth; Wm. O'Brien, Windsor; Wm. Vinton, Antigonishe; Samuel Freeman, Amherst, N. S.

A BRITISHER'S PROTEST.

Editor "The Farmer's Advocate":

In your issue of January 9th were a few lines by an individual, signing himself "Subscriber," about English immigrants. I must say I felt rather hurt when I read his extremely sweeping remarks with regard to English boys. He seems to class them all under one heading, viz., "No good." I also think that he is greatly exaggerating when he says that there were not more than half a dozen who were any good. Did he really try to find out how many were some good? Perhaps he really means that there were only half a dozen that were no good. May I earnestly and respectfully ask "Subscriber" not to get into that hard and narrow way (so un-Canadian-like) of thinking that no Englishman can come up to his own countryman.

I only arrived in this country last April, and must say that Canadians have come up to my fullest expectations. My boss is just a cracker. He seemed surprised when he read "Subscriber's" remarks, and also said he didn't think he was a Canadian or he would have been fairer in his judgment of the English immigrant. At the same time I do admit that certain societies in England seem to gather up the refuse of the towns and ship them to Canada; but in nearly 40 per cent. of the cases it will be found that there is a large foreign element. Thanking you for valuable and interesting information that I have received from the weekly perusal of your journal.

BRITISHER.
Oxford Co., Ont.

FORTHCOMING EVENTS.

- Feb. 18th, 8 p. m.—Ontario Horse-breeders' annual meeting, Walker House, Toronto.
- Feb. 20th.—Prince Edward Island Dairymen's Convention, Charlottetown.
- Feb. 26th to 28th.—Ontario Horse-breeders' Show, at Toronto.
- May 4th to 9th.—Canadian National Horse Show, Toronto.
- June 29th to July 9th.—Dominion Exhibition, Calgary, Alta.
- July 11th to 17th.—Winnipeg Industrial Exhibition.

The Live-stock Breeders Meet in Toronto.

Toronto was the rendezvous last week for live-stock men. The Dominion Cattle-breeders', Dominion Swine-breeders', Dominion Sheep-breeders' and Dominion Shorthorn Breeders' Associations held their annual meetings on Monday and Tuesday, after which many of the delegates journeyed to Ottawa to attend the National Live-stock Convention, February 5th to 7th. The meetings were enlivened by the presence of quite a strong contingent of Westerners, whose presence and utterances served to bring out and emphasize the anomalous character of some of our organizations, which are partly Provincial and partly Federal in organization and aims.

DOMINION CATTLE - BREEDERS' MEETING.

The Dominion Cattle-breeders' Association annual meeting was called to order by President John Gardhouse, in the Palmer House, on Monday afternoon, Feb. 3rd. Without preliminaries, the secretary was called upon to read the report of the Executive, which showed a very satisfactory financial statement, the balance from last year being \$188.43; total receipts, including balance, \$511.43; disbursements, \$224.54, leaving balance on hand of \$286.89. The first item dealt with in the Executive's report was the

ONTARIO PURE-BRED STOCK TRADE.

During 1907, two long palace cars and four short cars were sent West with pure-bred stock. The stock was collected from 70 breeders in Ontario, and delivered at 72 points in the West, from Fort William to Victoria. The receipts in connection with these shipments were \$1,530.30; the expenses \$1,522.36. The different breeds of stock were represented by the following members: Horses—Clydesdales, 27; Shires, 3; Hackneys, 1. Cattle—Shorthorns, 19; Herefords, 2; Aberdeen-Angus, 1; Holsteins, 8; Ayrshires, 5; Guernseys, 1; Jerseys, 7. Sheep—Oxford Downs, 9; Shropshires, 1; Leicesters, 4; Dorset Horns, 1. Swine—Berkshires, 19; Yorkshires, 13; Tamworths, 2; Essex, 1. Total, 124. In August, of 1907, the rate in carloads, of pure-bred live stock, from Ontario to Pacific-coast points was reduced from \$1.20½ per cwt. to 21½ cents per cwt. The reduction will mean much to Ontario breeders who wish to sell stock in British Columbia, and it is expected that considerable improvement in the trade with that Province will be noticed this coming season.

Owing to the largely-increased population in Western Canada during the past few years, the Executive deemed it would be well to consider whether or not Ontario breeders were doing as much as they should to keep before the attention of new settlers and others residing in the West the quality of Ontario stock, the values which can be procured, and the facilities for delivery through the Association cars. The following recommendations were suggested for discussion, and pretty well winnowed out by the meeting:

1st.—The advantage of having display advertisements in the agricultural and larger Provincial papers in the West.

2nd.—To arrange for a permanent representative in the West to act as a commercial agent, representing Ontario breeders.

3rd.—To arrange for a carload of Ontario stock, including horses, cattle, sheep and swine, to be placed on exhibition next summer at as many fairs as possible throughout the West, including, of course, the Dominion Exhibition, at Calgary, early in July.

A. W. Smith voiced a general opinion that, if any of these recommendations were followed out, it should be the last, as the Western people like to see the stock before they buy, and he did not believe that adequate value would accrue to the Association from display advertising in the press. W. A. Dryden and other speakers questioned the propriety of the Dominion Cattle-breeders' Association bending its energies to promote trade for Ontario breeders. In reply, it was pointed out that, though Dominion in name, this body was virtually Provincial in character, the Ayrshire Breeders' Association being the only one of the several affiliated organizations which made other than its Ontario members, members of the Cattle-breeders' Association. On the other hand, it was argued that the Association was Dominion in its aims. Robert Miller raised the question whether it was fair to Western breeders for the Association to push, by advertising, the Western trade of Ontario breeders, who already have the advantage of cheap railroad rates on pure-bred stock, though he was willing to join in the proposal to send out a car of stock for exhibition purposes.

It was finally decided, on motion by Mr. Smith, to adopt the report of the Executive, striking out recommendations 1 and 2, as quoted above, leaving the third to the Executive.

WINTER-FAIR CLASSIFICATION.

Some discussion was devoted to the paragraphs relating to the Ontario Provincial Winter Fair at Guelph. The following table shows the number of animals of the various breeds and classes exhibited during the past four years:

Breed.	No. of Animals Exhibited.			
	1904.	1905.	1906.	1907.
Beef Cattle:				
Shorthorns	33	27	25	23
Herefords and Aberdeen-				
Angus	17	24	19	13
Galloways and Devons	12	10	12	5
Grades or Crosses	37	38	38	22
Export Steers	21	15	18	12
Total	120	114	112	75
Dairy Cattle:				
Shorthorns	7	2	8	7
Ayrshires	2	14	17	14
Holsteins	15	15	17	14
Jerseys	4	7	7	
Grades	5	4	3	2
Total	33	42	41	35

The table shows that in the Dairy Department there has not been much variation in the number of exhibits. In beef cattle, there was but a slight decrease in the number of exhibits between 1904 and 1906, but in 1907 the number of beef animals was very small. While a reasonable fluctuation is always to be expected, and high prices and scarcity of feed would probably account for the decrease at last fair, yet it was suggested that it might be wise to consider the revision of the classification, with a view to maintaining or increasing the entries, by persuading new exhibitors to enter the lists. Speaking of this question, R. J. Mackie reminded the meeting that last year a recommendation had been made calling for separate classes for Herefords and Aberdeen-Angus, but at the last fair they were again obliged to show together. He strongly urged that separate classification be made. The Hereford men would rather show with the Shorthorn men, he said. (Laughter.)



D. C. Flatt, Millgrove, Ont.

President Dominion Swine-breeders' Association.

John Bright advocated cutting out the classes for females, which proved to be filled often with old cows, heavy with calf, run in out of the barnyard. He also suggested that all breeds might be allowed to show together. String out the prizes and increase the money, if necessary.

The matter of county prizes for exhibits, confined to the municipality putting up the money, was also brought forward, and it was pointed out that the County of Wellington had been having such a special class for years. Secretary Westervelt sounded the meeting's opinion upon the advisability of having a Provincial class for amateur exhibitors. Mr. Miller favored the idea of county competitions, urging that, by placing every animal in the open class, the rating of the entries for the amateur and the county classes could virtually be accomplished at one judging. After some desultory discussion, in the course of which Mr. Lloyd-Jones raised the question of whether it might not be better to transfer the Winter Fair from Guelph to Toronto Junction, it was decided, on motion of R. H. Harding, to leave to the Winter Fair Board the matter of prizes for amateur classes.

A motion to recommend that all the breeds be exhibited together was voted down, on the ground that it would be prejudicial to the interests of the Fair.

A resolution was passed opposing the proposal of the Canadian National Exhibition to keep the live stock over until Saturday night of the second week.

Election of officers was then proceeded with. It

was, on motion, decided to accept the recommendations of the several affiliated associations as to the directors to represent these, John Gardhouse being elected general director. Representatives of the Ontario Agricultural College: President G. C. Creelman and Prof. G. E. Day. Representatives to Fair Boards: Toronto, John Gardhouse, Highfield; Ottawa, Peter Christie, M. P., Manchester, Ont., and Robt. Ness, Howick, Que.; London, Capt. T. E. Robson, London, and A. W. Smith, Maple Lodge; Provincial Winter Fair, John Bright, Myrtle; Arthur Johnson, Greenwood; W. W. Ballantyne, Stratford; and R. S. Stevenson, Ancaster. Eastern Live-stock and Poultry Show, J. H. Grisdale, Central Experimental Farm, Ottawa; Peter White, Pembroke; W. F. Stephen, Huntingdon, Que., and the President. Owing to the resignation of the auditor, J. M. Duff, it was decided to leave the securing of a man to serve in this capacity to the President, who was to confer with the presidents of some of the other organizations, with a view to securing one man to audit all the books, for the sake of convenience to the secretary.

DOMINION SWINE-BREEDERS' ASSOCIATION.

ANNUAL MEETING.

The annual meeting of the Dominion Swine-breeders' Association was held in Toronto, on February 4th. The President, R. H. Harding, occupied the chair.

The Secretary read the report of the Directors, which, on motion, as amended, was adopted.

Election of officers: President, D. C. Flatt, Millgrove; Vice-President, Wm. Jones, Zenda. Directors—Berkshires, W. H. Durham, Toronto; Yorkshires, J. E. Brethour, Burford; Chester Whites, D. De Courcy, Bornholm; Poland-Chinas and Duroc-Jerseys, W. M. Smith, Scotland; Tamworths, Geo. Douglas, Mitchell; Essex, Jos. Featherstone, Streetsville; General Director, R. H. Harding, Thorndale; Ontario Agricultural College, Prof. G. E. Day, Guelph. Representatives to Fair Boards: Canadian National Exhibition—D. C. Flatt, Millgrove; Samuel Dolson, Alton; Central Canada Exhibition—R. O. Morrow, Hilton; R. J. Garbutt, Belleville; Western Fair—Geo. Douglas, Mitchell; Douglas Thomson, Woodstock; Provincial Winter Fair—Prof. G. E. Day, Guelph; G. B. Hood, Guelph; Wm. Jones, Zenda; R. H. Harding, Thorndale; Eastern Ontario Live-stock and Poultry Show—D. C. Flatt, Millgrove; P. O. Collins, Bowesville; J. C. Smith, Hintonburg; W. H. McNish, Lyn. Judges recommended to Fair Boards: Berkshires—Canadian National Exhibition—Samuel Dolson, Alton; Robert Vance, Ida; (reserve) E. E. Martin, Canning; Western Fair—S. J. Lyons, Norval; (reserve) W. Boynton, Dollar; Central Canada Exhibition—Douglas Thomson, Woodstock; Provincial Winter Fair—Geo. Caven, Toronto; (reserve) Peter McEwen, Kertch, Yorkshires and Tamworths—Western Fair—A. C. Hallman, Breslau; (reserve) G. B. Hood, Guelph; Central Canada Exhibition—J. E. Brethour, Burford; Provincial Winter Fair—Wm. Jones, Zenda; A. C. Hallman, Breslau; bacon hogs, Wm. Jones, Zenda; A. C. Hallman, Breslau; R. H. Harding, Thorndale. Canadian National Exhibition—Yorkshires, Wm. Jones, Zenda; R. J. Garbutt, Belleville; Tamworths, J. C. Nichol, Hubrey; bacon hogs, Wm. Jones, Zenda; A. C. Hallman, Breslau; J. C. Nichol, Hubrey. The meeting adjourned.

DOMINION SHEEP-BREEDERS' ASSOCIATION.

ANNUAL MEETING.

The annual meeting of the Dominion Sheep-breeders' Association was held in Toronto, on February 4th. The President, John Campbell, Woodville, delivered a carefully-prepared address, which was much appreciated by those present. In the course of his remarks he stated that the past year had been the most prosperous in the history of the sheep business, although the last half of the year had been rather unsettled. The flocks have been particularly healthy during the year. The flocks of the country are improving very much in quality, but the farmers should raise a great many more sheep than they do, as sheep are the most profitable of all live stock, and the supply is not sufficient to meet the needs of the home market. During the last two years, meat dealers in Toronto have been compelled to import carloads of sheep from the United States to supply their customers. The breeders of our country should be careful not to dispose of breeding stock until it has reached maturity.

Mr. John A. Turner, Calgary, expressed the view that, as this Association is a Dominion one, the people of Western Canada had not been given due consideration in the Executive's report. He also thought the Western Provinces should have representation on the Board. He opposed that part of the report dealing with pure-bred stock trade.

The election of officers for 1908 resulted as follows: President, John Campbell, Woodville; Vice-President, Andrew Whitelaw, Guelph. Directors—Cotswolds, Lt.-Col. D. McCrae, Guelph; Leicesters, Geo. Allison, Burnbank, Man.; Hampshires and Suffolks, John Kelly, Shakespeare; Southdowns, John Jackson, Abingdon; Dorsets, R. H. Harding, Thorndale; Lincolns, Ernest Parkinson, Eramosa; Oxfords, T. R. Arkell, Arkell; Shropshires, John A. Turner, Calgary; Ontario Agricultural College, Prof. G. E. Day, Guelph; General Directors, W. H. Gibson, Beaconsfield, Que.; A. W. Smith, Maple Lodge. Representatives to Record Board—J. M. Gardhouse, Weston; R. H. Harding, Thorndale. Delegates to Fair Boards: Canadian National Exhibition—Hon. John Dryden, Toronto; J. G. Hamner,

Brantford; Central Canada Exhibition—N. F. Wilson, M. P., Cumberland; Western Fair—Lt.-Col. R. McEwen, Byron; Geo. Telfer, Paris; Provincial Winter Fair—A. W. Smith, Maple Lodge; John Jackson, Abingdon; Lt.-Col. R. McEwen, Byron; Robert Miller, Stouffville, Eastern Ontario Live-stock and Poultry Show—Jno. Campbell, Woodville; W. A. Wallace, Kars; R. Richardson, South March; N. F. Wilson, M. P., Cumberland, Winnipeg Industrial Exhibition—W. L. Trann, Crystal City, Man.; Geo. Allison, Burnbank, Man. Vice-Presidents representing different Provinces—British Columbia, A. C. Aitken, Duncan; Alberta, Bryce Wright, DeWinton; Saskatchewan, Paul Brett, Regina; Manitoba, A. G. Gamley, Griswold; Quebec, H. E. Williams, Knowlton; New Brunswick, T. A. Peters, Fredericton; Nova Scotia, M. Cumming, Truro; Prince Edward Island, Cephas Nunn. Representatives to National Live-stock Association—John Campbell, Woodville; Andrew White-law, Guelph.

Moved by L. Parkinson, seconded by James Bowman, that the Winter Fair Board be requested to require that sheep exhibited at the Winter Fair must be owned by the exhibitor from the time of making entry instead of for three months previous to the Show. Carried.

Moved by J. G. Hanmer and seconded that all pure-bred sheep shown at the Winter Fair should be registered in some recognized record for the breed and bear the record association ear label at the time of showing. Carried.

The Secretary was requested to try and secure the Prince of Wales' prize for the sheep department at the Winter Fair. If it is secured, the division of it to be left to the Winter Fair Executive.

Moved by Lt.-Col. McEwen, seconded by Geo. Telfer, that the President, Vice-President, W. A. Dryden, Lt.-Col. McCrae, Lt.-Col. McEwen and J. T. Gibson be a committee to lay before the Minister of Agriculture and the Government the claim of the sheep industry for more Government assistance. Carried.

J. Lloyd-Jones pointed out that in his opinion the principal cause for decrease in the number of sheep in Ontario is the insufficient protection given the industry by the customs tariff. After considerable discussion it was moved by J. G. Hanmer, seconded by J. Lloyd-Jones, that Lt.-Col. McCrae, R. H. Harding, James Bowman and J. M. Gardhouse be a committee to lay before the Dominion Ministers of Agriculture and Customs the question of duty on wool and shoddy and the claim of the sheep interests of Canada for more protection. Carried. The meeting adjourned.

DOMINION SHORTHORN-BREEDERS' ASSOCIATION.

BUSINESS SESSION.

The annual meeting of the Dominion Shorthorn Breeders' Association was held in the Temple Building, Toronto, on February 4th, from 11 a. m. to 6.30 p. m., with brief intermission for luncheon. Even at that the business was not completed, an adjourned meeting being announced for Tuesday 11th, in order to complete the revision of the Constitution. President A. W. Smith presided, and did much to expedite the proceedings of an overcrowded programme. The report of the Executive announced that Vol. XXIV. of the herdbook had been closed Dec. 31st, 1907, and contains the pedigree of 4,952 bulls and 5,446 cows, or a total of 10,398. It contains the pedigrees of but 63 imported animals, the smallest number imported in one year since 1898. The membership in 1907 was 2,052, as against 2,018 the year before, and 537 in 1897.

The financial statement showed a balance, as per last statement, of \$9,721.63; registration fees, \$10,318.90; 2,052 members at \$2 each, \$4,104, and other items bringing the receipts side up to \$24,556.06. The disbursements included \$4,515 for printing volumes 22, 23 and 24, and \$2,564.30 for binding the same, as well as other items, bringing the expenditure up to \$17,635.70, leaving a balance still on hand of \$6,920.36.

The usual degree of animation was manifested in allotting grants to exhibitions. The principle of encouraging one good exhibition of Shorthorns in each Province was adhered to, so far as possible. The snag resulting from the clashing of dates between Winnipeg and Brandon was circumvented at a preliminary Executive meeting by offering Manitoba \$750, instead of \$450 to Winnipeg and \$300 to Brandon as was done last year. The granting of the money was left to the Executive to be allotted or withheld, after securing such information as they can with regard to the arrangement of the dates of the two exhibitions. This passed the general meeting.

The most lively discussion in open meeting related to British Columbia. After a motion had been passed granting \$200 to New Westminster, the champions of Victoria urged the claims of the capital city. J. E. Smart, after pointing out that Victoria had been the cradle of the Shorthorn business in British Columbia, said that of five leading herds in the Province to-day, three were owned by Victoria men. Victoria put up the best Shorthorn display of any Pacific Province exhibition, published a catalogue, and runs its exhibition on strictly up-to-date lines. J. M. Gardhouse testified that Victoria had the better exhibition of the breed, and favored giving the grant to that Show. A motion was then made that the matter of a grant to British Columbia be reconsidered, after which P. Talbot, of Alberta, moved in amendment that the grant go to New Westminster, which, being on the mainland, is more convenient for all except the breeders on Vancouver Island. The amendment was declared carried by a vote of 19 to 17.

The next point de resistance was a proposal designed to strengthen the hands of the Dominion Cattle-breeders' Association by making all members of the Dominion Shorthorn Breeders' Association, who are resident in Ontario, members of the Dominion Cattle-breeders' Association at a fee of 50 cents each; the amount thus handed over in fees to be in turn handed over by the Cattle-breeders' Association as a grant to the Ontario Winter Fair, or other fairs as the Executive directs. G. H. Greig and other Westerners opposed the principle involved in the proposition and moved in amendment that an equivalent sum (to wit, \$710 lump) be granted to the Dominion Cattle-breeders' Association, through them to be handed over to the Ontario Winter Fair on condition that the Dominion Cattle-breeders' Association made all Ontario members of the Dominion Shorthorn Breeders' Association members of their Association. Mr. Greig had first suggested a further condition that the Dominion Cattle-breeders' Association change their name to the Ontario Cattle-breeders' Association, but consented to withdraw this as liable to result in the Winter Fair losing its grant from the Shorthorn breeders. Notwithstanding the concession, this amendment was lost, and the original motion carried. Other changes of note are the increase of Calgary's appropriation from \$400 to \$800, in consideration of the Dominion Exhibition being held there next year; an increase of \$100 to Regina and \$50 to Halifax; also the granting of \$150 each to fat-stock shows at Calgary, Brandon and Regina, respectively. Following is the list:



A. W. Smith, Maple Lodge, Ont.
President Dominion Shorthorn-breeders' Association.

Province.	Where held.	
British Columbia	New Westminster	\$200
Alberta	Calgary	800
Saskatchewan	Regina	400
Manitoba	Winnipeg and Brandon	750
Ontario	Toronto	2000
Quebec	Sherbrooke	200
New Brunswick	(Provincial)	100
Nova Scotia	Halifax	150
Prince Edward Island	Charlottetown	100
Ontario Winter Fairs	Guelph and Ottawa	710
(Fifty cents for each Ontario member of the Dominion Shorthorn Breeders' Association).		
Maritime Winter Fair	Amherst, N. S.	150
Fat-stock Show	Regina, Sask.	150
Fat-stock Show	Brandon, Man.	150
Fat-stock Show	Calgary, Alta.	150

In this connection the following table, showing the number of members from the various Provinces, the amount paid for membership fees in 1907, and the amount paid by the Association to exhibitions in these Provinces in 1907, will be of interest:

Provinces.	Numbers of		Prizes Paid Out, 1907.
	Members, 1907.	Membership Fess.	
Ontario	1,437	\$2,874	\$2,000 00
Manitoba	329	658	750 00
Saskatchewan	93	186	300 00
Alberta	90	180	383 50
Quebec	45	90	200 00
Nova Scotia	28	56	100 00
British Columbia	17	34	200 00
New Brunswick	5	10	100 00
Prince Edward Island	5	10	100 00
United States	3	6
Maritime (Winter Fair)	150 00
Ontario (Winter Fair)	415 00
	2,052	\$4,104	\$4,678 50

After a few remarks from President Smith, in

which he expressed his sincere appreciation of the kindly interest of the Association in electing him to the chair when absent a year ago owing to ill health, the meeting took up the report of the committee appointed to revise the constitution, and discussed it clause by clause. It is out of the question even to summarize the clauses passed. Sufficient to note important changes. A motion to change the name from "Dominion" to "Canadian" Shorthorn Breeders' Association was lost. Sec. 1 of article 4, as printed in the committee's report, was changed to provide for annual members and honorary members, instead of annual and life members as proposed. Sec. 5 of article 4, which proposed an involved and elaborate provision as to termination of membership, was, on motion of G. H. Greig, changed to specify that membership should ordinarily terminate with the expiration of the year for which the members' fees have been paid.

Article 5, relating to officers, election and duties, proved too big to handle in the limited time available, and, after some speaking, it was decided to pass this by for the time being, and proceed to the other clauses. It was made clear, however, that some systematic and definite basis for the election of directors should be adopted. Andrew Graham, of Pomeroy, Man., focussed attention on this point by proposing that some such plan as this be adopted. He suggested, one director for each Province with 25 members; for each Province with 100 to 400 members, 2 directors; for each Province with 400 to 800 members, 3 directors; and for each Province with 800 to \$1,500 members, 4 directors; for each thousand members over that, 1 director. Provinces with fewer than 25 members might be grouped. Several approved the principle, but thought Mr. Graham's proposal gave too large proportional representation to the Provinces with few members; others suggested representation on a basis of fees paid.

The time for holding the annual meeting was discussed. Dr. Hopkins reminded the meeting that the Western Cattle-breeders' Associations had passed resolutions asking that it be held in December, the week following the Ont. Winter Fair. Western opinion did not appear unanimous on this point, though the majority of speakers favored December. Robt. Miller moved that the meeting be held at the discretion of the Executive in January or February, and thought it might be pulled off early in the first month. Some objected that this would require Westerners visiting the International and Ontario Winter Fairs, to remain East over Christmas in order to be present at the annual meeting.

A section of article 7, providing for the registration of farm names as prefixes or affixes of names of animals, such name to become the exclusive property of the person registering it, was somewhat inconsiderately voted down. The fee proposed was \$5 for each name thus registered, which would have amply recompensed the Association for the expense of annually printing it in the herdbook. Indeed, the sponsor of the idea pointed out that \$5 was unnecessarily high.

Time forbade much attention to the matter of establishing in connection with the herdbook a record of dairy performance, but the following resolution was laid on the table for consideration at the adjourned meeting:

WHEREAS, it is in the interest of the Shorthorn breed that efforts should be made to demonstrate to the farmers of Canada that the breed possesses valuable dual-purpose capabilities, worthy of perpetuation, and WHEREAS, it is essential that these capabilities should be demonstrated in order to maintain and increase the demand for the bulls bred by the smaller breeders and non-show herds, and

WHEREAS, it is the opinion of this Association that the surest method of so doing is to prove to the farmers of Canada that Shorthorn cows will give large quantities of good quality milk for long periods economically, and

WHEREAS, it is generally accepted by all stockmen that the only way to definitely gauge the capabilities of cows is by keeping yearly Records of Performance, and

WHEREAS, it will be generally accepted that such records are a valuable and necessary aid to the selection of bulls for the perpetuation of heavy-milking propensities; therefore,

BE IT RESOLVED that the Dominion Shorthorn Breeders' Association, in annual meeting assembled, request the Department of Agriculture to supervise the keeping of Records of Performance, as is now done for the Jersey, Ayrshire, Guernsey and Holstein Associations, and

THAT a committee be appointed to draw up a standard for registration in the Record of Performance, and

FURTHER THAT the names of all cows and bulls qualifying under that standard be published in the herdbook, or an appendix to the same.

On motion, of R. E. Gunn, who announced that the management of the Toronto Junction Stock-yards was prepared to go ahead and erect an Arena, or do anything else necessary for the establishment of a Winter Fair at that point, if assured of a little encouragement and Government support, a committee was appointed to look into this matter and report. The committee comprised President Smith, Arthur Johnston, John Gardhouse, Wm. Smith and Wm. Linton.

OFFICERS.

Few changes were made in the officers, election of which was accomplished under the old constitution still in force. Following is the list of those in which

changes were made: Delegates to Winnipeg Industrial Exhibition—Walter James, of Rosser, Man.; J. G. Washington, of Ninga, Man.; Calgary Exhibition—James Sharpe, Lacombe, Alta.; John Ramsey, Priddis, Alta.; Brandon, Man.—Geo. Allison, Burnbank, Man.; H. Simpson, Brandon; New Westminster, B. C.—T. W. Paterson, Victoria; Geo. Shannon, Cloverdale, B. C.; Victoria—G. H. Hadman, Duncans; Sherbrooke—E. V. Norton, Coaticook, Que.; J. McLary, Hillhurst; Maritime Winter Fair—J. Rupert Coates, Nappan, N. S.; C. A. Archibald, Truro, N. S. Delegates to National Record Board, and also to National Live-stock Convention—John Dryden, Toronto; J. G. Barron, Carberry, Man.; Robt. Miller, Stouffville; A. W. Smith, Maple Lodge, Ont.; J. M. Gardhouse, Weston, Ont.; Capt. T. E. Robson, London, Ont.; W. G. Pettit, Freeman, Ont.

THE EDWARDS-DRUMMOND-WHITE SALE.

The joint sale of 60 Shorthorns from the noted herds of Senators Edwards and Drummond and Peter

White, advertised in this paper to take place at the Union Stock-yards, Toronto Junction, on Thursday, March 5th (and not at Hamilton, as at first announced), will afford a rare opportunity to secure young bulls and heifers of the most approved breeding, and of high-class individual character and quality, the get of the galaxy of stock bulls at the head of those grand herds, which have been built up regardless of expense, and the surplus of which are offered at the buyers' own prices. The pedigrees and prize records of these grand herds speak for themselves, and need no special reference, though some particulars may be looked for in our next week's issue. The change of place of holding the sale should be a decided improvement, Toronto Junction being more convenient of access, and the shipping facilities unsurpassed, while the accommodation for stock and visitors is all that could be desired. There has probably never been a more favorable opportunity of securing good bargains than this sale will afford, because the stock is of the very best class, and high prices at this time are not expected. There will be no excuse for keep-

ing any but a first-class bull, when old bulls for beef are bringing good prices, and first-class young ones can be had for little more.

ONTARIO HORSE-BREEDERS' EXHIBITION POSTPONED.

Owing to storm and snow, the railroads have found it impossible to ship all the horses to Toronto on time for the Ontario Horse-breeders' Exhibition, originally announced for February 12th, 13th and 14th, and the show has accordingly been postponed two weeks, bringing it on the dates February 26th, 27th and 28th, 1908. Exhibitors are advised, meantime to take advantage of the first opportunity to get their horses to Toronto, so as to be sure of having them there in time. As previously announced, the exhibition will be held in the St. Lawrence Arena. Remember the dates, February 26th, 27th and 28th. No change has been made in any of the live-stock associations' annual meetings arranged for the current week.

The Second National Live-stock Convention.

After an intermission of three years, the National Live-stock Association met for its second general convention in the City of Ottawa, February 5th, 6th and 7th. Delegates were present from every Province, including 5 from British Columbia, 15 from Alberta, 4 from Saskatchewan, 8 from Manitoba, 31 from Ontario, 16 from Quebec, 1 from New Brunswick, 2 from Prince Edward Island, and 5 from Nova Scotia. In addition to the 77 delegates, there were forty or fifty visitors and invited speakers. The President, Hon. John Dryden, in a brief introductory address, appealed to the delegates to unite in regarding the subjects to be discussed in a broad national light, and a spirit of amity prevailed, even although a few resolutions and calls for federal assistance in such matters as bounties for the destruction of wolves, coyotes and panthers did have to be turned down, as of too purely a local nature to warrant monetary assistance from the general treasury. There are always a certain number of people who like to milk the Government, and if they can work the Dominion instead of the Provincial administration so much the better. However, the genial manner manifested, and the incontrovertible ground taken by the Minister of Agriculture, Hon. Sydney Fisher, the Live-stock Commissioner, Dr. Rutherford, and the chairman, Hon. John Dryden, effectually headed off importunate demands, and helped to steer the course of the convention along the lines of propriety and fruitful proceedings.

A goodly share of the programme was devoted to Western problems and Western interests, which received still further amplification at the hands of aggressive Western delegates, some of whom seemed determined to earn their expense money by the amount of talking they did, and were apparently as anxious to place their names and views on record in the official report as some of our legislative representatives are to hand down their weighty opinions to posterity through the weary pages of Hansard. However, all grievances were fully aired, all speeches attentively received, and the utmost good-feeling manifested throughout. Robt. Miller remarked the contrast to the first assembly, three years earlier, when distrust seemed lurking in every breast, each man distrusting the motives he fancied were in the other fellow's mind. The second convention might, in its cordiality, be likened unto a love-feast. As an expression of representative stockmen's opinion, as a promotion of interprovincial understanding and trade, as a means of ascertaining, weighing and deliberating live-stock interests, and as an assistance in the formulation of legislation, the convention fully vindicated its assembly.

The afternoon of the opening day was given over to addresses on the condition, needs and outlook of the live-stock industry in various regions of Canada. Splendid meaty speeches were given by Dr. S. F. Tolmie, on British Columbia as a market for pure-bred stock; by R. G. Matthews and Robt. Sinton, on the future of the ranching country and the live-stock industry in the Prairie Provinces, and by Prof. M. Cumming and Prof. Theodore Ross, on the live-stock industry in the Maritime Provinces. The two latter speakers conveyed in their remarks a ring of moderate but deep and well-grounded optimism as to the future of agriculture and live stock in the Maritime Provinces. Dr. J. A. Couture, Secretary Quebec Live-stock Associations, concluded the first afternoon session with a valuable resume of live-stock and agricultural progress in Quebec, tracing development from the days of early settlement. For some of these and succeeding addresses we shall make room in future issues.

Dr. Tolmie pointed out the value of British Columbia as a market for Eastern pure-bred stock, and animadverted to some mistakes that had been made by certain Eastern shippers in supposing that anything would do for that Province. He quoted a couple of flagrant instances; one, where a bull praised by the seller as bred in the purple and fit to head any herd, proved fit to win only fourth in a poor class of local stuff, and later at auction

failed to fetch a bid. One dairyman bought a lot of young animals and found none equal to what he already had in his herd. This is not the way to capture British Columbia trade, for her buyers can go down into Oregon and Washington and buy tuberculin-tested stock, which, in the case of dairy cattle, have also been tested for performance, and have records to show for what they have done.

Messrs. Matthews and Sinton dealt with the ranching industry, which appears to be in a state of rapid decline. The ranchers had two grievances, one being that the present system of leases is unsatisfactory, for while they cover a term of 21 years, they are subject to cancellation on two years' notice at the will of the Minister of the Interior, consequently the encroach of settlement places their business in continual jeopardy. They want the lands to be inspected, and lands pronounced unsuitable for agriculture set aside and leased to them for a definite length of time, with

have neglected the Western market. There is no reason why Western breeders should have to go across the boundary for stock.

No Province should close her doors to other Provinces. We want free interchange, in order that pure-bred stock may be passed along from one Province to the other. If Ontario, with her old-established studs, herds and flocks, has still to import stock from the Old Country, how much more necessary is it for the younger Provinces to avail themselves of every opportunity of strengthening their herds? Some of the Western Provinces have rules governing their Provincial auction sales, which debar entry from other Provinces. This, Mr. Gardhouse considered unwise, as the Western Provinces must continue to import large numbers of better pure-bred stock.

Transportation is a matter of vital importance. Present regulations governing transportation of pure-bred stock are good, but where the distances are so great it is necessary to have the best rates and facilities that we can possibly get.

By way of emphasizing the importance of the British Columbia market, Mr. Logan remarked that if the Province of Prince Edward Island were dropped down among some of their mountains, it would take a caribou-hunter to find it. In the Fraser River valley alone are 3,500,000 acres of arable land, where crops of 105 tons of hay have been cut from 20 acres; where 2,000 bushels of roots per acre are not unusual, and where oats yield 105 bushels per acre. He intimated plainly that some of the stock which had been sent to that Province by certain Ontario breeders was not the kind to build up trade. For instance, one Shorthorn breeder who asked for an extra good bull to head his herd, was supplied with one that had horns like hitching posts, shoulders to split hail, and cat hams that would do credit to any Jersey. When put up at auction a year ago, he failed to secure a bid. Yet Ontario sends British Columbia nearly all her preachers.

Ontario breeders of dairy stock who cater to the British Columbia market must go in strongly for the testing of their cows, and for the Record of Performance. The day has gone by when they will buy animals for pedigree alone. It is important to have the animals tested and guarantee them free from tuberculosis. A more effective campaign of advertising is also necessary in order to push trade in the Western Provinces.

In discussion, Robt. Ness strongly emphasized the point that we no longer want a mere show cow. We want the commercial cow, the business cow, not the fancy one with short teats, and are persuading the Scotchman to our belief.

E. L. Richardson, of Calgary, defended the idea of having the Provincial auction sale closed to breeders outside the Province.

IMPORTATION OF PURE-BRED STOCK.

In 1887 the present regulations governing the importation of pure-bred stock were framed in Ottawa, and the regulations were very peculiar ones in several respects, said Robert Miller, speaking to the above subject. Since then our records have been nationalized, and in other ways circumstances have changed. The rules in force are very easy ones, and admit of many forms of misrepresentation and imposition. Resolutions have been passed yearly, asking for changes in them.

Following is a copy of a resolution passed last year by various live-stock organizations at Toronto:

"It has come to the notice of the Executive Committee that a great many cattle are being imported into Canada free of duty that are not recorded in our books. Some of the owners record them here, others continue to record them in foreign records. The term pure-bred, as applied to animals in Canada, should mean registered in the Canadian National Records. While we are recording only a part of the cattle in Canada that are called pure-bred, there must continue a division in the ranks of the breeders which may grow to be more formidable than it is at present. Such



Robert Ness, Howick, Que.
President National Live-stock Association.

irrevocable leases. A resolution to this effect was introduced, but later withdrawn, the ranchers being advised to memorialize the Minister of the Interior on their own behalf. They also complained of the educational tax of 1½ cents per acre imposed by the Alberta Legislature, in addition to a local improvement tax of 1½ cents. It seems they have to pay a rental of 2 cents per acre on Government land and 4 cents per acre on C. P. R. land, and as it takes about a township of 23,000 acres to support 500 head, and of these the yearly marketable quota is but 80 head, worth, say, \$500, they find themselves groaning under the burden of rental and taxation. They would prefer to be taxed on a basis of so much per steer sold, for various reasons which we cannot enter into here. It is a purely Provincial matter.

THE CANADIAN MARKET FOR PURE-BRED STOCK.

The best means of retaining for Canadian breeders the Canadian market for pure-bred stock was the subject discussed by John Gardhouse, Highfield, Ont., and F. M. Logan, of Victoria, B. C. As the essential conditions of a profitable trade, Mr. Gardhouse enumerated four points:

- (1) Breed the best.
- (2) Put no barriers in the way.
- (3) Secure cheapest and best possible transportation facilities.
- (4) Organized effort.

Ontario will be the breeding ground for pure-bred seed stock for Canada. Ontario breeders

division must be injurious to the interests of the breeders and to the breed.

"We now have a complete system of National Records, the standard of which is as high as that of any records in the world; they are authorized by the Government of Canada, and conducted by the associations representing each of the breeds; therefore, we recommend that this association do all in its power to impress on the Dominion Government the importance of changing the regulations affecting the importation of live stock, to provide that stock must first be recorded in our books of record, for the breed to which the animals being imported belong, before they are entitled to entry free of duty.

"We have also had it brought forcibly to our notice, that large numbers of so-called pure-bred animals are being brought to Canada and sold for any price that can be obtained for them. Such animals are often of low quality, not recorded in books that are recognized even in the countries from which the animals come, but they are sold as being pure-bred. They have in many cases misled Canadian breeders, and in few cases have they been of a class to do good in this country. We, therefore, ask you to memorialize the Dominion Government to make it necessary that all animals must be owned by British subjects resident in Canada before they can be imported free of duty."

Exception has been taken to the clause requiring that, in order to be imported duty free, all animals must be imported by a British subject resident in Canada. Mr. Miller then took up some objections which had been raised against this resolution. The strongest opposition arose from the concluding clause, stipulating that in order for pure-bred stock to be admitted free of duty, it must be owned by British subjects resident in Canada. A similar regulation is in force in the United States, by which it is impossible for any but an American citizen to import pure-bred stock into that country duty free. A man importing stock into that country must make three affidavits, including one declaring that he is an American citizen. He thought Canada required to adopt a similar stand in order to safeguard her stockmen's interests, particularly with a view to preventing the owners of inferior stallions from bringing them over, syndicating them at a high price, and then escaping across the boundary beyond the clutches of our law.

The questions involved in this subject proved the knottiest points of the whole convention, and the original resolution was revised several times, and finally split up into the form of two resolutions. The first read as follows, and passed readily:

"That this association recommends that only such animals as are recorded in the record books of the Dominion Live-stock Record Associations, and such other animals as are recorded in the recognized records for their breeds in the country in which such breeds originated, provided such records are recognized by the National Record Board as reliable, be permitted to enter Canada free of duty; and, further, that in order to simplify procedure, no animals shall be so admitted unless accompanied by an import certificate issued by the Canadian National Record office."

The second was somewhat clumsily couched, in these words:

"Resolved, that before pure-bred animals can be imported for sale free of duty, they must be imported and owned by a British subject resident in Canada."

Needless to say the first "before" should have been substituted by the phrase "in order that." However, no one pointed out the contradiction of the wording. Controversy waged chiefly over the point "resident in Canada." The motion as it reads would, if enacted into law, not only prevent Americans from sending their horses here, but would prevent a Scotchman or an Englishman from sending British horses into Canada duty free. Robt. Ness supported the clause, urging that we can bring out all the horses we need ourselves, and the Scotchman who comes to Canada with a horse is liable to have an ulterior purpose. Col. McCrae, of Guelph, opposed the whole resolution, arguing that the American regulations were narrow and mean, and he did not believe in copying them. A. W. Smith, of Maple Lodge, took similar ground, holding that the regulation was not only narrow in its principle, but would be ineffectual in its operation, as there would be nothing to hinder a man bringing in an inferior horse, worth, say, \$500, paying ad valorem duty on this valuation, and then syndicating him for \$5,000, after the usual manner of their ilk. It would also encourage all sorts of subterfuges; for instance, live-stock commission companies living within the country could receive the horses in their own names, and sell them for the shipper on commission. He thought the resolution was retaliatory in its spirit, and should not be endorsed. A good many other speakers took similarly broad-minded views, though, on the other hand, there were several valid reasons urged in favor. J. A. Turner, of Calgary, thought one advantage would be that if the offending parties were residents of Canada we could get after them with our law; whereas if the men came from a foreign country, the necessity for extradition proceedings would practically prevent either punishment or reparation.

Mr. Miller again spoke, strongly supporting the British-subject resolution. Rather than see the motion defeated, he was willing to have the words "resident in Canada" struck out. He cited the case of a 2,500-lb. Percheron horse, which was being travelled in the West, the biggest and worst horse he had ever seen, his only redeeming feature being that he would not leave a colt. This horse had been syndicated at an enormous price by an unscrupulous American stallioner, who had cleared out of the country.

Mr. Smith again spoke, emphasizing the fact that it would be the poor horses that would be chiefly brought in, the small duty on their valuation being insufficient to deter an unscrupulous man from bringing in a \$500 horse to sell for \$5,000.

Andrew Graham, Pomeroy, took a philosophical view of the horse business, urging that it was better than if the American horses had never come in, even though a large amount of money had been thrown away. He was opposed to the spirit of the resolution, and compared it to a removal of the British cattle embargo, that would turn out to mean that while the Briton could come and buy our cattle, we would still be unable to ship them in. Imagine, he said, Britain doing a thing like

that! The resolution finally put to a vote carried as above phrased by a very narrow majority.

THE DRESSED-MEAT TRADE.

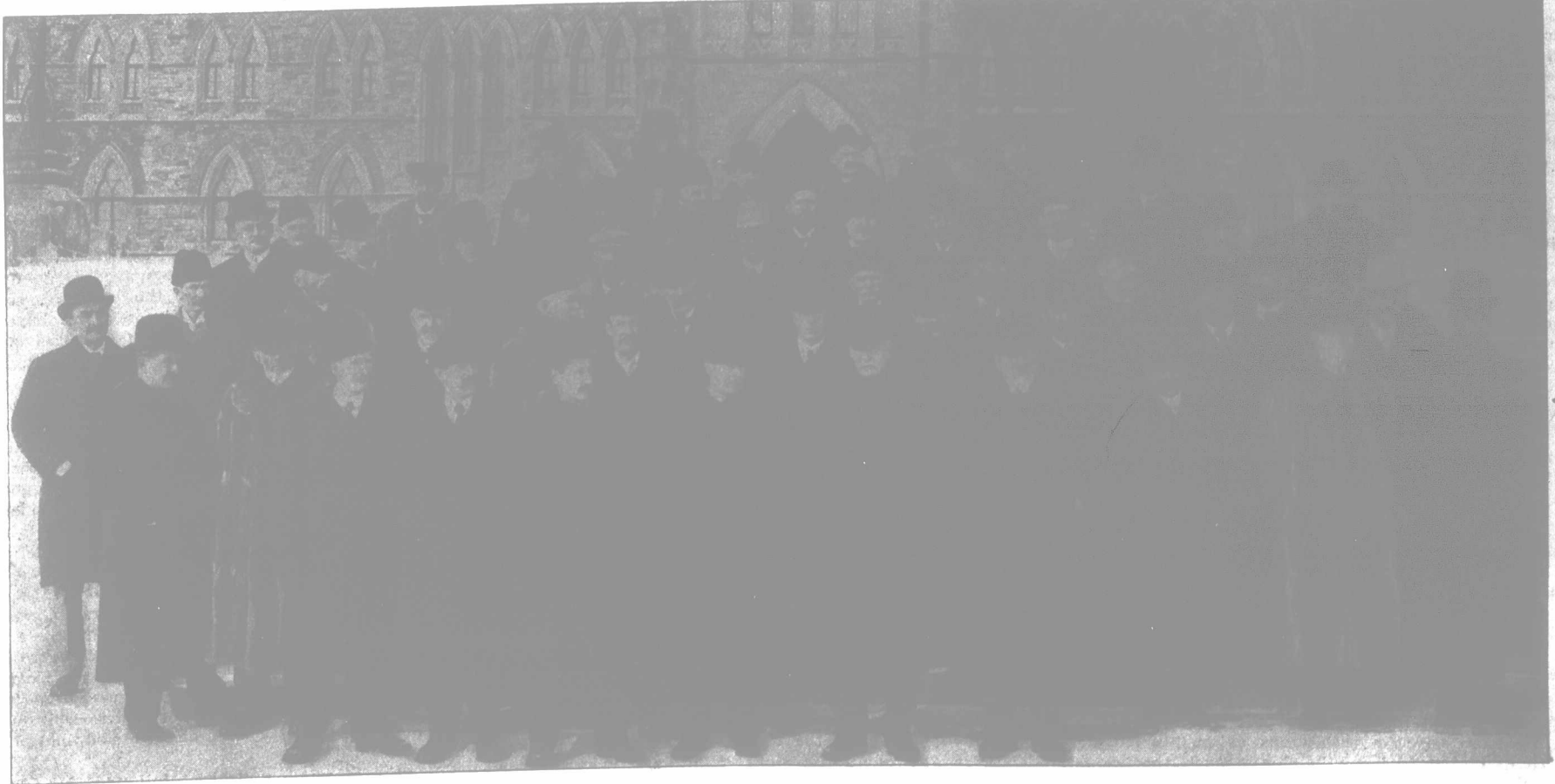
Some discussion of this subject arose out of an address by Hon. John Dryden, preceded by a few remarks from Donald Munro, Live-stock Commission Agent in Montreal, who urged that Canada was not yet ready for the shipment of dressed beef. The Harris Abattoir Co. had tried it with distillery cattle, but the results were unfavorable. The quality has to be the highest, else prices are not remunerative. Splendid 800-pound carcasses of prime South American frozen beef sold on the British market at 4c. to 5c. for fore quarters and 5c. to 6c. for hind quarters. While the chilled beef commands somewhat better prices, yet that is the kind of competition we are up against in the foreign market. He expressed the opinion that the future of the ranch business lay in the live-cattle trade.

Hon. Mr. Dryden's paper was based on some investigations made by him between three and four years ago. Space forbids reproduction of the paper this week. Suffice to note that if the speaker had his way he would do three things:

1. Establish a dead-meat trade.
2. Remove the cattle embargo.
3. Continue the present system.

The subject of export beef trade was referred to by several other speakers, including Thos. McMillan, of Seaforth, Ont., who discussed the subject, "Commercial Live Stock," and by W. S. Nicholson, of Winnipeg, Man., whose paper was read by G. H. Greig, of Winnipeg. Mr. Nicholson predicted that we would gradually get away from the system of killing on the farm.

Then Dr. Rutherford put the subject in a nutshell, with one of his incisive offhand speeches. The most profitable way in which the majority of our finished cattle can be laid down in the British market is in the form of dressed beef, and it ought to be the earnest effort of every man concerned to bring about that state of affairs. He knew of no business in which there is more criminal wastage than in the shipment of our Western range cattle. After being rounded up and corralled, most of them travel 100 miles before being unloaded for feed or water. The shippers say it pays better to run them through to Winnipeg than to stop over at Moose Jaw, for being so excited the steers won't eat or drink until very hungry and thirsty. Then they go on to Winnipeg, and then to White River, thence to Montreal. He wouldn't like to say how long some of them are in the cars at a time. There is a clause in the criminal code which says that no live stock shall be on the cars more than 24 hours at a time without feed or water, but up on that northern line, at a season when traffic is so heavy as in the fall, the law is not always observed. While conditions have improved, yet they are by no means what they should be. There are still too many old stiffs in the cattle trade. The Americans can teach us something about shipping range cattle. Only about 8 or 9% of their range cattle are shipped to Britain alive, but the practice is to feed on the farms out near Chicago for a few months, then run back into the city and put in stable cars in charge of expert cattlemen. You can go to the British ports and see the dif-



The National Live-stock Convention at the Door of Parliament.

ference between their range cattle and ours. It's the way the thing is done; and so long as it is done the way we do it we must expect the cattle to lose from 50 to 150 pounds a head in transit.

The Western cattle trade must be placed on a different basis. We must take the grain to the cattle or the cattle to the grain. It is a shame for the grain farmers to be selling feed barley at 10 to 20 cents a bushel, and oats at 20 to 30 cents, while they burn their straw and refuse to cut hay they can have for the making. Grain and unfinished beeves are anomalous products for us to be exporting, yet there are people crying out for removal of the cattle embargo, in order that they may be still more generous to the farmers of England and Scotland. We should aim to feed our own cattle in our own country, and meantime, until better facilities are provided, send them over in the best possible condition alive.

Hon. Sydney Fisher believed that a dead-meat trade ought to be inaugurated, but pointed out that there are one or two serious difficulties. One is the lack of a continuous supply of cattle. To be successful there should be a minimum of 1,000 cattle per week, and while the present export of Western range cattle is 70,000 head per annum, it is practically bunched in three months. In reply to a suggestion that Government enterprise be enlisted in the promotion of the trade in Liverpool, Mr. Fisher said he had never yet seen his way clear to spend Canadian public money in Liverpool, though he wouldn't mind encouraging the shipment of meats in the same way as he had assisted the trade in fruits and dairy products.

THE TRANSPORTATION COMPANIES AND THE LIVE-STOCK INDUSTRY.

An excellent broad-gauge and pithy address on the above subject was delivered by H. C. McMullen, live-stock agent of the C. P. R., Calgary, Alta., in which he pointed out that while the railroad was actuated by a spirit of intelligent self-interest in promoting the interests of its patrons, it was up against tremendous difficulties in rushing out 150,000 cattle in three autumn months, when the wheat trade, the coal and lumber business, and other urgent demands were overtaxing their carrying facilities. If the cattle could be fed on the farms, and the output spread out over a longer season, it would be greatly to the advantage of all concerned. Following Mr. McMullen, F. J. Collyer, of Welwyn, Sask., contributed a paper on the pure-bred stock phase of the transportation question, after which one of the Western delegates, who had a wishbone cross-wise in his crop, leaped into the breach with a wearisome, twenty-minute scribbling-book oration, in which he unloaded considerable bile, and made a number of erroneous implications. While there undoubtedly are occasional abuses that require investigation and redress, this is not very likely to be secured without fair-minded and reasonable presentation of the subject, having due regard for the difficulties under which the transportation companies labor. Speeches of the kind referred to weaken instead of strengthening a case.

OTHER FEATURES.

The remaining features of the convention, including an address by John Graham, of Carberry, on "The Scottish Premium System of Hiring Stallions"; "The Health of Canadian Live Stock and Its Preservation," by Dr. A. G. Hopkins; "The Cattle-feeding Business in Manitoba," and the discussion re the ranching industry in the West must be held over for later use. With regard to the subject of cattle-feeding, Dr. Rutherford announced that last winter his department had endeavored in vain to persuade some Western farmers to undertake co-operative experiments in this line by offering them a premium of 2c. for every pound of grain secured in addition to such regular return as they might make out of the enterprise. But they preferred to curl.

RESOLUTIONS.

Following are the essential motions carried by the convention, in addition to those included in the body of our report:

A resolution relating to bounties on wolves, coyotes and panthers was amended and passed, asking that the various Provincial Governments should give substantial bounties for the destruction of panthers, coyotes and prairie wolves in Western Canada, thus encouraging the sheep and poultry industries. The original resolution asked the Federal Government to give the bounties.

That the convention place itself on record as favoring the plan suggested by the Live-stock Commissioner for the experimental feeding of cattle in Western Canada.

That the Dominion Government be requested to make a thorough investigation into the cost of the export cattle trade from port of shipment to the British markets, and also into the chilled-meat trade, with a view to bettering the existing conditions of the export trade.

That this convention respectfully ask the Minister of Agriculture to take such steps as in his judgment may be necessary to being in closer touch the breeders of cattle in the West India Islands with his Department, looking to the development of trade with those islands.

In view of the fact that at the last annual convention a motion was passed unanimously agreeing to the records being nationalized on condition that proper representation from the different Provinces be given on the Board of Directors of the different breed societies, therefore be it resolved, that some arrangements be recommended, and an equitable system be arrived at.

Whereas, the unsatisfactory transportation facilities accorded shippers of live stock, particularly in the West, entail severe losses through delay in transit; be it resolved, that this convention is of opinion that the Railway Commission should take action with the view of remedying the existing state of affairs.

Whereas, it is important that the cattle being exported from Canada to Great Britain be landed in the best possible condition, and knowing that under the present methods of securing these cattle in their stalls, the cattle suffer great hardships from being abused by their companions, we think that if a careful investigation were made by the Department of Marine, a safer, more profitable and more humane method could be found of securing these cattle in their stalls, and giving to each the amount of space allotted to it.

In view of the demands of the railroad companies for a uniform registration certificate by means of which fraud on the part of shippers of so-called pure-bred animals may be prevented, the National Live-stock Convention would recommend that only the certificate issued by the Canadian National Records shall be recognized for the purpose of reduced transportation, except that this arrangement shall not be applicable on direct import shipments from the seaboard.

A resolution was passed thanking the Hon. Sydney Fisher for assistance given in enabling the Association to hold the convention, and another, most heartily endorsed with three cheers and a tiger, expressing appreciation of the valuable work of the Live-stock Commissioner, Dr. Rutherford, with the assistance of his capable staff.

OFFICERS:

The election of officers resulted as follows: President, Robt. Ness, Howick, Que.; Vice-President, Andrew Graham, Pomeroy, Man. Executive Committee—Walter Huckvale, Medicine Hat, Alta.; Hon. M. Garneau, Quebec, P. Q., and Arthur Johnston, Greenwood, Ont. Secretary-Treasurer, A. P. Westervelt, Toronto, Ont. The delegates from each Province elected Directors as follows: Ontario—W. W. Ballantyne, Stratford; Quebec—Hon. M. Garneau, Quebec; British Columbia—Mr. Paterson, Victoria; Manitoba—Geo. Allison, Elkhorn; Alberta—J. A. Turner, Calgary; Nova Scotia—Prof. M. Cumming, Truro; Prince Edward Island—F. L. Hazzard, Charlottetown.

CHEESE-MARKETING PROBLEMS IN EASTERN ONTARIO.

In the eastern part of Eastern Ontario, the cheese business is on a different basis than in Central and Western parts. There the cheese are commonly bought subject to Montreal weights and inspection. The Ottawa Valley Journal has been agitating for a change, and through the efforts of its editor, R. B. Faith, a rousing convention was held in Ottawa, February 5th, afternoon and evening. Some three hundred and fifty delegates were present, and a considerable number of interested spectators thronged the galleries. Protests were urged against alleged injustice in the way of short weights and severe cuts on the score of grade, also the loss resulting from occasional failure of cheese buyers was referred to. The opinion of the convention was crystallized in the form of a resolution carried at the evening meeting:

"We, your committee, would suggest that we should have factory inspection, the cheese weighed and paid for before being shipped to the buyer.

"Your committee would further suggest that farmers' exchanges be formed in most convenient places as soon as possible, and would further suggest that an organization committee of five members for each district, with Mr. Faith as central organizer and chairman, be organized, its duties to be the taking of necessary measures to organize the cheese factories of their several districts into an association.

"That this committee also recommends that a deputation of three representative men be appointed to interview the buyers in Montreal, and place before them the conclusions of this convention regarding the selling and buying of cheese, and ask their co-operation."

During the discussion, it was brought out clearly that the expense of factory inspection would be ultimately borne by the sellers, though the buyers would have to pay the inspector. G. H. Barr also expressed the opinion that under factory inspection there would probably be more rather than fewer cuts on quality, the advantage being that the salesman would always know just where he was at.

"I hope you'll get factory inspection," he said, "I believe I know how it works out as well as works in. I've been trimmed by factory inspection, but in factory inspection you have the matter settled at your door. There is a wrong impression as far as pay at the car door is concerned in Western Ontario. When you get factory inspection, you'll get closer inspection. I believe it will work out towards the better article be-

cause the men representing the buyers will be held responsible for the goods being up to quality."

The difference between a cheese board and a farmers' exchange was explained as consisting of the fact that the buyers controlled the cheese board, while the farmers would control the exchange. The exchanges should be operated on the same principle on which the cheese boards are run.

County Directors: J. P. McNaughton and J. B. Barrett, Glengarry; George Ryan, Prescott; W. L. Sommerby and L. A. Landry, Russell; W. H. Hartin, Carleton; D. H. McDermid, Stormont; John Carswell, South Renfrew; John Kidd, North Renfrew; J. S. Kyle, Dundas; William Patterson, Lanark.

Organizers for the St. Lawrence district: Stormont—A. W. McIntyre, Finch Township; W. J. Johnston, Cornwall; F. G. Adams, Osnabrock; Samuel J. McDonald, Roxborough. Dundas—H. Robinson, Williamsburg Township; Robt. Fraser, Winchester Township; W. A. Mullin, Mountain Township. Glengarry—A. A. McLennan, Lancaster.

Quebec district organizers: Labelle—Thomas Cox, Buckingham; J. P. McLachlin, Lochaber; F. Roy, Silver Creek; S. Larose, Masson; J. B. Bonville, Thurso. Pontiac—R. W. Hodgins, S. Fulford, S. Richardson, A. Meldrum, E. T. Hodgins.

Brockville district organizers: O. W. Landon, chairman; Melsombe, Leeds County; G. Baker, Grenville; Rufus Earl, Aigonquin; Mr. Hill, Elizabethtown; Daniel Walsh, Lanark.

Township organizers: A. Curtis, Pittsburg; W. J. Thompson, Leeds; W. J. Webster, Lansdowne; Geo. Leggett, North Crosby; John B. Arnold, Walford; John Sanderson, Oxford; Mr. Cummings, South Gower; T. H. Ireton, Drummond; William Bailey, Lanark; H. Simpson, Beckwith; H. McCreary, Ramsley; P. Cavers, Bathurst; D. Barr, Darling's; J. Allen, North Burgess; J. P. Redmond, Escott; Mr. Raphill, front of Young; William Stafford, Lyn; Mr. Stinson, Kitley; E. Bracken, rear of Leeds; A. Henderson, Young; A. Grey, South Crosby; Geo. Johnston, Forfar.

To defray the expenses of organization, each factory is to make a grant of \$2, which is expected to furnish a campaign fund of about \$1,300. An Executive Committee was appointed, consisting of: President, J. G. Adams, Wales; Vice-President, F. G. Henderson, Gananoque; Secretary-Treasurer, R. B. Faith; Assistant Secretary-Treasurer, L. A. Landry, of Chrysler, Ont.

CONVENTION OF THE CANADIAN SEED-GROWERS' ASSOCIATION

The attendance at the fourth annual convention of the Canadian Seed-growers' Association, held at Ottawa on February 3rd and 4th, while not large, was fairly representative, and the questions brought up for discussion were not only well presented, but very interesting, and should make a valuable contribution to the literature sent out by the association.

Among those present were, Dr. Robertson, president of the Association, and Prof. L. S. Klinck, from McDonald College; Hon. Sydney Fisher; Hon. W. R. Motherwell, Regina; Prof. C. A. Zavitz, Ontario Agricultural College; Dr. Jas. Mills, of the Railway Commission; J. W. Wheaton and C. C. Blue, from Toronto; C. H. Kustermann, of the Ontario Seed Company, Waterloo; B. Leslie Emile, Toronto; J. A. Steele, of Chicago; Theo. Ross, Charlottetown; Geo. Batho, Winnipeg, of the Experimental Farm staff; Dr. Saunders and Dr. Chas. Saunders, Dr. Fletcher, Prof. Shutt, Prof. Macoun and Prof. Grisdale, of the Seed Branch; Commissioner G. H. Clark and three members of his staff, Messrs. Cote, Moore and Raynor; and, among the members doing the work of improving seed on their farms, were, Leon Guerin, Coaticook, Que.; J. H. Clark, Bay View, P. E. I.; Donald Innis, Tobique River, N. B.; W. L. Davidson, Davidson's Hill, Que.; J. Mooney, Valley River, Man.; Geo. Boyce, Merivale, Ont.; Chas. Edwards, Onondaga, Ont., and a number of others. Quite a number who came to attend the Live-stock Convention also attended some of the sessions. The recent heavy storms, which interfered with railway traffic, kept away many who would otherwise have attended, no doubt.

Dr. Robertson, in opening the meeting, said he hoped the deliberations would give a great impetus to the seed movement. In the usual formalities of opening such meetings, Mr. L. H. Newman, the Secretary-Treasurer, gave a short synopsis of the report of the Board Meeting held on July 5th, 1907, at Macdonald College, at which, he said, twenty-seven new members were received, and other important matters dealt with. A Committee on Resolutions, of Messrs. Wheaton, Ross and Zavitz, was struck. The convention then got down to business in hearing and discussing Mr. Newman's report for the short year of seven months, to bring the year in harmony with the recent change made in the fiscal year by the Government. Three hundred and eighty-eight members and applicants, operating 520 plots, and 24 more eligible for membership, was Mr. Newman's gratifying report. The unfavorable spring conditions, and the attendant results all over the Dominion, were noted, with the lessons drawn from them. His summary showed that 520 plots were reported on, 980 letters written, 10,000 reports were sent out, and quite a large quantity of pedigreed seed had changed hands.

In the discussion which followed, Mr. D. Innes thought it would be a good thing if a copy of the score-card used by inspectors in reporting on crops were sent to each plot operator. Seed Commissioner

Clark said he had instructed his inspectors to talk these matters over with the members when inspecting; which Mr. Bryce said had been done in his case.

Mr. Ross, of P. E. I., thought if the inspectors could advertise their coming, it would insure the operator being home, and possibly his neighbors would turn out, as well. Mr. Raynor pointed out that this could scarcely be done, as, owing to train service, and the haste with which the work had to be done, he would not be sure of keeping his appointments.

Mr. Zavitz thought it was to be regretted that more pedigreed seed did not change hands, to which it was said that a good deal of seed changed hands on the side, of which mention was not made, and that only comparatively few members were producing pedigreed seed up to the present time. Mr. Innes said he could have sold all his registered seed, but was holding it back for a report on the germination. Mr. Bryce said he was filling an order for 24 bushels of Banner oats to go to Aberdeenshire, Scotland.

Dr. Robertson thought some recognition should be taken by the Association of the generous donors of valuable cups, given by the Steele-Briggs Co., and Messrs. Klinck, Hodson and Bates. The matter was referred to the Committee on Resolutions.

EVENING MEETING.

The evening meeting had more of a popular bearing than the afternoon one, and Dr. Robertson, in giving his annual address, said that one of the main objects of the Association was to improve the farm conditions of the country by improving the crops of the country. The plan followed out by the association was a scientific one, and had resulted in over 90 per cent. of those doing the work stating that they could notice improvements in the crops with which they were operating. The Doctor drew a picture of the man on the farm having most of the conveniences of the city, in the rural telephone, electric light and heat, hot-and-cold water supply in home, with bathroom, etc., the daily paper, and none of the crowded conditions of the city, and few of its many drawbacks. The Association provided (1) a definite plan of work, (2) a routine for work, (3) inspection of plots, (4) a system of registration, (5) it aided seed fairs, and (6) encouraged the competitions in fields of standing grain. This was a national movement, and two things were necessary to make the movement successful: (1) A discovery of the quality of the child-life and its opportunities, and (2) train them for the farm.

Prof. Zavitz, of Guelph, was introduced by the chairman as "one of the makers of Canada." He dealt with the question of "The Work of Plant Improvement at Home and Abroad." The speaker claimed every member should have (1) a definite object in view; (2) he should study very carefully his foundation stock. These are many varieties, and each have their characteristics. These should be adapted, as far as possible, to climate and soil. Some varieties are more disease-resistant than others. In potatoes, the tendency to rot was in proportion of 40 or 42 per cent., as compared with 1 or 2 per cent. The work of the experimental stations would always be different from the work of the members of the Association. The stations could originate good varieties by selecting individual plants, by hybridizing, and by the mutation theory, etc. The speaker instanced how Dawson's Golden Chaff originated by the selection of one plant in a field of Clawson's wheat, and how they now had ten promising strains of this variety at the College. He pointed out how that, in Mandescheuri barley, there was a difference in the strains, in tillering capacity, of from one to fifteen heads, and even as high as twenty-eight stalks had come from one seed. He claimed the importance of our farm crops had been too long neglected.

The Hon. Sydney Fisher next made some general remarks on the work of the Association, and its great value to the country. He thought there were great possibilities in the work, and that the Government of

the day should continue to foster its development. He next referred to the \$3,000,000 loan asked by the Saskatchewan and Alberta Governments to help out their farmers in supplying them with good seed grain this spring. He pointed out how the Seed Branch of his Department had made it possible this year in demonstrating how seed oats, and barley, more particularly, which, from their general appearance, would not be recognized as comparatively useless for seed. In neglecting to aid the West in their calamity this year would mean a national calamity. He thought the demand for good seed was greatly in excess of the supply.

Mr. W. R. Motherwell, of Regina, was also called upon for an address. He spoke of his mission, along with others, in looking after the interests of the Western farmers in furnishing them with good seed. He also outlined the conditions which prevailed in the West, which prevented the farmers generally from adopting mixed farming. He thought many sections would try diversified farming, as he understood the term, in rotating crops; but he thought it was folly to preach the keeping of stock in many sections as yet. In the field competitions in standing grain, which had done so much good during the last two years, he thought that the rules should be changed so that the competitors would be required to select their ten acres before seeding, instead of selecting it anywhere on the farm, as now obtains. He thought the Western farmers, while they had done well during the last ten years, had spent their money too freely in extending their possessions. In the loan to be effected, he said they were not looking for charity. There was the heartiest co-operation on the part of all classes of citizens in the West to do everything to make the best solution of their present difficulties.

MORNING SESSION.

The election of officers resulted in the re-election of the old board, excepting W. L. Smith retiring, and replaced by W. W. Ballantyne, of Stratford; and the withdrawal of H. W. Gibson, Saskatchewan, and the appointment of John Bracken, Regina, to take his place.

The President reported that, as a result of an interview of the Executive Committee with the Hon. Minister of Agriculture, he had promised adequate financial aid to carry the Association another year.

Short verbal reports of the three inspectors present were given, all agreeing that the work was a growing and prosperous one. Seed Commissioner Clark spoke of some of the difficulties of the inspection work, but solicited the co-operation of the members and others interested in making the work as effectual as possible. He said the work must be done in six weeks, and that only acting members should expect a visit. He thought the outlook for the future of the Association was a bright one.

Prof. Shutt drew some practical conclusions from investigation work he was carrying on along two lines. First, in the use of the formaldehyde solution for treating seed grain for smut. A fresh solution should be made when using it. At its best strength, then, the commercial stuff only analyzed 37 to 38 per cent. formaldehyde, instead of 40 per cent., as generally supposed. This solution, on exposure, got stronger, and yet was less effective. The water should evaporate faster than the gas, as 506 is to 1. His tests were made after five days' exposure, and after 17 days' exposure. The other experiment was to determine how the quality of wheat was influenced by soil conditions. There were three series in this experiment, and the lessons learned were that the protein content was very appreciably influenced by the condition of the soil on which it was grown, and the appearance of the wheat was affected as well. Still another useful lesson was noted in that the amount of available nitrogen increased or decreased with the amount of organic matter contained in the soil. The water content, too, was always greater where there was the most organic matter. The soil of new breaking contained 622 per cent.

of nitrogen the 21.54 per cent. of organic matter; and, on summer-fallow ground, 380 per cent. nitrogen to 13.11 per cent. of organic matter. This would go to show, as the speaker pointed out, that diversified farming, in rotating grains, would not help the land very much in maintaining fertility.

AFTERNOON SESSION—TUESDAY.

This was a very full session, but, as a number of the papers were quite scientific, only brief references will be made to them. Prof. Lochhead, of Macdonald College, sent his paper on "The Utility of the Special Seed-plot as a Medium Through Which Plant Diseases May be Controlled, and Disease-resistant Plants Developed." The paper showed this was being done, and Prof. Macoun, who followed, also pointed out that in horticulture they were accomplishing a good deal in this way.

Prof. L. S. Kilnck gave an interesting paper on "Individuality in Plants," in which he rehearsed the various methods followed by experts in developing strains and new varieties.

"The Place of the Canadian Seed-growers' Association in the Campaign Against Farm Weeds," was next dealt with by Dr. Fletcher, in which he maintained that the members of the Association should first be careful in using clean seed, and, second, careful to so cultivate their plots that weeds would not be allowed to form seeds themselves.

Mr. G. H. Clark's address on "Problems in Seed Control," was taken as read, and will appear in the annual report.

It remained for Mr. Leon Guerin to give a very interesting and well-prepared paper on the Canadian Seed-growers' Association and the Farmer, in which he gave some of his own experience on his farm at Coaticook, Que.

Mr. Kustermann gave the meeting a short resume of what their company was doing in improving field root seeds. The work so far was promising.

Mr. G. H. Clark said he was glad to welcome the members to Ottawa, so that they could get in close touch with the work he was attempting to do, both in a practical and educational way.

The Treasurer's report showed a balance on the right side of the ledger, and the Committee on Resolutions expressed the appreciation of the aid rendered the Association by the Hon. Minister of Agriculture, Mr. S. Fisher. They also expressed the appreciation of the Association to the donors of the beautiful trophies given to encourage the production of high-class seed.

The Association then adjourned, and the fourth annual meeting became a matter of history.

ECHO NOTES FROM THE CONVENTION.

Prof. Zavitz.—"We cannot see all the good which is being done on the surface."

Dr. Robertson.—"It had been well said, and often repeated, that the twentieth century belonged to Canada, and he thought that one of the great movements of the century would be the movement of the people back on the land, because of their preference to do so."

"The seed-improvement movement is a powerful educational force in the country to-day."

"It is a work which helps the unscientific man to do scientific work."

"The successful farmer is the man who leaves better and improved seed, clean farms, better-tilled land, to posterity."

Prof. Zavitz.—"The market value of our farm crops amounts annually to more than the combined value of our forests, mines and fisheries in the Dominion of Canada."

Hon. W. R. Motherwell.—"Last year, in Saskatchewan, 2½ million acres of wheat produced 37,000,000 bushels, and one million acres in oats produced 27,000,000 bushels, besides the barley grown, and yet only 6 per cent. of the arable land in Saskatchewan is under cultivation."

A GREAT SALE OF HOLSTEINS.

Mr. Geo. Rice's annual sale of high-class Holstein cattle, from his far-famed Annandale herd, advertised in this paper to take place at the farm, at Tillsonburg, Ont., on February 25th, will be the event of the year in interest for Canadian dairymen, and should attract a bumper attendance. The dairy business is booming, and gives every promise of continuing at high-water mark. The cow is the principal hope of the farmers of these eastern provinces. And when they feed cows, it is sensibly important that they feed cows that will do a good deal more than pay for their board. No class of cows have demonstrated by actual performance by the test of the pail and the scale that they pay profitable dividends than have the Holsteins. And no man in the Dominion has done more to improve and develop and advertise the breed by practical performance than has George Rice. It was fitting that he should take up the work of the late Mr. Tillson, at Annandale Farm, where that enterprising gentleman developed a herd of Holsteins in which 65 cows produced a yearly average of nearly 10,000 lbs. of milk, and one of his own breeding over 20,000 lbs. It was Geo. Rice who showed at the Pan-American

Exhibition what a model dairy cow was like, and carried off the championship with Josco Prried, with a bag as big and symmetrical as a washtub. It was he who showed Calamity Jane, who produced 85 lbs. milk in a day, and 166 lbs. in two days, in a public test, winning the championship at the Ontario Winter Fair, and it was he who sold to the Ontario Agricultural College the marvellous young cow, Boutsje Q., which made the phenomenal yearly record in her three-year-old form of 20,778 lbs. milk, containing 781.91 lbs. of fat, and showing an average test of 3.76 per cent., equal to 25½ lbs. butter per week; and the herd is full of the blood of these great producing cows, and others nearly as good; the progeny of noted sires bred from heavy-producing dams, and Mr. Rice is willing to share it with the breeders and farmers of his native country at their own price, confident that they will give him encouragement by countenancing the sale, and giving a fair price for a first-class article. In no class of stock is it truer that the best is the cheapest than in the purchase of dairy cows, and in this a deep-milking strain counts for much. A trip to Tillsonburg on the occasion of this sale will be money well spent, as the outfit of buildings at An-

nandale, and the great herd, are a sight of great interest; and Mr. Rice spares no trouble or expense in providing for the comfort and information of visitors. With a heart as big as that of a bullock, he says to his friends, "If the latch string is not out, kick in the door." See the advertisement of the sale, and send for the illustrated catalogue, which tells the tale of the character of the offering. Fifteen brood sows (Yorkshires) are also included.

IMPORTED SHORTHORNS BY AUCTION.

At the farm, Burnbrae, one and a half miles from Stouffville Station (G. T. R.), on Friday, March 6th, Mr. Robert Miller, of Stouffville, Ont., and Messrs. D. Gunn & Son, of Beaverton, Ont., will hold a joint sale of 40 head of imported and home-bred cattle, including 8 bulls, from eleven months to four years of age, five being imported, an exceptionally well-bred lot, and in type, conformation, and quality probably the equal of any ever offered by auction in Canada. There are, in the sale, 32 females, all young, vigorous animals; sixteen of them imported; every one richly bred; built on show-ring lines, and in good condition, the whole making a grandly attractive

offering. Both Mr. Miller and Messrs. Gunn are well-known as importers and breeders of high-class animals, their name being a guarantee that no visitor to the sale will be disappointed in the quality and breeding of the animals offered. Fuller particulars of the breeding of the animals will appear in following issues. Conveyances will meet all morning trains from north and south at Stouffville Station on day of sale. Good hotel accommodation at Stouffville for parties arriving the day before. The terms will be cash, unless otherwise arranged for before commencement of sale. Catalogues may be had on application to Mr. Robert Miller, Stouffville P. O., Ont. The sale will be held under cover in a comfortably-heated building.

REDUCED COLONIST RATES.—Com-

mencing Feb. 29th and continuing daily until April 29th, inclusive, one-way colonist tickets will be on sale to the following points: Vancouver, Victoria, Seattle, Portland, Tacoma, Spokane, San Francisco, Los Angeles, San Diego and Mexico City. Full information may be obtained from any Grand Trunk ticket agent, or write to J. D. McDonald, D. P. A., Toronto.

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MARKETS.

TORONTO.

LIVE STOCK.

Owing to cold and stormy weather, receipts of live stock were light at the City and Junction markets last week. On account of light receipts, trade was brisk, with prices higher than at any time since the new year for cattle.

Receipts of cattle at Toronto Junction on Monday, Feb. 10th, were light; trade brisk; prices firm. Export steers, \$5 to \$5.30; export bulls, \$4 to \$4.50; picked butchers', \$4.90 to \$5.25; loads of good, \$4.50 to \$4.85; medium, \$4 to \$4.40; common, \$3.75 to \$4; cows, \$3 to \$4.25; lambs, \$5.50 to \$6.50. Calves, \$6.50. Hogs, \$5.15, fed and watered at market, and \$4.90, f. o. b., at country points.

Exporters.—Prices last week ranged from \$4.90 to \$5.40 for steers, and \$4 to \$4.50 for bulls.

Butchers'.—Choice picked lots sold at \$5 to \$5.25; loads of good, \$4.60 to \$4.90; medium, \$4.25 to \$4.50; common, \$3.75 to \$4.15; cows, \$3 to \$4.25; canners, \$1.50 to \$2.50.

Feeders and Stockers.—None of either class were offered.

Milkers and Springers.—The severity of the weather prevented any shipments of milk cows.

Veal Calves.—Prices ranged from \$4 to \$6.50 per cwt.

Sheep and Lambs.—Offerings were light, but prices were unchanged. Export ewes, \$4 to \$4.50; rams, \$3.50 to \$4; lambs, \$5.50 to \$6.50 per cwt.

Hogs.—Receipts very light. Prices lower. Selects, \$5.15, fed and watered at the market; and \$4.90 to drovers, f. o. b. cars at country points.

The total receipts of live stock last week were 109 carloads, composed of 1,812 cattle, 830 hogs, 670 sheep, 65 calves, and 95 horses.

Horses.—On account of the stormy weather, the horse trade at the Union Stock Exchange was not nearly as large as was expected, as several loads consigned to that market were stalled on the road, having to be unloaded, but these will be on sale this week. About 75 horses were disposed of at fair prices, considering the quality of those

sold. Several fine specimens of drafters were offered, but not sold, although the owners were offered from \$180 to \$210 each. Light drafters, 1,200 to 1,400 lbs. each, sold from \$125 to \$175 each; general-purpose horses, sound, sold at \$100 to \$160; serviceably sound of all classes ranged from \$30 to \$90 each; drivers of good quality sold at \$120 to \$200; second-hand drivers at \$40 to \$70 each.

BREADSTUFFS.

Wheat.—No. 2 white, 99c.; No. 2 red, 98c.; No. 2, mixed, 98c.; No. 2 Goose, 92c.; Manitoba No. 1 Northern, \$1.21; No. 2 Northern, \$1.15, at Port Huron.

Barley.—No. 2, sellers, 73c.

Oats.—No. 2 white, buyers, 49c.; No. 2, mixed, no quotations, but worth about 48c.

Bran.—Worth \$23.50, in bulk, at Toronto.

Shorts.—Quoted at \$24 to \$25, in bulk, at Toronto.

Buckwheat.—Sellers, 66c.

Rye.—No. 2, 81c.

Peas.—No. 2, 83c.

Corn.—No. 3, yellow, 65c., on track at Toronto.

Flour.—Ontario, 90 per cent. patents, \$3.60 bid for export. Manitoba patents, special brands, \$6; second patents, \$5.40; strong bakers', \$5.30.

COUNTRY PRODUCE.

Butter.—Market steady, at following quotations: Creamery, pound rolls, 29c. to 30c.; creamery, boxes, 28c. to 29c.; dairy, pound rolls, 25c. to 26c.; tubs, 23c. to 24c.

Eggs.—New laid, 30c.; cold-storage, 21c. to 22c.

Cheese.—Market steady; large, 13½c.; twins, 13½c.

Poultry.—Market quiet. Receipts light, but equal to demand. Prices for dressed were as follows: Turkeys, 13c. to 14c.; geese, 9c. to 10c.; ducks, 11c. to 12c.; chickens, 12c. to 14c.; old fowl, 8c. to 9c.; squabs, per dozen, \$2 to \$3.

Honey.—Extracted, 11c. to 12½c.; combs, dozen sections, \$2.75 to \$3.

Potatoes.—Market firm. Car lots, on track at Toronto, are worth 90c. to 95c. per bag, owing to scarcity on account of stormy weather.

Beans.—Market unchanged. Primes, \$1.70 to \$1.75; hand-picked, \$1.80 to \$1.85.

Hay.—Baled, in car lots, on track at Toronto, \$16 to \$17.

Straw.—Baled, in car lots, on track at Toronto, \$9 to \$10 per ton.

TORONTO FRUIT MARKET.

Choice No. 1 Spies are held by dealers at \$4 per bbl.; farmers' loads of No. 2 Spies sell at \$2.50 to \$3; Baldwins, \$2 to \$2.50; Talman Sweets, \$2 per bbl.; onions, per bag, \$1.25 to \$1.35.

SEED MARKET.

The William Rennie Co. report market quiet, with prices unchanged. Alsike, fancy, per bushel, \$8.25 to \$8.60; No. 1, \$8 to \$8.25; No. 2, \$6.75 to \$7.25; red, No. 1, \$10 to \$10.50, and fancy samples at \$11 per bushel.

HIDES AND TALLOW.

The hide market is firmer. Prices have advanced 1c. per lb., and are quoted as follows by E. T. Carter & Co., 85 East Front St., Toronto: Inspected hides, No. 1 cows and steers, 6c., inspected hides, No. 2 cows and steers, 5c.; country hides, cured, 4c. to 4½c.; calf skins, 8c. to 9c.; kips, 6c. to 7c.; horse hides, No. 1, each, \$2.25; horse hides, No. 2, each, \$1.25; horse hair, 25c.; tallow, 5c. to 6c.; wool, unwashed, 14c. to 15c.; washed, 19c. to 20c.; rejections, 14c. to 15c.; lamb skins, 70c. to 80c.

CHICAGO.

Cattle.—Steers, \$4.25 to \$6.25; cows, \$3 to \$4.25; heifers, \$2.50 to \$5.25; bulls, \$3 to \$4.50; calves, \$3 to \$7; stockers and feeders, \$2.60 to \$4.75.

Hogs.—Choice heavy shipping, \$4.50 to \$4.55; light mixed, \$4.75 to \$4.80; butchers', \$4.40 to \$4.45; choice light, \$4.40 to \$4.45; packing, \$4 to \$4.45; pigs, \$3.50 to \$4.30; bulk of sales, \$4.40 to \$4.45.

Sheep and Lambs.—Sheep, \$4.25 to \$5.50; lambs, \$5.25 to \$7.05; yearlings, \$5.50 to \$6.40.

BRITISH CATTLE MARKET.

London.—London cables, 10½c. per pound, dressed weight; refrigerator beef, 9½c. to 9½c. per pound.

MONTREAL.

Live Stock.—Traffic was interrupted for several days last week by the severe snowstorms, and the train service was almost suspended during that time. The result was that large quantities of live stock, shipped previous to the storm, arrived in a not very satisfactory condition. Accordingly, receivers declined to offer a very considerable portion of the stock, so that the available quantity was very small. As the attendance of buyers was good, there was a slight scramble, and top prices were paid. The market ranged from 5½c. to 5½c. for choice cattle; fine, 5c.; good, 4½c. to 5c.; medium, 3½c. to 4½c.; common, 3c. to 3½c., and inferior as low as 2½c. Receipts of sheep and lambs have been exceedingly small of late, owing partly to the severe weather. Choice lambs were sold as high as 6½c., good being 5½c. to 6c., and common as low as 5½c., while choice sheep ranged as high as 4½c., good being 3½c. to 3½c., and culls down to 3c. For the first time in many weeks, the market for hogs showed a considerably better tone, and prices were accordingly firmer. Supplies of hogs were limited, owing probably to the severe weather, and prices were about 1c. more than the previous week. Sales of select were made at 6c. to 6½c. per lb.

Horses.—Dealers report the market duller than at any time for years past, and they look for even greater dullness during the balance of this month. Railway contractors and lumbermen have now purchased the greater portion of their supplies, and, from this out, they will require very few additional horses. It will be some time yet before farmers will begin making purchases of any considerable quantities, and the local demand is absolutely dead. Meantime, prices continue unchanged as follows: Heavy-draft horses, weighing 1,500 lbs. to 1,700 lbs. each, \$250 to \$300; light-draft, 1,400 to 1,500 lbs., \$225 to \$275; good blocks, 1,300 to 1,400 lbs., \$200 to \$225; express horses, \$150 to \$225; common plugs, \$50 to \$75 each, and choice saddle and carriage animals, \$300 to \$500 each.

Dressed Hogs and Provisions.—Owing to the advance in the price of live hogs, the market for dressed hogs is considerably firmer. Abattoir, fresh-killed stock is selling at 8½c. to 9½c. per lb., country-dressed being 7½c. to 8c. Demand for both being fully equal to the supply. Bacon and hams are in good demand, and prices held steady. Green bacon is 10½c. to 11c. per lb. for long clear, 11c. to 12c. for flanks, select bacon being 14c. to 15c. Hams are 12½c. per lb. for those weighing 25 lbs. and more, 13c. for those weighing 18 to 25 lbs., 13½c. for lighter. Lard is 8½c. to 9½c. per lb. for compound, and 11½c. to 12½c. for pure. Barreled pork is \$20 to \$21 per barrel.

Potatoes.—The recent severe storms and cold weather have put a stop to anything like free movement in potatoes. Dealers are selling single loads, bagged and delivered, at 95c. to \$1 per 90 lbs. Picked-over stock may also be had at 75c. to 90c. per bag.

Eggs.—Dealers quote the market firm. Stocks held here do not appear to be very large, and there does not seem to be any immediate likelihood of their being increased. Cold-store eggs are quoted in single cases at 22c., and selects at 26c., lined eggs also being around 21c. to 22c. New-laid have almost ceased to arrive, and dealers quote them at 36c. to 40c.

Poultry.—Very little trade just now. Receipts very light; demand quite active; prices hold steady. Turkeys sell at 14c. to 16c. per lb.; chickens at 11c. to 12c. for fine, and 13c. for fancy; fowl at 8c. to 10c. for finest, and lower for common, and geese at 10c. to 11c. per lb.

Butter.—Receipts light, dealers quoting higher prices. It would be difficult to get grass creamery at less than 29c., wholesale, and 30c. in single packages.

Cheese.—Stocks exceedingly light. Quotations, 12½c. for white Octobers, and 13c. for white Septembers, colored being 1c. more in each case.

Grain.—Eastern Canada No. 2 white oats are quoted at 53c., carloads, in store, No. 3 being 50c., and No. 4, 48c., rejected, 47c., and Manitoba rejected, 49c. to 49½c.

Flour and Feed.—Demand for flour continues very active, as does also that for bran and shorts. With the exception of an advance of \$1 per ton in the price of shorts, quotations continue the same as

a week ago. Manitoba spring-wheat patent flour is selling at \$6.10 per barrel, in bags, seconds being \$5.50. Bran is steady, under a good demand, at \$23 per ton, in bags, and shorts are \$1 per ton higher than a week ago, at \$24.

Hay Seed.—Prices continue high and firm. Dealers are quoting red clover at \$22 to \$24 per 100, in bag lots and upwards, f. o. b. Montreal; alsike being \$17 to \$20.

BUFFALO.

Cattle.—Prime steers, \$5.75 to \$6. Veals.—\$5 to \$10.

Hogs.—Heavy and mixed, \$4.90; Yorkers, \$4.80 to \$4.90; a few, \$4.95; pigs, \$4 to \$4.55; roughs, \$4 to \$4.25; dairies, \$4.70 to \$4.80.

Sheep and Lambs.—Lambs, \$5 to \$7.80; a few, \$7.85; yearlings, \$6.25 to \$6.75.

THE GARDNER-PEARSON SHORT-HORN SALE.

Owing to having rented his farm for a term of five years, and retiring from farming, Mr. F. A. Gardner, of Britannia, Ont., three and one-half miles east of Streetsville Junction Station (C. P. R.), six miles south of Brampton (G. T. R. and C. P. R.), and seven miles north of Port Credit (G. T. R.), will, on Tuesday, March 3rd, sell by auction his entire herd of 20 head of Scotch and Scotch-topped, imported and Canadian-bred Shorthorn cattle, including his two stock bulls, Gold Mine (imp. in dam) =50342=, sired by Sir James (82834); dam Bertha 5th (imp.), by Count Sunshine; is a red-roan, rising five, a massive, thick, even-fleshed bull, a rare good kind, and that has proven a sire of worth; and Scottish Archer =59608=, a roan three-year-old, by Scottish Prince (imp.), a Toronto senior champion; dam Scotch Thistle 2nd (imp. in dam), by the great Missie bull, Luxury; grandam by Prince Cruickshank; he is an exceptionally good bull of the low-down, thick, even type, and a splendid doer. Here are a pair of herd-headers fit for any herd. Besides these, Mr. Gardner will sell the roan, eleven-months-old bull, Brawith Prince, by Imp. Prince of Archers; dam Countess 16th, by Beaufort Victor (imp.); grandam Countess 15th (imp.); this young bull bids fair to develop into something extra good. Besides these mentioned, Messrs. S. J. Pearson, Son & Co., the well-known Shorthorn breeders of Meadowvale, Ont., will sell, as their consignment to the sale, ten young bulls along about one year old, the get of Royal Diamond 2nd =58459=, a Minabred bull, by the Marr Roan Lady bull, Imp. Royal Diamond; dam Mina of Kinellar 7th (imp.), by the Lavender-bred bull, Lucky Archer; and Royal Scot =49813=, a son of Imp. Scottish Pride; dam Rosie 5th (imp.), by Alan Gwynne; grandam Rosie, by the Jilt-bred bull, Lieutenant. Among this lot are some high-class young bulls, of the thick, low-down order, and others bred from very heavy and persistent-milking dams, and anyone wanting a dairy-bred Shorthorn bull should make a point to be present, as some of these have dams with 50 lbs. a day of 5-per-cent. milk. Nonpareil King =70338=, a yearling Nonpareil, whose dam is a very heavy milker, and whose milk has tested 5 per cent., is by Royal Diamond 2nd, Valley Home Scot =69059= is a Mina, by Royal Scot. Scot's Fame =69060= is a Marchioness, by Imp. Scotland's Fame. Brave Scot =67306= is a Lady Brant, by Royal Scot; this bull is straight dairy bred. Royal Prince =70340= is a Kinellar Rosebud, by Royal Diamond 2nd, Valley Home Archer =70341= is a Mina, by Royal Diamond 2nd, Gladstone =70336= is a Mina, by Royal Scot. Others are of the Lady Brant breeding, and by the same two sires. The sale will be held at the home of Mr. F. A. Gardner, Prospect House. Conveyances will be at the Queen's Hotel, Brampton, at 10 a. m., on morning of sale, and at Streetsville Junction and Port Credit to meet morning trains. Catalogues may be had by applying to F. A. Gardner, Britannia, or to S. J. Pearson, Son & Co., Meadowvale, Ont. Lunch will be provided at noon. The terms are: cash, or seven months' on bankable paper with 5 per cent. interest. Mr. John Smith, M. P. P., and Capt. T. E. Robson, auctioneers. Full particulars of the breeding of the females to be sold will appear in a later issue. Look for it in these columns.



**Life, Literature
and Education.**

[Contributions on all subjects of popular interest are always welcome in this Department.]

THE FIGHT AGAINST COLD AND WANT IN SHACKTOWN.

Probably some of our readers who chanced to go into Toronto last fall for a trip, comfortable in the consciousness of having left behind them comfortable homes, full granaries, and stables filled with stock, found some interest in looking out from the car windows at the queer dwellings encircling the northern and north-western portion of the city, and, farmer-like, wondered how the inmates would get through the winter. Like packing-boxes, more than anything else, these dwellings seemed, tumbled without calculation or order among the scrubby growth of what seemed an erstwhile commons, and appearing, with their thin walls and chimneyless roofs, through which crooked pipe-ends protruded, about as adequate as so many bandboxes to withstand the rigors of a Canadian winter. To make matters worse, these pigmy shacks, although within sight of Toronto, the Queen City of opulence and luxury, were far enough removed from beaten roadways to insure many a hardship of ingress and egress when the snow should lie deep and the drifts pile up under the lash of the north wind. . . . Pondering still, the prosperous farmer may have wondered if the people there were newcomers, if they did not know what Canada means in winter; and his surmise would have been right, for most of the houses were, in fact, inhabited by emigrants from the Old Country, who had never before been far beyond the influence of the Gulf Stream breezes in their lives.

Since then, terrible days have come to Shacktown, days when the money ran low, and the weather grew cold, and no work was to be had. Only those who have faced such conditions can know what they mean. Only the man who has tramped for days and weeks in a hopeless quest for work, with an empty pocket and a scarcely-less-empty stomach, weakened by hunger and low spirits, with a vitality too low to bid defiance to a cold penetrating every portion of thin and insufficient garments, and with a heart heavy as lead through the consciousness of loved ones suffering in the miserable shack away there on the bleak common, can, perhaps, really sympathize with the one who has come through such an experience. . . . And nobody cared!

Yes, somebody cared. On a fortunate day, a reporter from the Globe—that paper which, whatever our political color, we must recognize as a leader in all good work of this kind—was sent to Shacktown. As a result, a subscription list was opened in the big daily, and the human hearts of men and women began to manifest themselves. Money, clothing, food, began to come in from all parts of the city and Ontario; a distributing depot was organized, and competent men and women put

in charge. As a consequence, warm fires were built in fireless homes, little children were clothed, and food was placed on tables which had for long enough been almost bare.

The good work, however, is only beginning. It will be impossible for the people—there are enough of them to make up a whole town—to obtain work before April, and food and coal must be supplied—yes, and clothing, too—for every day new families, suffering in silence, are discovered—not shiftless beggars, merely honest immigrants, who have been induced to come to Canada, and who have not found work. The Globe subscription list will, therefore, remain open for some weeks, and every contribution, no matter how small, will be gladly welcomed.

In this good work, many of our

are but a few suggestions. . . . When sending parcels, remember to address them plainly, "Shacktown Relief Fund, Toronto," as in that case they will be delivered free of charge by either the Canadian or Dominion Express Company. Money orders, etc., may be sent directly to The Globe, Toronto.

"BEAR YE ONE ANOTHER'S BURDENS."

OUR LITERARY SOCIETY.

Essay II.

Shakespeare is known as the greatest master of the English language of his own, or any other age. As we have studied this drama of Macbeth, we have understood something of the reason for

was enacted was in the age of witchery and superstition, witches are made to play a very important part in the drama. Duncan of Scotland was a good, beneficent king—one under whom the people were united and loyal, happy and contented, but, like many another such sovereign, he had his troubles at home and abroad, which, however, with the enthusiastic support of his people, he was able to weather. In one of his wars, two of his generals, Macbeth and Banquo, who were also his kinsmen, distinguished themselves most brilliantly on behalf of their country, but those who brought the king word of their noble daring, also brought word of the traitorous conduct of another of Scotland's noblemen, the thane of Cawdor, who had rendered most material assistance to the enemy. This so incensed the king that he at once despatched the thane of Ross to see to his execution, and to invest Macbeth with his former title.

As Macbeth and Banquo were returning from the field of battle, they were met on the heath by three witches. When they had somewhat recovered from their surprise, Macbeth commanded of them, "Speak if you can; what are you?"

The first witch replied, "All hail, Macbeth! hail to the thane of Glamis."

Second witch—"All hail Macbeth! hail to thee, thane of Cawdor."

Third witch—"All hail, Macbeth! that shalt be king hereafter."

Banquo then bade them speak to him, at which they hailed him:

First witch—"Lesser than Macbeth, and greater."

Second witch—"Not so happy, yet much happier."

Third witch—"Thou shalt get kings, though thou be none; so all hail Macbeth and Banquo."

Macbeth having, by this time, recovered the use of his tongue, demanded to know more, saying:

"Stay you imperfect speakers, tell me more;

"By Sinel's death, I know, I am thane of Glamis;

"But how of Cawdor? the thane of Cawdor lives,

"A prosperous gentleman; and to be king

"Stands not within the prospect of belief,

"No more than to be Cawdor; say from whence

"You owe this strange intelligence; or why

"Upon this blasted heath you stop our way

"With such prophetic greeting; speak I charge you."

But the witches were not to be forced into laying bare more of the future, and on Macbeth assuming such a belligerent attitude, they vanished into the air from whence they came. Macbeth and Banquo proceeded on their way, filled with strange surmisings regarding the experience they had just passed through, and wondering whether they were really in their right senses or no, or whether it were all a dream. They had not proceeded far when they were met by Ross and Angus, messengers from the king, who were sent to bear the king's gratitude for



"Coming Events Cast Their Shadows Before."

farmers may wish to help. Few may, it is true, be able to drive along to the district, as a good-hearted York Co. man did the other day, with a big sleighload of potatoes and turnips, but almost every one can think of some way in which to help—a cheque, large or small; a few pairs of warm mittens or stockings; a package of oatmeal or beans, both rich in nutritious, strength-giving qualities; a warm quilt; old clothing, clean, and in good repair, for either grown people or children—these

his enduring influence in literature. For pure and lofty diction, and for felicity of expression, we have seldom read anything to equal the language of this play and other works from the same pen. He seems to have the faculty, in a most remarkable degree, of putting the right word in the right place, and framing the words into sentences in such a way as to give expression, with wonderful fidelity, to every emotion that can agitate the human mind.

As the time at which this drama

their noble defense of his kingdom, and, from him, to hail Macbeth thane of Cawdor. Macbeth and Banquo were dumfounded, and showed it by their words, Banquo stammering, "What, can the devil speak true?" while Macbeth protested, "The thane of Cawdor lives; why do you dress me in borrowed robes?" "Who was the thane lives yet," Angus replied, "but under heavy judgment bears that life which he deserves to lose. . . . treasons capital, confessed and proved, have overthrown him."

This incident marks the beginning of Macbeth's downfall. Like many another member of the human family, in times of fair, average prosperity, he had been a most model citizen, beloved by his king, looked up to and admired by the common people, but when unusual success and prosperity began to crown his efforts, he became practically intoxicated with success, and evil thoughts, to which he had been a stranger before, began to haunt him. Sordid ambition began to make its blighting influence felt.

After investing Macbeth with his new dignity, the party proceeded to the king's palace at Forres, when Macbeth and Banquo were still further heaped with commendation by the king, who shortly announced his intention of paying a visit to Macbeth at Inverness.

In Macbeth's castle at Inverness, Lady Macbeth is seen to be reading a letter, and, after reading it, she muses thus with herself:

"Glamis thou art, and Cawdor; and shalt be
What thou art promised;—yet do I
fear thy nature;
It is too full of the milk of human
kindness,
To catch the nearest way; thou
wouldst be great;
Art not without ambition; but
without
The illness should attend it. What
thou wouldst highly,
That thou wouldst holily; wouldst
not play false,
And yet wouldst wrongly win; thou-
dst have great Glamis,
That which cries, 'Thus thou must
do, if thou have it,
And that which rather thou dost
fear to do,
Than wishest should be undone. Hie
thee hither,
That I may pour my spirits in thine
ear;
And chastise with the valor of my
tongue
All that impedes thee from the golden
round,
Which fate and metaphysical aid
doth seem
To have thee crowned withal."
While she is musing, an attendant
enters with the message, "The king
comes here to-night."
When the attendant has been dis-
missed, Lady Macbeth is again ab-
sorbed in her thoughts:
"The raven himself is hoarse
That croaks the fatal entrance of
Duncan
Under my battlements. Come you
spirits
That tend on mortal thoughts, unsex
me here;
And fill me, from the crown to the
toe, top-full
Of direst cruelty! make thick my
blood,
Stop up the access and passage to
remorse;
That no compunctious visitings of
nature
Shake my fell purpose, nor keep
peace between
The effect and it! Come to my wo-
man's breasts,
And take my milk for gall, you mur-
dering ministers,
Wherever in your sightless sub-
stances
You wait on nature's mischief! Come
thick night,
And pall thee in the dimmest smoke
of hell,
That my keen knife see not the
wound it makes,
Nor heaven peep through the blanket
of the dark,
To cry, 'Hold, hold!'"

Under the influence of such an in-human wife, the gentler, more humane nature of Macbeth was practically helpless, and the result was that, though Macbeth protested, he was finally goaded and taunted into committing that from which his whole better nature recoiled; and with the commitment of that deed, his peace and happiness were gone forever.

"Methought I heard a voice cry," he told Lady Macbeth, "'Sleep no more! Glamis hath murdered sleep, and therefore Cawdor shall sleep no more, Macbeth shall sleep no more!'"

While Duncan and his attendants slept the sleep induced by a hard day's travelling and a long night's carousing, Macbeth stole into his chamber, and, with his own hand, murdered him, then placed the daggers beside the attendants in the room and smeared them with blood, thereby fastening suspicion on them. When morning broke, the whole house was thrown into consternation by the discovery that the king had been murdered, and, in the bitter lamentation that followed none were more vehement in their expressions of grief than Macbeth and his lady.

Malcolm and Donalbain, Duncan's sons, fearing lest "This murderous shaft that's shot hath not yet lighted and our safest way is to avoid the aim," at once fled, one to England, and the other to Ireland.

Because of their flight, suspicion, for the time being, rested upon the king's sons, that they had suborned Duncan's attendant to strike their father down in the night.

Macbeth was crowned king as Duncan's successor, but his true nature soon began to manifest itself. He had begun a life of crime, and his own troubled conscience goaded him deeper into the life he had entered. There was not a person in the realm that he could now trust as a friend. His own mind was plotting evil against those around him, and he fancied those around him were plotting evil against him. In his own words, "Things bad begun, make strong themselves by ill, and here's not a one of them, but in his house I keep a servant feed'd. . . . I am in blood, steeped in so far, that, should I wade no more, returning were as tedious as go o'er."

Very soon Banquo, being invited to a feast in Macbeth's palace, fell a victim to his treachery and malice. Shortly after Banquo's murder, Macbeth again sought the witches' counsel, and was told to "Be bloody, bold and resolute; laugh to scorn the power of man, for none of woman born shall harm Macbeth. . . . Be hair-mottled, proud; and take no care, who chafes, who frets, or where conspirers are: Macbeth shall never vanquished be, until great Birnam wood to high Dunsinane hill do come against thee."

Macduff, fearing that he might be the next to taste of the king's treachery, fled to England, and Macbeth, enraged at the thought of another intended victim having escaped him, at once despatched a company of murderers and ruthlessly murdered Macduff's wife and children. Meanwhile, Macbeth and his lady but ill-enjoyed their ill-gotten throne. Macbeth was continually haunted by his memory-charged mind. He who, at one time, was the idol of the nation, had not one among all his subjects whom he could trust as a friend. Lady Macbeth, as showing the disturbed condition of her mind, was seen quite frequently to be walking in her sleep, rubbing her hands, as if washing them, and talking of the horrors by which she was haunted, for instance, "Here's the smell of the blood still; all the perfumes of Arabia will not sweeten this little hand. Oh, oh, oh!"

Finally, after spending some time in this state, she died, some suspected by her own hand.

While these things were transpiring in unhappy Scotland, there was gathering in England a company of refugees from the tyranny of Macbeth. Malcolm was there, and had the promise of ten thousand English

troops to assist him when he should consider the time opportune to make an attempt to regain the throne that had been wrestled from him. He was joined by Macduff, and they, later, by Ross, who brought tidings of the murder of Macduff's family, who also advised Malcolm, "Your eye in Scotland would create soldiers, make our women fight to doff their dire distress," to which Malcolm replied, "Be it their comfort, we are coming thither; gracious England hath lent us good Siward and ten thousand men; an older and a better soldier, none that Christendom gives out."

Spurred to maddening desperation by the news of Macbeth's despotism, they were very soon on their way to Scotland. As they neared Birnam wood, Malcolm was heard to ask, "What wood is this before us?"

"The wood of Birnam," Monteith replied.

Malcolm then commanded the soldiers, "Let every soldier hew him down a bough and bear't before him. Thereby shall we shadow the numbers of our host, and make discovery err in report of us."

In Dunsinane castle, meanwhile, Macbeth was making frenzied preparations to meet the foe, when an attendant entered and reported that Birnam wood appeared to be moving toward them, information which still further agitated the mind of Macbeth, because of the remembrance of the prophesy of the witches, to which we have already referred.

The battle very soon began. The Scotch having no interest to win, and being driven like so many slaves into the fight, became confused, while the English held together. Young Siward was slain in an encounter with Macbeth. Shortly after, Macduff and Macbeth met, when Macduff cried, "Turn, hell-hound, turn!" Macbeth replied, "Of all men else I have avoided thee. But get thee back; my soul is too much charged with blood of thine already," to which Macduff retorted, "I have no words, my voice is in my sword; thou bloodier villain than terms can give thee out!"

Macbeth again made answer, "Thou lovest labor. As easy mayest thou the intrenchant air with thy keen sword impress, as make me bleed; Let fall thy blade on vulnerable crest; I bear a charmed life, which must not yield to one of woman born."

"Despair thy charm," Macduff replied, "and let the angel whom thou still has served tell thee Macduff was from his mother's womb untimely ripped."

When the battle was nearing its close, Malcolm, old Siward, and a few of the other leaders of the English troops were gathered together, Malcolm remarked, "I would the friends we miss were safe arrived." Old Siward, grizzled old veteran, replied, "Some must go off, and yet by these I see so great a day as this is cheaply bought." "Macduff is missing, and your noble son," Malcolm replied. Just here Ross came up with the tidings, "Your son, my lord, has paid a soldier's debt; he only lived till he was but a man. . . . But like a man he died."

"Then, he is dead?" Siward questioned.

"Ay," said Ross. "Had he his hurts before?" Siward inquired, to which Ross made answer, "Ay, on the front."

Then the indomitable old warrior showed his mettle in his reply, "Why, then, God's soldier be he! Had I as many sons as I have hairs, I would not wish them to a fairer death. And so, his knell is knoll'd." But Malcolm made answer, "He's worth more sorrow, and that I'll spend for him."

"He's worth no more," old Siward replied, "they say he parted well, and paid his score; And so God be with him! Here comes newer comfort."

Here Macduff entered, bearing Macbeth's head, and hailed Malcolm:

"Hail, king! for so thou art;
Behold where stands
The usurper's cursed head; the time
is free;
I see thee compassed with thy king-
dom's pearl,
That speak my salutation in their
minds;
Whose voices I desire aloud with
mine;—
Hail, king of Scotland!"

They all joined most heartily in the acclamations, when Malcolm replied:

"We shall not spend a large expense
of time,
Before we reckon with your several
loves,
And make us even with you. My
thanés and kinsmen,
Henceforth be earls, the first that
ever Scotland
In such an honor named. What's
more to do,
Which would be planted newly with
the time,
As calling home our exil'd friends
abroad,
That fled the snares of watchful
tyranny;
Producing forth the cruel ministers
Of this dead butcher, and his fiend-
like queen,
Who, as 'tis thought, by self and
violent hands
Took off her life;—this, and what
needful else
That calls upon us, by the grace of
Grace,
We will perform in measure, time,
and place;
So, thanks to all at once, and to
each one,
Whom we invite to see us crowned
at Scone."
Galt, Ont. J. D. TAYLOR.

May not more reasons for Shakespeare's greatness than are presented in the first paragraph of this essay be adduced?

It is necessary, also, to criticise two other points: (1) Lady Macbeth, not Macbeth himself, smeared the grooms with blood. Macbeth, it will be remembered, brought the daggers with him from the fatal chamber, and Lady Macbeth says:

"Why did you bring these daggers
from the place?
They must lie there; go carry them
and smear
The sleepy grooms with blood."

To which Macbeth replies:

"I'll go no more;
I am afraid to think what I have
done;
Look on't again I dare not."

Lady Macbeth then reproves him for his want of firmness. "Give me the daggers," she cries. . . . "If he do bleed, I'll gild the faces of the grooms withal, for it must seem their guilt."

Upon this she leaves the room, and presently declares that her hands, the "little hands" spoken of in another part of the drama, are stained with blood. A little later, when Macbeth is compelled to go into the chamber to appear like the others who enter it with no murder on their souls, he kills the grooms, who are still sleeping under the influence of the drug given them by Lady Macbeth, claiming that he does this to avenge the death of the king. (2) Can you not think of some other reason for Macduff's sudden trip to England? Surely so brave a general could not have been actuated by fear.

Essay III.

[To avoid repetition, the first part of this essay, which gives a synopsis of the story, is omitted.]

The play shows clearly the moral degradation of one who repeatedly yields to temptation. At the beginning, although the thought of murdering Duncan has occurred to him, Macbeth would probably have not carried it out had he not been

goaded on by his wife's taunts. When he wishes to get rid of Banquo, he does not even tell his wife of his intentions. He merely says, "Be innocent of the knowledge, dearest chuck, till thou applaud the deed."

Nor has he now any shrinking from the deed. His next crime—that of slaying Lady Macduff and her children—is absolutely without any purpose. Soon, even his affection for his wife seems to fail, for, when told of her death, he calmly remarks, "She should have died hereafter." And in the last act, his moral cowardice is fully revealed.

Indeed, his character is a curious mixture of good and bad. He is, throughout, brave in battle—brave in his defeat as in his triumph. Then, too, we cannot but commend his unwillingness to murder Duncan, although we are disgusted with his superstitious fears after the event. His faults are chiefly his weakness in yielding to temptation, and his selfishness. The latter is shown by the fact that not once does the welfare of Scotland, or even that of his own wife, enter his mind. It is all self.

Lady Macbeth, on the contrary, thinks nothing of herself. She urges Macbeth to murder Duncan merely that he may be king. The thought of her being queen does not seem to occur to her. She is a far stronger character than her husband. Unbending in will and inflexible of purpose, she cannot understand his hesitation at murdering Duncan. She declares, "Had he not resembled my father as he slept, I had done it." Afterwards, when Macbeth is so upset by Banquo's ghost, it is she who excuses him to the company and finally calms him. Her marvellous self-control is another feature of her character. Only in her sleep does any sign of her agony escape her.

The other persons do not play a large part in the story. The witches may be considered as the evil suggestions which come to every man. If he pays no attention to them, he hears them no more. Thus, Banquo does not see them after his first meeting with them, but Macbeth gives himself over to their power.

As said above, the play is remarkable for its painting of character and for its force. It is one which will be read with pleasure and profit by all, and it is one of those books which never grow old. It has as great charms now as upon the day it was written, and will have till the end of time.
L. E. H.

These comments will, perhaps, suggest a query as to Lady Macbeth's character. Has L. E. H. interpreted it correctly or not?

Other topics which might be suggested in connection with this study are:

1. An analytic study of the character of Macbeth.
2. Of the character of Lady Macbeth. Did she really faint after Macbeth's description of his killing of the grooms? (See Act II., Scene III.)
3. Professor Moulton holds that Macbeth had conceived the idea of the murder before Lady Macbeth mentioned it to him. Can you give reasons for or against this opinion? We shall be pleased to receive further contributions on this study from those who may be interested.

PREVENTION BETTER THAN CURE; AND THE STORY OF FIDO'S NOSE.

In a little pamphlet published by the Canadian Association for the Prevention of Consumption and other forms of tuberculosis, the startling fact is stated that tuberculosis is the cause of one death in every eight in this country, and that of all deaths between the ages of twenty-five and thirty-five, nearly one-half are due to consumption; that it is calculated that in Canada, at the date of the issue of the pamphlet, no less than 30,000, and possibly 40,000, were suffering from

that dread disease—a disease which, after all, is preventable.

By means of a very wide circulation of this little book, conveying practical instruction as to the precautions to be taken to prevent the spread of infection, and to cure it in its earlier stages, we may surely dare venture to hope that these figures may already be greatly reduced. The public press is always ready to grant space for similar educational items, and the medical men are actively at work, not only in cases brought under their especial care, but in promoting, wherever possible, the establishment of sanitariums or smaller places where patients can be isolated, with a view to living out-of-door lives.

In the past, there was not only a profound ignorance as to the right treatment of any form of disease, but in all such phases of it as were included under the head of "Consumption," there was a blind resignation to what was deemed the inevitable, instead of precautionary measures being taken to isolate the sufferer from others, and thus arrest the spread of the disease, whole families being immolated upon the altar of ignorance. In other words, the world knew nothing at all about

sary and even criminal methods of playing into the hands of the deadly microbe. I will just mention one method more, which shall reveal itself in the humorously-told story of Fido; and let us remember that what Fido did in the course of one brief excursion is repeated nearly every day, over and over again, by countless little doggies here, there, and everywhere, not always, perhaps, ending up with a climax so outwardly romantic, but always with one as full of deadly possibilities as when the golden-haired girl kissed Fido, and the young man kissed the golden-haired girl.

FIDO'S NOSE.

Fido trotted out on the lawn. He was a pure-bred Skye, and he wore a blue ribbon round his neck; but otherwise he was an ordinary dog. It wasn't long before he noticed that the front gate was open, and, after a guilty look round, he ambled slowly out of the gate, and proceeded up the street on a tour of inspection. He had the usual dog's enthusiasm about smells. He spent his small life smelling everything that came in his way. It was his instinct to rest his small black nose for a second or two on an object,



There's No Place Like Home.

(From a painting by Sir Edwin Landseer. Exhibited at Canadian National Exhibition, Toronto, 1907.)

the ubiquitous microbe, and how possible it was to circumvent him.

Well, we of the present day can hardly plead ignorance. We have been made almost intimately acquainted with the possibilities for mischief of man's invisible enemy, and if, as individuals, we give him quarter, we have, with some exceptions, mostly ourselves to blame. If we sin to-day, we sin against light and knowledge. Wise legislation is our safeguard collectively, but if individually we continue to cling to the ignorance of the past, or shut our eyes wilfully to the light which is dawning around us, we deserve to suffer the penalty. The sad part of it is that it is not the sinner only who suffers. It is inevitable that the consequences of his self-indulgence and criminal carelessness must fall upon others. For instance, when the man in the street evades the expectation by-law of his city, what germs of disease may he not have left behind him to be gathered up in the foolishly long but dainty garments of the fashionable lady, or her imitator, who follows in his footsteps? And these are but two amongst the numerous unrec-

and classify it by its odor. Smelling served him place of writing or speech, and, to a certain extent, took the place of reason. So to speak, he smelt his way through life, and, as he was a painstaking dog, and one who made full use of his opportunities, he had smelt pretty well the whole suburb.

The first thing he found when he got out was a dead rat, and, as it was an extremely dead rat, it was an exceptionally interesting subject. Fido ran his nose carefully over it, so as to get the full flavor, and trotted on.

The next item of interest was a very dead cat. It was up a lane, but its flavor called out to Fido. The cat had been lying out in the sun for some days, and fairly howled for burial. Fido investigated closely, had a drink out of the gutter, and passed on.

Various routine smells and a chance meeting with a poodle friend took up his attention for the next two blocks, but, at the beginning of the third, he discovered smells of unusual brilliance, and followed them up until he found, camped upon an unbuilt-upon plot of land, a travel-

ling circus. Fido overhauled the whole show, and added about 300 new smells to his collection. He finished up with the dust-bins—there were five of them—and passed out, wagging the short, hairy thing at the conclusion of him.

On the way home he went through four more dust-bins, held another inquest on the rat, and wound up with another drink out of the gutter.

As soon as he slunk in at the front gate, a pretty girl with golden hair cried, "Oh-h! Fido, darling!" caught him up in her arms and kissed his nose!!!

Two minutes later a young man walked in, and kissed the girl!!! It is not always the drains.

I found this story in a Devonshire paper of three months ago. It had been passed on to the editor from one of its contributors who had met with it in an Australian paper, and as it contains a moral of very real significance for all whom it may concern, I commend it to the readers of "The Farmer's Advocate," just reminding them of the old adage that "many a true word is spoken in jest."
H. A. B.

Children's Corner.

[All letters intended for the Children's Corner must be addressed to Cousin Dorothy, 52 Victor Ave., Toronto.]

A QUESTION.

Dear children, there was once on earth
A little child, who from his birth
No wicked passion ever knew,
Or spake a word that was not true.

Or ever laid his finger on
What did not to himself belong;
Or asked for things that he should not,
Or wished for more than he had got.

Whatever his dear parents bid
Without a word he always did.
He loved to hear of what was good
More than fine clothes, or drink, or food.

This child grew up to be a man,
And still went on as he began,
For help and comfort did he pray,
And did his duty day by day.

Now, children, tell me, if you can,
Who was this child, and who this man?
—Written for the Corner by Mrs. J. Stinson, Glencoe, Ont.

THE LETTER BOX.

[Letters must be written on one side of the paper only.]

Dear Cousin Dorothy,—As it is the end of the Christmas holidays, and I have no lessons to do, I thought I would write to your Corner. I go to school, and I am in the Junior Second. I went to grandma's for my holidays, and had a nice time. My uncle gave me the fountain pen that I am writing this with, and my aunt gave me a jewel box in burnt work, and Santa brought me things besides. We keep some hounds, for papa is a hunter; and once we had a pet fox, but he got loose one night and killed thirteen chickens, and we never saw him since. OLIVE SCOTT (age 8).
Rensw P. O.

Dear Cousin Dorothy,—I am a little girl, ten years old. I live in Mannheim. There are a chopping-mill, hotel and blacksmith shop. This is the third time I wrote to the Children's Corner. I think it is a very nice paper for girls and boys. I wish some of the girls would write to me. I go out sleigh-riding every day I can. We have a large piece of ice to skate on. I cannot wear skates. I would be glad if I could wear skates. I am in the Senior Second class in school. I like to go very much. We are going to have our examination in March. My mother is in the hospital in Berlin. We have a new windmill from Toronto. I guess I will close now for this time, hoping this letter will not go to the waste-paper basket as the other one did.
FLORENCE KNECHTEL,
Mannheim, Ont.

Dear Cousin Dorothy.—We live about a mile from the Trent-valley Canal. The school is very close to us, and I go regularly. I like going to school. I am in the Fourth Book. I have two post-card albums; there are twenty-eight post cards in them. I have read quite a few books, such as "Bessie at the Seaside," "Bessie and Her Friends," "Bessie Among the Mountains," "Bessie in the City," "Coral Islands," "Little Prudy's Dotty Dimple," and a few others. I do not want to take up too much room in your Corner, so I will close, wishing "The Farmer's Advocate" every success.

FLORA G. MATHESON (age 10).
Gamebridge, Ont.

Dear Cousin Dorothy.—It is just a year since I wrote you last, although I always read the letters in the Children's Corner, and sometimes I read other parts of the Home Magazine. We all like "The Farmer's Advocate." I have a nice dog named Bell, and a cat called Stickem. I called it Stickem, because when it was a little kitten it got into the Tangle-foot fly paper, and ran with it. But it was a good lesson, for it never climbs on anything or meddles with anything in the house since that day. And, now, about the debate, "Would you rather have a cat or a dog for a pet?" If I could only have one of the two for a pet, it would be a dog. My father says a good cat is worth as much in ridding the place of rats and mice as a cow is worth for giving milk. But our dog kills all the rats and mice it can see, and I don't see what more a cat can do than that; besides, it watches the place day and night, and helps to drive the stock whenever it is told to, and a cat could not do that. I was sorry to see that one of the Cousins said he cut the tails of every kitten that came to their house.

MYRTLE IRENE PUGH.
Uxbridge, Ont.

Dear Cousin Dorothy.—I have cut my foot with an ax, and cannot go to school, so I thought I would write a letter to your Corner to pass away the time this afternoon. As to whether I would have a dog or a cat for a pet, I would prefer a cat for inside, but, for outside, I would rather have a dog. We have a dog named Rob, he will go and bring the cows, drive the pigs to the pen, and kill skunks. If you throw sticks in the lake, he will swim after them and bring them back to shore. My mother has taken "The Farmer's Advocate" for three years, and likes it very much. In summer, my brother and I have fine fun bathing in Lake Manitou, and in winter time I skate. I have two traps set by the lake shore, and caught a mink and a weasel about Christmas time. I think some girls that were against Eddy Cook stretched the truth till it cracked; but I think he was wrong in some things. I am eleven years old, and am in the Senior Fourth Reader. I will close with a few riddles:

1. In and out, in and out, and still it never moves. Ans.—A rail fence.
2. Spell rat-trap in three letters. Ans.—Cat.

3. Beech, birch and maple, all begin with a. Ans.—All.

4. Went to Australia and stayed about an hour, then came back again because it never went there. Ans.—A watch.

ROSS JOHNSTON.

Big Lake P. O., Manitoulin Island,
Ont.

Dear Cousin Dorothy.—I am a little girl, six years old. My father takes "The Farmer's Advocate." I like to hear my mother reading the Children's Corner. I have two pets, a dog and a cat. I call my dog Shock, and my cat, Pusey White. I would rather have a dog. My dog helps my father to get the cows in the stable. At times I go to school. I am in the Part Second Book. The school is on our farm. We like our teacher very much.

ALICE ETHEL HOPKINS.
Burnt River.

Dear Cousin Dorothy.—This is my second letter to the Corner. Do the children of the Corner like sleigh-riding? Right at the end of our school-yard there is a hill, and it's dandy sleigh-riding down it. The boys give the girls a ride. The hill is quite a long one. My

brother takes his sleigh; I took mine one day. I've asked the children at school if they would write to the Children's Corner. One said she would. She hasn't yet, but her brother has. I would like a boy or girl to correspond with me, and about my own age (twelve). MILDRED CLARKSON.
Woodstock, Ont.

May L. Hallman (age 11), New Dundee, Ont., would like some of the Cornerites to write to her.

The Debate.

Dear Cousin Dorothy.—Our hired man takes "The Farmer's Advocate," and I always manage to read the Children's page first. I am interested in the debate about whether animals have any feelings. I think that animals have feelings, and I think that we ought to consider their feelings. I can never bear to see anyone ill-treating an animal. A great many boys think it is pleasure to kick and beat their pets, who look up into their faces as if entreating them to stop.

OENONE.
Walmer, Ont.

Dear Cousin Dorothy.—I thought I would write on the debate, "Have animals any feelings?" Animals have feelings. When you step on a cat's tail it meows, and if you step on a dog's foot it growls; if you whip a horse it will go the faster, and will sometimes kick. Some men are very cruel to horses and cows. My father is very kind to horses and cows, and they were always very nice and quiet. I would like to correspond with some girls about my own age (nine). HAZEL MURRELL.
Cobble Hill, Ont.

hurt. I think it would be better to be kind to them and not throw stools at them. I don't think one of us would like to be hit with stools, and it is even worse with poor dumb animals that cannot speak out their anger.

EMMA WRIGHT (age 13).
Nestleton.

Dear Cousin Dorothy.—I saw your next debate and so resolved in my mind to write. Animals certainly have as much feelings as any human beings. If you speak crossly to our dog, he will be dreadfully offended. They also have feelings of fear. Bob is our dog's name. If the gun is fired off, he will run to the barn and hide for two or three days.

Silcote. MABEL JOHNSON.

Dear Cousin Dorothy.—As I have never written to the Children's Corner before, and papa has taken this paper for years. I thought I would write a short letter. I go to school every day, and am in the Fourth Book. I have two nice big white kitties, and one little Maltese, which we call Muggins. We also have a dog named Rover, which is very fond of riding down the hills with me on my new sled, which papa gave me for Christmas. I have, also, a pair of skates, and we have lots of sport skating on the creek just below our farm.

ERMA VANSICKLE (age 12).
Jerseyville P. O., Ont.

Dear Cousin Dorothy.—"Have animals any feelings?" Well, I should say they have. In regard to horses, I think men should have more mercy than some of them have and not drive them for twenty miles under the whip without

The Quiet Hour.

GOD'S TESTING.

The LORD your God proveth you, to know whether ye love the LORD your God with all your heart and with all your soul.—Deut. 10 : 8.

"Therefore gird up thyself, and come, to stand unflinching under the unfaltering hand. That waits to prove thee to the uttermost.

It were not hard to suffer by His hand, if thou could'st see His face;—but in the dark!

That is the one last trial!—be it so. Christ was forsaken, so must thou be too;

How could'st thou suffer but in seeming, else? Thou wilt not see the face nor feel the hand,

Only the cruel crushing of the feet, When through the bitter night the Lord comes down

To tread the winepress. Not by sight, but faith, Endure, endure,—be faithful to the end."

The especial testing spoken of in the chapter from which our text is taken is, at first sight, a remarkable one. God's servants are warned that if a worker of miracles, or a prophet whose words of prophecy are fulfilled, should try to weaken their allegiance to their lawful Master, they must still stand firm and follow the leading of conscience. In these days of dabbling in "spiritualism" and "Christian Science" it is well to heed the warnings written down for our guidance in this old book of Deuteronomy. In the eighteenth chapter we read that one who uses divination, or is an observer of times, or an enchanter, or a witch, or a charmer, or a consulter with familiar spirits, or a wizard, or a necromancer, is not to be followed: "for all that do these things are an abomination unto the LORD." Our Lord has plainly forewarned us that there shall arise false Christs, and false prophets, and shall show great signs and wonders; inasmuch that, if it were possible, they shall deceive the very elect. Why is it not "possible" to lead astray "the elect?" Surely it is because one who is honestly trying to lead the Christ-like will "try the spirits, whether they be of God." No weight of evidence, in the way of eloquence or miracles, can convince him that it is ever right to do wrong; no fear of consequences can turn him aside from the path his own conscience tells him to follow.

God takes us all individually and proves us, so that it may be plainly seen whether we really love Him with all the heart and with all the soul. Think how Adam was tested, to see whether he loved God—and righteousness—more than he loved the woman God had given him. Her influence proved stronger than his determination to do right, and so he showed that he valued the earthly love above the heavenly. How often are men and women tested in that way. God tries them to see whether they will do what is right and true; even though, in order to obey their own conscience, they must give pain to the heart they love best, or bring down upon them the severe displeasure of the one they most wish to please on earth. It is a subtle temptation, similar to the one laid before our Lord when He had told the friends who loved Him that He was called up to Jerusalem to endure torture and death. St. Peter's weak affection led him to try to turn his Master from His high purpose, and the temptation was almost fiercely thrust aside. How the tender-hearted disciple must have been cut to the heart when he was answered so sternly: "Get thee behind me, Satan: thou art an offence unto me: for thou savorest not the things that be of God, but those that be of men." There is very little doubt but that we shall be tested in some manner, to prove the reality of our love for God, and see whether He really is absolute King of our lives, whether we are prepared to obey Him at all costs, whether we can endure to be misunderstood by those we love for the sake of being able to look up joyously into the eyes of our Lord and Master. Then there is another testing, which is



Little Dutch Maidens.

Dear Cousin Dorothy.—My father has taken "The Farmer's Advocate" for a number of years, and would not like to be without it. I enjoy reading the Children's Corner very much, and, having seen the debate, "Have animals any feelings? Is it necessary to consider their feelings if they have any?" I thought I would write. Animals have feelings, and you can tell that by observing their actions when you inflict punishment upon them, or when they are exposed to inclement weather, and I think it very necessary to consider their feelings, because they were given for our use, but not for our abuse. I must not take up too much space in your Corner, so I will close.

NO NAME.

Dear Cousin Dorothy.—I thought I would write on the debate, "Have animals any feelings? Is it necessary to consider their feelings if they have any?" I certainly think they have, though I am a girl and have not much to do with cows or horses. But when I am milking a cow and it kicks, and I hit it with a stool it kicks worse than ever, and when you step on a cat's tail it will give a great meow. If you didn't consider a cow's feelings, and hit it for kicking at you when it really had a reason to, it might kick you back in under some other cows and you'd get seriously

giving the poor creatures time to get breath. The poor livery horses! How sorry I sometimes feel for them. See how the good shepherd dog feels for his master when they are both out alone on the moors on a bleak, raw, cold night, all because the shepherd has been kind to him. A camel has feeling and intelligence, too, for when they are loaded too heavily, they will lie down until their master takes off part of their load. A mule has feeling, for if you touch him, or do anything out of the ordinary, they generally balk, or do something of that sort. This is my second letter to the Corner. I got some fine correspondents through my first letter. I wonder if G. B., of Woodlands, will know who I am. Well, time is fleeing, and I must depart.

Kent Co. PEGGY.

NOTICE TO YOUNG PEOPLE'S DEPARTMENT.

The essays for the prize competition will be received up to the end of February. Address: "Cousin Dorothy," 52 Victor Ave., Toronto.

By mistake, the price of the book, "Letters to a Farmer's Boy," was given at 50 cents from this office. It should read 60 cents (postpaid), of which parties ordering will please make a note.

not uncommon in these days. A man or a woman has laid before him the chance of wealth or social position, if only he is willing to rush rashly into the holy estate of matrimony without the love which can alone make marriage a holy, sacramental rite. It may seem to him to be only a small wrong-doing, but let one who is contemplating such a step, beware! To degrade God's holy ordinance of marriage into a money-making affair is to defile the white purity of the soul. How can anyone who does such a degrading thing, knowing that he is sacrificing his higher self to the god "Mammon," hope to walk in pure and holy gladness before God and his own heart? Such an act does not only drag down the soul, it also brings certain punishment in the shape of a loss of joy and peace. When God has joined two lives and made them one, then no man has a right to put them asunder; but when God has very evidently not joined two lives, it is a daring and very risky thing for man to try and work that miracle.

Then there is another kind of testing, which most men are called to endure. God puts our trust in Him to the test. He makes it clearly our duty to work on patiently in an uncongenial calling, perhaps. Those whose trust is of poor quality will chafe against God's arrangements, beating their wings in the effort to escape from the narrow path of duty which appears to them to be a cage. Over and over again, God has proved to us that His plans for us were far wiser and better than our own short-sighted ideas, yet still—in every new testing—we are so apt to think: "I am sure it would be far better for me to have my own way in this matter." What a good thing it is for us that God does so often call us to walk by faith rather than by sight. If we could always see that His ordering was best, we should have no opportunity for proving our love for Him, no chance of bringing joy to His heart by trusting when we cannot understand. This is a dear and sweet testing to one who really loves his Master. There is a marvellous gladness in kneeling at His feet, placing both hands in His, looking up into His eyes and saying: "I know that Thy will is best, though I cannot understand the reason for my heartache." To take this attitude of trustful loyalty, in little things which cross one's wishes day after day, not only proves one's loving trust but strengthens it. Practicing a persistent belief in the truth that God's will is better than one's own will, must result in a growing beauty of soul that is worth infinitely more than the pleasure of having one's own way. If you are asked to face disappointment day after day, year after year, then you have a grand opportunity for growing strong and brave and sweet-natured. Surely that is a gift to thank God for, from the heart.

"No good Or glory of this life but comes by pain. How poor were earth if all its martyrdoms, If all its struggling sighs of sacrifice Were swept away, and all were satiate-smooth; If this were such a heaven of soul and sense As some have dreamed of,—and we human still. Nay, we were fashioned not for perfect peace In this world, howsoever in the text; And what we win and hold is through some strife."

Our lives and characters would indeed be poor and weak if God were to answer all our prayers exactly as we—at the time of uttering them—wish them to be answered. Cuyler has remarked that the Church is full of "spiritual invalids, who are never ready for the self-denying, difficult duties of their profession. They need pruning. Let us welcome every dealing of the Spirit that will give to us more vigor, more hearty health, more of the athletic graces, so to speak, of the Christian life."

If it is natural to be happy when everything is going smoothly and comfortably, when success seems to crown all our efforts, and friends crowd around us, may we not learn to rejoice with a higher joy when God is testing us to see whether we love His will better than our own? It is not enough to make an outward show of submission, to refrain

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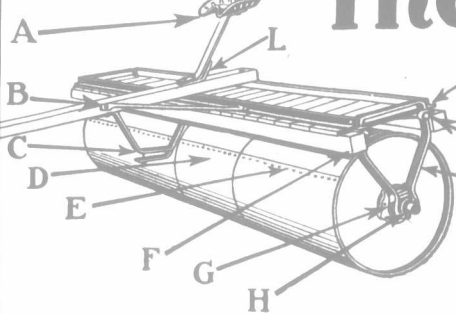
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from grumbling, and to endure the pain and sorrow laid upon us without making any fuss about it, in silent stoicism. That is not enough to satisfy the Great Refiner. He applies His tests to the secret thoughts of the heart. He will not be satisfied with any apparent submission to the inevitable, when He is looking hopefully for the trustful acceptance of His will. Thoughts are the real material out of which lives are being fashioned, so we must guard our thoughts and desires jealously. A little child once asked his mother, "Where do thoughts go to?"

"To God," she said, "Who remembers them forever."

"Forever!" he said, "Oh, I am frightened."

Let us try to keep our thoughts so white and shining that we shall be glad instead of frightened to know that God gathers them into His Heart of love.

Then there is another kind of testing—the testing of perseverance. It is easy to take up work for God with eager enthusiasm, but it is not nearly so easy to keep on with the work when it begins to grow tiresome or monotonous. But if we only bear in mind that God is watching to see if we can bear this test, we shall keep on working, bearing the burden and heat of the day, glad to show our Master that we can endure weariness in His service. Then, when He is satisfied that the loyalty of His servant has stood a severe strain, His approving "Well done!" will be reward enough. Perhaps the hardest test of all to an eager, generous soul is the test of forced inaction. To be eager to pour out one's life in service, and then to be laid helpless on a bed of sickness, feeling one's self a burden to others, this must be very hard to accept joyously. It often takes more courage to drop work altogether than to plunge into the heart of a battle. And this is sometimes the offering God requires of an eager soldier, to be shut up in prison, unable to help on the beloved cause. And it is a testing which, endured not only bravely but joyously, as the will of God, brings out a strength and beauty of soul that would have had no opportunity to develop in the whirl of active service. But our Leader was tested to the very uttermost when He reached out in His agony and could not feel His Father's hand, when He strained His eyes in the darkness and could not see His Father's face. Some day, perhaps, we may have to endure that awful proving of our faith and courage. If ever we should think that God has forsaken us, let us remember how our Lord acted in that awful hour. His desperate clinging to the Father He could not see nor hear—nor even feel—is shown in His cry of agony: "My God, My God, why hast Thou forsaken Me?" He claimed the right of possession, God is still "His own God," and He will never let go His hold. And the hour of apparent desertion was very brief, soon it was followed by the sweet trustfulness of a little child as He rested His weary heart on His Father's, and yielded up His spirit in perfect peace. God's times of testing can be endured, for they will surely pass before long. He never keeps a soul in pain any longer than is absolutely necessary for its perfecting. Let us trust ourselves absolutely in His hands, knowing that all will be well if we do not struggle and so injure the work He is seeking to accomplish in our hearts and lives.

Though an host should encamp against me,
My heart shall not fear;
Though war should rise against me,
Even then will I be confident.

For in the day of trouble He shall keep me secretly in His pavilion;
In the covert of His tabernacle shall He hide me;
He shall lift me up upon a rock.

Wait on the LORD,
Be strong, and let thine heart take courage;
Yea, wait thou on the LORD.

HOPE.

TO WRITER OF QUIET HOUR.

Dear Hope—I have thought for a long time that I would like to write to you

and tell you how much the Quiet Hour has helped me, especially the last three years. I would sometimes be utterly cast down, and I would pick up "The Farmer's Advocate" and it would seem as if it was written on purpose for me. I would feel as if it was the voice of God speaking to me.

Yours sincerely,
A. C. M.

About the House.

PUDDINGS.

Albert Pudding.—Two dessertspoons butter, 3 eggs, $\frac{1}{2}$ cup sugar, nearly $\frac{1}{2}$ lb. bread crumbs, $\frac{1}{2}$ lb. raisins. Beat butter to a cream; add to it the sugar, yolks of eggs, raisins and bread crumbs. Last of all, stir lightly in the stiffly-beaten whites of the eggs. Put the mixture into a buttered mould, cover with buttered paper, and steam $1\frac{1}{2}$ hours.

Steamed Pudding.—One cup buttermilk, 1-3 cup sugar, 1 egg, a little salt, 1 heaped teaspoon soda, $3\frac{1}{2}$ cups flour, 1 small cup raisins, currants or any dried fruit. Steam 2 hours.

Eve's Pudding.—Four cups bread crumbs, 4 cups minced apples, 3 cups currants, 2 cups minced suet, 1 cup sugar. Mix with these 4 beaten eggs; put into a buttered mould, and steam 3 hours.

Fig Pudding.—Butter a mould, and sprinkle sifted sugar all round. Line with figs split in two. Have ready a mixture of crumbled stale cake, boiled custard, grated lemon rind and minced figs. Fill the mould with this, and steam 2 hours. Boiled rice may be used instead of the cake.

Steamed Rice Pudding.—Heat 3 cups milk in a double boiler. Cook one-half cup well-washed rice in 1 cup boiling water five minutes, or until the water is absorbed. Turn it into the hot milk, and cook until the rice is very tender. Add 1 teaspoon salt and 1 teaspoon butter. Beat 1 egg light; add 2 tablespoons sugar, and stir into the hot rice just as you take it from the fire. When well mixed, turn into a dish for serving. Sprinkle the top with sugar, and dot with tiny bits of butter. Sprinkle, last, with shredded, candied fruit or nuts.

Cocoa Pudding.—Pour 1 pint boiling milk over one-half cup bread crumbs, and let stand for an hour in a saucepan, stirring occasionally. Add 1 tablespoon cocoa and 1 teaspoon vanilla, and let the mixture boil up once. Take from the fire, and stir in 3 eggs, yolks and whites beaten separately. Pour into a buttered pudding dish, and bake half an hour. Serve hot or cold, with plain cream.

Apple Pudding.—Two eggs (well beaten), 3 cups thin wheat porridge, rind and juice of 1 lemon, 3 apples (pared, cored and quartered), a pinch of nutmeg, sugar to taste. Turn into a buttered dish, and bake until apples are tender.

A Fancy Pudding.—Butter a fluted mould, and sprinkle bottom and sides with grated cocoanut, either fresh or desiccated. Crumble a stale sponge or layer cake. Fill the mould almost to the top with layers of cake, cocoanut, and sliced oranges. Beat 4 eggs; add a pint of milk, pinch of salt, and 3 tablespoons sugar. Put this over the mixture in the mould and let stand 15 minutes, or until absorbed. Steam from 45 minutes to an hour, according to size; turn out, and garnish with sections or oranges and whipped cream.

Cake Pudding.—Simply steam stale cake, and serve with sauce; or crumble it, mix with boiled custard, and steam or bake. Nuts or fruit may be added to the second.

Barley Pudding.—To keep white, boil in graniteware, never in iron or old tin.

Cheap Cottage Pudding.—Two small cups flour, 1 teaspoon butter, $\frac{1}{2}$ teaspoon soda, $\frac{1}{2}$ teaspoon cream tartar, 1 tablespoon sugar, 4 teaspoon salt. Make into a very light dough with buttermilk, using a knife to stir. Grease 4 cups, and half fill each with the mixture. Twist greased paper over the top; set in a pan with boiling water half way up, and boil from half to three-quarters of an hour. Serve with jam.

Bread Pudding.—Soak $\frac{1}{2}$ lb. crumbs in a little hot water. Press out, and mash bread smooth. Add 1 teaspoon ginger, or the grated rind of a lemon, a little

sugar, and some well-washed currants. Add a little milk to soften; put in a greased dish; dot over the top with butter, and bake in a moderate oven.

Delicious Barley Pudding.—Simmer 1/2 lb. barley in a little water. Pour off the water, and add milk and flavoring and sugar to taste. Put into a deep pudding dish, if you choose, adding 1 ounce currants, 1 ounce candied peel, and a few apples (chopped). Put bits of butter on top, and bake in a moderate oven 1 hour.

Cornstarch.—Put 1 quart of milk in a double boiler to boil. Beat up an egg. Blend 2 tablespoons cornstarch in a little milk, and add the egg and a pinch of salt. Stir into the boiling milk. When cooked, put in wet cups to cool, and serve with cream and sugar.

RAG CARPETS AND RUGS.

The popularity of arts and crafts furnishings has revived the popularity of the rag carpet; that is, the rag carpet when made according to strictly up-to-date ideals. The old hit-or-miss species is decidedly out of date; so is the striped species, and the kind that depended for its stripes upon manipulation of variously-colored warps. The rag rug of to-day must be pretty much of one tone, and it must be so smooth and even and finely woven that it gives no impression of crudity.

To attain this effect, the greatest care must be taken from the very beginning. In the first place, have all of the rags perfectly clean, and separate them, keeping all the white cotton in one bundle, all the blues in another, and so on with the browns, blacks, reds, etc., always dividing according to texture, and never by any chance mixing woollens with cottons, or thick materials with thin.

Now, suppose you want to make rugs, or a large rug for a bedroom, first choose your color—old rose, delft blue, or whatever it may be. For any of these it will be advisable to use cotton rags, white, or any of a very light color. First tear them carefully into shreds three-eighths of an inch wide, and sew the shreds together firmly on the machine, clipping the thread after a number have been sewn. Next, trim off ragged edges or hanging threads at the joints, and wind into rather small skeins for dyeing. Make the dye of the right shade, and follow directions explicitly, as much of your success will depend upon this; then dry, and wind into balls. For blue or old-rose rugs you may use white warp, or warp of a somewhat darker shade than the rags. For small rugs to place before bed, dresser, etc., the white warp is, perhaps, prettier, especially if a plain border of white rags be woven across each end. For dark green rugs, dark green or brown warp would, perhaps, be preferable, as the white would form too great a contrast. It has been suggested that if three strands of rags instead of one are used when weaving, the rugs will be so heavy that they will not kick up. The suggestion should be worth at least an experiment. The great trouble with rag rugs is that they do kick up, although this may be greatly remedied by supplying them with a firm, heavy lining.

For the living-room, use the darker colors, and heavier materials—woollens, etc.; never by any chance mix cottons with woollens, or thick materials with thin, as the result is sure to be uneven and inartistic. Dark olive, brown mottled with tan, Indian red, very dark blue with tan warp, may be suggested as good colors for rooms that are much used. Black rags, if very evenly distributed, may be mingled with any of these colors, and solid black may be used as a border for the ends of the shorter rugs.

The late M. Berthelot was a victim of acute absent-mindedness. He was walking to his laboratory one day in a crowded street when one foot slipped from the curbing into the gutter. He did not notice the mistep and continued walking slowly along, one foot on the sidewalk, one in the gutter, deep in thought, until a friend passing him said: "Why, M. Berthelot, what is the matter? Why are you walking in this unusual fashion?"

"Ah," murmured the savant, looking at him dreamily, "I, too, have noticed that this morning I am slightly lame. I cannot imagine from what cause."

Current Events.

The Provincial Legislature of Ontario was opened on February 5th.

Ten thousand Moors were killed or wounded recently in a battle with the French in Morocco.

Another British battleship, the Collingwood, which will be considerably larger than the famous Dreadnought, will be launched in September.

Notice of a bill to provide two years' imprisonment of any hunter who kills a human being in mistake for a deer, has been given to Parliament by Mr. E. N. Lewis.

The Japanese Emigration Companies are now turning their attention to South America, and have arranged to send emigrants yearly to Peru, Brazil and Colombia.

The customs revenue of Canada, from April to January, inclusive, was \$49,421,802, an increase of \$6,917,473 over that for the corresponding ten months of 1906-7.

Senor Franco, Premier of Portugal, has resigned, as a consequence of the confusion resulting on the assassination of King Carlos and the Crown Prince, and a new Cabinet has been selected to assist King Manuel II. in the difficult task of governing the kingdom. Franco is now said to be in Paris.

The Marconi Wireless Telegraph Co. has announced that it is prepared to accept messages in Montreal for transmission to the United Kingdom, at the rate of 15 cents a word. Arrangements are also being made to instal wireless telegraph apparatus on several of the larger lake steamers.

A CLERGYMAN'S FALL.

In a small church in one of the mining towns of Pennsylvania, says the Philadelphia Ledger, was a pulpit both antique and unique. It was about the size and shape of a flour barrel, was elevated from the floor about four feet and was fastened to the wall. The ascent was by narrow, winding steps.

A minister from a neighboring town, a man of great vigor and vehemence, preached there one Sunday. While preaching he bent forward and shouled out with great force the words of his text: "The righteous shall stand, but the wicked shall fall."

Just as these words escaped from his lips, the pulpit broke from its fastening, and he fell out and rolled over on the floor before his congregation. In an instant he was on his feet again, and said:

"Brethren, I am not hurt, and I don't mind the fall much, but I do hate the connection."

Attorney-General Moody was once riding on the platform of a Boston street car, standing next to the gate that protected passengers from cars coming on the other track. A Boston lady came to the door of the car, and, as it stopped, started toward the gate, which was hidden from her by the men standing before it.

"Other side, please, lady," said the conductor.

He was ignored as only a born and bred Bostonian can ignore a man. The lady took another step toward the gate.

"You must get off the other side," said the conductor.

"I wish to get off on this side," came the answer in tone that congealed that official into momentary silence. Before he could explain or expostulate, Mr. Moody came to his assistance.

"Stand to one side, gentlemen," he remarked quietly. "The lady wishes to climb over the gate."

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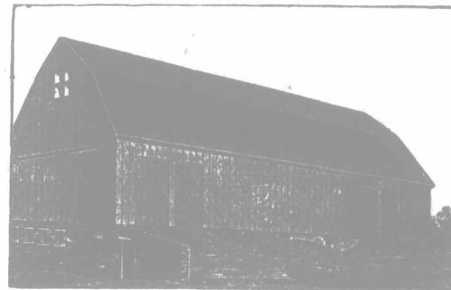
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These are the gifts I ask of thee, Spirit serene:
Strength for the daily task,
Courage to face the road,
Good cheer to help me bear the traveller's load.
And for the hours of rest that come between,
An inward joy in all things heard and seen.

These are the sins I fain
Would have thee take away:
Malice and cold disdain,
Hot anger, sullen hate,
Scorn of the lowly, envy of the great,
And discontent that casts a shadow gray
On all the brightness of the common day.

—Henry Van Dyke.

Ontario Horse-Breeders' Exhibition POSTPONED

Owing to storm and snow, it has been found impossible for the railroads to transport the horses to Toronto in time for the dates originally announced. The show has accordingly been postponed two weeks, bringing it **February 26, 27 and 28, 1908**, and will be held in **St. Lawrence Arena, Toronto**. For further information address

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CLYDESDALE STALLIONS HIRED.
No fewer than 88 Clydesdale stallions in Scotland have been hired for the season of 1908 by District Societies; and this before the date of the Scottish Stallion Show, held at Glasgow last week, at which many horses are every year chosen for hire by societies. The great demand for stallions and mares for export has stimulated the business.

Carmichael.

BY ANISON NORTH.

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CHAPTER XIV.

A New Power at the Centre.

Oroway Centre was becoming quite a pretentious place in those days. It is not necessary to tell, perhaps, how, like that famous "Atri in Abruzzo," it had managed to climb half up the hill, nor to explain how our ambitions that it should become one day a town were nipped in the bud. Suffice it to say that, beside the church, there grew up, in time, a store with a post office combined, in which the shopman took turns in dealing out mail and groceries, and gave you your letters with thumb-marks of butter on them and a redolence of cheese which accompanied you all the way home and perfumed your letter-drawer for a month; that, in time, too, the schoolhouse was removed to the "Centre"; that a smithy also found it profitable to be there, and divided popularity with the church step as a loitering place for the loafers; that, following all these indications of civilization, a dwelling-house or two sprang up, and developed window-boxes along their front windows in a vain attempt to be town-like; that, last of all, in one of these dwelling-houses an "office" was established, and a sign pretentiously hung out, "J. Hudson Jamieson, M. D." In those days it was just becoming an ear-mark of social pre-eminence to write one's initial first.

Hud Jamieson, to be explicit, after graduating, and spending two years in the "States" somewhere, had returned to Oroway Centre, and hoped to build up a lucrative practice there. Our last doctor, it is true, old Dr. Moffat, who had taken a house about a mile from the Centre for a term of five years, and had made quite a prominent figure for a time, as he drove about with his white hair flying over his collar and a brace of dogs at his buggy wheels, had left us three years before his lease was out. "The devil couldn't make a living about Oroway Centre," he said. "No one ever got sick there." But then, Dr. Moffat was old, and, in houses where there were marriageable daughters there was no especial reason for having him called in if Teddie had the measles, or Johnny the chicken-pox. Dr. Jamieson stood a much better chance of having opportunity for displaying his medical skill; and, indeed, after he came it seemed that there was a regular epidemic of threatening symptoms. If Teddie had the measles, he was sure to be verging on scarlet fever; if Johnny had the chicken-pox, there was certainly a complication with some unpronounceable name in connection with it. Our usual period of fall lassitude, also, developed alarming possibilities, after Dr. Jamieson had examined the water from a dozen wells, and found typhoid germs in the whole of them.

Having such opportunities for establishing the intimate relations of family physician among the families of so large a district, and being, beside, a young man of unusually pleasing appearance and manners, it was only to be expected that Dr. Jamieson should speedily become a general favorite throughout Oroway, and that, while the older ladies regarded him with admiring glances and an aside, "Who'd ha' thought it of old Jim Jamieson's son!" the younger ones fell into the habit of donning an extra ribbon, on occasion, and a certain coyness which, however, was perhaps quite involuntary, and liable to crop up anywhere and everywhere on the appearance of the young doctor.

As for Dr. Jamieson himself, he accepted all invitations out to tea with a most flattering alacrity, coupled

suggestively with a proviso that if he were not on "an important case," and so generally did he distribute his favors that he gave little cause for offence indeed. If he showed any partiality for Gay Torrance, it was so very slight a partiality as to serve only to make things interesting, and then didn't everyone know that Gay Torrance was always throwing herself at his head? How, indeed, could he get out of walking home with her from meeting without being rude, or talking to her in the post office by the half-hour, when she deliberately put herself in his way? He was a gentleman, Dr. Jamieson was, but Gay Torrance needn't think he didn't see through her tricks.

Only Amanda Might failed to join in the general adulation.

"It was enough to make ye sick," she said, after the East Line picnic, "to see the wimmen 'n' girls hoverin' around him like flies over a honey-pot; 'n' 'Dr. Jamieson,' here, 'n' 'Dr. Jamieson' there; 'n' all the best cakes 'n' pies stuck in front of him like as if he was my Lord Guv'nor General; 'n' this one runnin' with tea 'n' that one with coffee! I declare to goodness, Peggie, if I didn't catch that big Mrs. Black off the Back Line handin' him my pineapple 'n' strawberry tart, 'n' tellin' him he really must have a piece of that because her Letty Ann made it! So I jist up 'n' says, 'I guess you're mistaken, Mrs. Black. That's my tart that I baked special fer Adam Might, 'n' on his table it goes! So ye'd better hunt up your Letty Ann's tart fer the doctor. I'm sure he'd rather hev' hers than this?' 'N' so I walked off with the tart in the middle of her explanations, 'n' set it afore Adam Might 'n' poor old Bill Peters that never gits his teeth on anything good unless it's at a free picnic. I'll bet ye she didn't bring Letty Ann's tart. I saw it—not a grain o' pineapple in it, 'n' paste as yellow as that!"

"Were you talking to the doctor?" I asked, willing to keep her going.

"Onst. I said to him, sez I, 'Fer goodness sake, Hud Jamieson, git a pitcher 'n' help them boys carry tea! But never a hitch did my Lord Strut give, but sit there smilin' with the girls around him. I do like to see a man, Peggie, that gits on with men. If ye see a man that men likes, Peggie, ye may be sure that if ever ye marry him he'll not come pokin' his nose into the dishwater, 'n' wantin' to know how much ye paid fer yer garters. But beware o' that kind that's never satisfied unless they're danglin' at a girl's apron string. . . . He"—coming back to the doctor—"he hesn't been around after you yet, Peggie?"

"Oh, no," I laughed. "My attractions have been quite insufficient as a magnet so far."

"I don't know," said Mrs. Might, with the best of intentions but her usual tact, looking round upon the broad fields where the sleek cattle and fat sheep were browsing contentedly, "ye're pretty well set up, Peggie, 'n' if Hud Jamieson hesn't an eye to the money he's not a son of old Jim Jamieson's, mind ye that!"

If the dear soul did not flatter, I knew that she spoke out of the pure honesty and goodness of her heart, and could thank her for her solicitude in my behalf.

I had little thought that her fears in this direction might have foundation; so little that, even when Hud Jamieson began visiting our little home in the Clearing, I was the last to believe that he should be coming because of me. True, I noticed the mother's little ruses in my interest; how she never failed to put on the cap with ribbons when the doctor came in sight, just as though he had been the minister's wife or Amanda Might; and how, after some little time, she was sure to make some little excuse for leaving Hud and me alone together, or sending us for the cows.

I noticed, too, that her very choicest jar of grape marmalade never failed to grace the table in honor of

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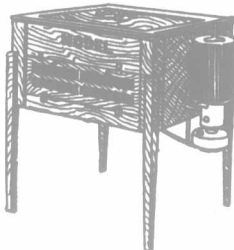
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our professional guest, and could afford to smile when, one evening, I overheard her telling him, with the most guileless innocence, of my "prospects." "Oh, yes, Doctor, Peggie 'll be well set up if I do say it, 'n' she deserves to be, if ever a girl did. I used to think I'd like to hev' a boy, but now I think it's all been for the best.

My mother, indeed, as much as any woman in Oroway, was delighted with the new Doctor, whose bright talk and adroit flatteries had recommended themselves to her immediately.

It is a mark of the simple mind to take things and people as they appear, and only to the worldly-wise, or to him of the superordinary vision, is it given to readily discern between the tinsel and the gold, and to behold all men, bereft of rank, station, wealth, and the glitter of accoutrement as "Forked, straddling animals with bandy legs"

Nevertheless, when Dr. Jamieson's proposal came, it came as a surprise. Of that chapter of my life I shall tell few details, for to me that was a dry, pithless love-making, and when, at the sunset of a beautiful October day, leaning over the bars at the end of the wood-lane, Dr. Jamieson took my hands, and vowed his eternal love for me, I was no more moved, nor so much, as I should have been if my little dog Jap, the last of a line of Japs, had licked my fingers.

It seemed so far-off and artificial, that flowery speech of the young doctor's, and with an amused curiosity I let him speak through to the end; then I told him how very useless his declaration had been, and we parted, I knowing right well that his heart was not broken.

How differently, I thought, as I walked slowly homeward over the rustling leaves, should I have felt had it been possible that Dick, whose one touch had been sufficient to send me into a three months' fever—but then, what right had I to think of Dick? He had been writing to Gay Torrance more frequently of late, and she told me that he had asked for me—once.

Yes, why should he not care for Gay, beautiful, light-hearted Gay? Well—he should never know—never, never! And so I turned aside and wandered on in the golden shower of the leaves, and walked and walked until the dull pain at my heart gave way to a resigned melancholy.

Yes, I should be an old maid like Maria Hall, but I should, after all, have much more to interest me, and I should be thankful. If only my

mother could live on and on, and dear old Chris, and Miss Tring! . . . Oh dear, why should we ever be so much younger than those we loved? . . . But then, what was the use of looking into the future? Perhaps I should go first. If I did, I should want to be buried in these dear forest aisles, with the squirrels skipping over my head, and the music of the wind in the trees above me forever.

It was just such a fit of melancholy as comes to us all, sometimes on little provocation, and at which we may laugh in an hour's time; but just then it was a very real melancholy to me, and one little likely to be exorcised by the solemn comments of old Chris, whom, also in pensive mood that evening, I found sitting out among the pumpkins which he had gathered round the cellar door, all ready for the storing.

Comin' back alone, Peggie?" he said.

"Didn't you expect to see me coming back alone?" I asked, forcing a laugh.

He nodded quite seriously, then went on: "A-well, a-well, there's some girls as seems created jist fer the business o' huntin' men, 'n' others as seems set apart somehow. But dash it, Peggie, it's not the worst o' the wimmen often goes along the narrow road where there's no room for two."

I sat down beside him—dear old Chris—how I can see him yet, among his yellow pumpkins, with his kind old eyes looking upon me, and the yellow sunset shining on the warm brown of his dear old face!

"Nor the worst of the men, Chris," I returned, smilingly, paying back the compliment. But he paid no heed, for he was looking now out to the west, and rubbing his chin with the old gesture, which meant that he had something to say.

"A-well, a-well," he went on presently, "this world's a queer mix-up; but it's wonderful how things straightens out somehow. 'N' as we git on the last slope, goin' down grade, easy-like, but sure, it's wonderful how peaceful things is. The older yet git, the less things bother ye, 'n' that's a great comfort. It's jist as if, when we're young, we keep steppin' up 'n' up, tryin' to step over stone walls, 'n' when we git old we find they've been jist a few pebbles lyin' in the road all the time. I'm thinkin' after all, there's fewer prizes in life than youth believes, Peggie, 'n' when we all get down to the last level, girl, with the big river flowin' along quiet 'n' easy-like, 'n' mebbe a bit o' the sun from the other side glintin' on it, we'll find that the good straight life, 'n' the bein' fair to others, 'n' brave in the face o' things, 'n' hopeful, is about all there's been much worth while."

Chris's words soothed me, as they always did, and yet it did seem to me that I was young to be thinking of the big river, and being buried out there in the wood. It could hardly be, surely, that I had squeezed out the last drop of the wine of life, and that now there should be nothing new, nothing more than to settle down on the long slope, longer for me than for most others.

That night I had a long talk with Miss Tring, and, as usual, she took hold of me.

"My dear," she said, "it's a change you need; change of work, or interest, or something—something to take you out of yourself for a while. Now, I'm afraid you've got too well to the bottom of this farming. We'll have to look up something new in connection with it, or send you away for a little while."

So I went asleep invigorated. Something must happen. If it did not, we must make it.

Did I have a consciousness that there was already a something rapidly taking form to itself in the near future, and waiting just for me?

Perhaps not. Yet, is not life often bearable because, as we lose grasp

of one hope, we at once grasp another?

My hope was undefinable as yet, yet was it there, a living reality. "Look for something bright," Miss Tring had said. "Believe that the best is somehow, sometime, for you, and that there is always something worth living for if you keep brave and work on."

And, with the new day, I looked again for something bright, and, presently, found enough to do to keep me fully engaged until it came. (To be continued.)

GOSSIP.

WOODEN TONGUE.

Editor "The Farmer's Advocate":

I have been noticing lately inquiries how to cure this disease in cattle. Here is a very simple cure which I have used myself on different occasions, also having had a heifer this winter affected with this trouble. The tongue will be badly swollen and inflamed underneath, and the animal will salivate a great deal. If the trouble has gone on for two or three weeks, the swelling will be showing on the outside, between the jaw bones. Now, as to the cure. Take about half a cupful of coal oil and dip your fingers into this, and rub on the outside between the jaw bones, right back to the gullet; repeat this till you have dipped your fingers four or five times in the oil, and rub thoroughly in. Now, care must be taken not to put too much of the oil on, or you will raise a blister. Now, get two ounces of acetic acid; make a solution of six per cent. water to one of the acid; get a good strong feather, or perhaps two is better, and tie them together, and brush the tongue from the point right back to the gullet, and, also, underneath, where you will find the tongue discolored and red. Give this treatment once a day, at nights, after all eating has been done for the day, until a cure is effected, which will be about a week. DAVID SCOTT.

Wellington Co., Ont.

TRADE TOPICS.

THE DOMINION BANK.—The annual report of the Dominion Bank, published in another column, will be gratifying to the general public, as it must be to the shareholders of that institution. It not only shows that notwithstanding the world-wide financial stringency prevailing in the latter part of 1907, the year's business was a very profitable one; but also that the bank is in exceedingly sound financial condition, and is well prepared for emergencies. Against total liabilities to the public of \$89,268,851.82, it has assets amounting to \$48,497,217.67. These include \$5,688,053.77 in cash; and the readily realizable assets figure up to \$16,000,080.15, or over 40 per cent. of the liabilities to the public. The directors and Mr. C. A. Bogert, the General Manager, are to be heartily congratulated upon a good year's business, and perhaps even more upon the strong position of the bank at the present time.

SOMETHING ABOUT BARN-DOOR LATCHES.—The requirements of a modern latch for the barn door are: ability to automatically catch and hold a door, either closed or open; one that has handles of convenient shape for opening the door from either side; convenience of adjustment to doors of varying thickness without fitting, attractive design, and the greatest strength for the weight, while the most essential feature and least often produced is a latch with no projecting hooks or points for catching a harness or the animal itself while passing through the door. The working parts should be protected from the weather, and the finish should, as far as possible, prevent rust. We are pleased to note that all these features are claimed to be embodied in the Whitcomb steel barn-door latch, advertised in another column of this paper, and it should certainly receive the consideration of our readers who are interested in labor-saving improvements.

"You're not looking well, Mrs. Giles. Surely you have lost a lot of flesh lately, have you not?"

"I have that. I've lost me 'us-band. 'E weighed nineteen stone when 'e died."

**THE
TRADERS BANK OF CANADA**
INCORPORATED 1885.

Proceedings of the Twenty-Third General Meeting of the Shareholders, Held at the Banking House at Toronto, on Tuesday, the 28th January, 1908.

The chair was taken by the President, Mr. C. D. Warren, and Mr. Stuart Strathy was requested to act as Secretary. The Secretary read the notice calling the meeting. The minutes of the last annual meeting were received as read.

Statement of the Result of the Business of the Bank for the Twelve Months Ending 31st December, 1907.

The net profits for the twelve months, after making provision for bad and doubtful debts, and reserving accrued interest, amounted to		\$522,822 81
Premium on New Stock		2,520 00
Balance at credit of Profit and Loss last year		44,349 87
		\$569,692 68
Appropriated as follows, viz.:-		
Dividend No. 44, quarterly, at the rate of 7 per cent. per annum	\$ 75,894 38	
Dividend No. 45, quarterly, at the rate of 7 per cent. per annum	76,124 13	
Dividend No. 46, quarterly, at the rate of 7 per cent. per annum	76,151 07	
Dividend No. 47, quarterly, at the rate of 7 per cent. per annum	76,158 71	
Transferred to Rest Account	100,000 00	
Written off Bank Premises	100,000 00	
Written off Bank Furniture and Safes	30,000 00	
Transferred to Officers' Guarantee Fund	5,000 00	
Transferred to Officers' Pension Fund	5,000 00	
Balance at Credit of Profit and Loss new account	25,364 39	
		\$569,692 68

GENERAL STATEMENT.

31st December, 1907.

LIABILITIES.		
Capital Stock paid up	\$4,352,310 00	
Rest Account	2,000,000 00	
Dividend No. 47, payable 2nd January	76,158 71	
Former Dividends unpaid	578 09	
Interest Accrued on Deposit Receipts	4,664 12	
Balance of Profits carried forward	25,364 39	
		\$6,459,075 31
Notes of the Bank in Circulation	\$3,081,065 00	
Deposits bearing interest, including interest accrued to date	\$19,951,193 62	
Deposits not bearing interest	3,421,567 07	
		\$23,372,760 69
Balances due to other Banks in Canada	28,664 30	
Deposits from Banks in U. S.	220,115 00	
Balance due to London Agents	557,959 85	
		\$27,260,564 84
		\$33,719,640 15
ASSETS.		
Gold and Silver Coin Current	\$ 356,895 19	
Dominion Government Demand Notes	2,503,160 00	
Notes and Cheques on other Banks	583,261 21	
Balance due from other Banks	358,563 96	
Balance due from Foreign Agents	465,331 34	
Dominion and Provincial Government Securities	573,337 03	
Railway and other Bonds, Debentures, and Stocks	497,038 05	
Call and Short Loans on Stocks, Bonds, and other Securities	1,289,545 94	
		\$6,626,985 72
Bills discounted current	\$25,009,249 60	
Notes discounted overdue (estimated loss provided for)	39,601 01	
Deposit with Dominion Government for security of general bank-note circulation	144,000 00	
Real Estate, the property of the Bank (other than the Bank premises)	4,800 00	
Bank Premises (including safes, etc.)	1,896,003 82	
		27,092,654 43
		\$33,719,640 15
STUART STRATHY, General Manager.		

The Secretary having read the foregoing report, the President addressed the meeting as follows:

In presenting the twenty-third annual general statement of the Traders Bank of Canada, for the year ending 31st of December, 1907, your Directors desire to congratulate the Shareholders upon the continued prosperity and advancement it discloses. It is a pleasure to be able to remark that the financial stringency that has prevailed with varying degrees of intensity the past year, with its consequent unrest and relaxation of business enterprise, has not prevented the conservative methods of administration and management of the Bank from achieving gratifying results, and closing the year with all its interests in a sound and satisfactory condition.

The net profits for the twelve months, after making ample allowances for all bad and doubtful debts, and after allowing for any possible depression in the value

of Dominion and Provincial Government Bonds and Municipal Bonds held by the Bank, amounted to \$522,822.81, which, with the sum carried from profit and loss account, and the premium on new stock, makes a total of \$569,692.68 available for distribution. This has been disposed of as follows: The Rest Account has been strengthened by the addition of \$100,000, bringing it up to the gratifying figure of \$2,000,000. The sum of \$100,000 was written off Bank premises, and \$30,000 off Bank furniture and safes. The Pension Fund and the Officers' Guarantee Fund were increased by \$5,000 each. The substantial sum of \$304,328.29 was distributed to the Shareholders in the form of dividends, leaving \$25,364.29 to be placed at the credit of Profit and Loss new account; on the whole a substantially excellent record on the year's operations.

From the statement it will be observed that the relation of assets to liabilities gives the Bank a most substantial stand-

ing. The assets are all of an excellent character.

It is a subject for additional congratulation that the Savings Bank deposits increased during the year by \$1,700,000. Owing, however, to the conditions of restricted credit, current accounts or non-interest bearing balances are less than last year, which is the natural result in all financial institutions when money is in active demand at high rates of interest.

It is also gratifying to be able to refer to the condition of our Bank Premises account, as being very satisfactory from a revenue-producing standpoint. In our magnificent new building, and in our new building at the corner of Yonge and Bloor streets, all the available space is leased, and for long terms, thus guaranteeing a substantial income for the next eight or ten years. This, taken in conjunction with the fact that the rental income yields a very fair profit, and the situation of these buildings in the best part of the city, makes them also an asset, the value of which is bound to increase with the prospective rapid growth of the city; a circumstance which, taken in conjunction with their recognized rental value, well justifies the expenditure involved in their erection. It must also be borne in mind that the Bank owns fifteen other Bank buildings, at the principal centers occupied by the Bank, besides those referred to above, making seventeen Bank buildings in all. Your Directors consider that we have good value for the property owned by the Bank as it stands in our books. In acquiring any property for Bank premises, this Bank has made it a rule to buy the same, holding the property in the name of the Bank. The Bank obtains a very fair return upon the amount invested, besides having suitable accommodation for its growing business.

An important change in the management of the Bank took place during the year. Mr. H. S. Strathy retired from the position of General Manager, and was succeeded by Mr. Stuart Strathy, who, in turn, was succeeded as Assistant General Manager by Mr. Norman Hillary. Mr. H. S. Strathy had devoted, and with a large measure of success, many years to the promotion of the interests of the Bank. He began as the founder of the Bank twenty-two years ago, and continued to perform the duties of General Manager with great vigor and success. By his energy and ability, he overcame many formidable obstacles, and on his retirement he has the satisfaction of feeling that he leaves as a legacy to the Shareholders a sound and stable Banking Institution. In his successor, Mr. Stuart Strathy, we have a Banker of sound judgment, a careful investor, and a Manager of large experience in one of the most important branches of the Bank, that at Hamilton, where he built up an excellent and extensive business. He brings experience and sound and conservative business methods to his new position of responsibility. He will doubtless discharge his onerous duties to the advantage of all the interests concerned.

Mr. Hillary, who becomes Assistant General Manager to Mr. Strathy, has had a large and valuable experience, is shrewd and careful, and has an excellent record as Manager, and, for a time, as Directors' Auditor.

Mr. Willis, who succeeds Mr. Hillary as Directors' Auditor, has had many years of experience as Manager, and, for a time, as Bank Inspector, and brings to the important duties of his position qualities which especially fit him for their effective discharge. In this capacity Mr. Willis is an official of the Directors and Shareholders, and entirely free from the control of the Executive Management. His duties include investigation into all matters affecting the business or interests of the Bank under the direction, and for the information, of the Board.

There will be submitted at this meeting for your consideration a By-law to increase the number of the Board from six to seven, in order to retain as Director the services of the retiring General Manager, who has been made a Member of the Board.

I have much pleasure in moving the adoption of the report.

The Vice-President said: In seconding the motion for the adoption of the Report of the Directors of the Bank, with its accompanying statement, it gives me much pleasure to en-

dorse the remarks of the President in regard to the satisfactory outcome of the operations of the past year, as the results of careful administration and businesslike management.

I may be permitted to add a few observations, to emphasize what has been said.

It must be gratifying to note that, prosperous as have been the conditions of the past few years, the profits for the year just closed have been the largest in the life of the Bank. The net profits for the year, with all the usual deductions made, amount to the satisfactory sum of \$522,822.81. These earnings have permitted of the payment of four quarterly dividends of, in round numbers, \$76,000 each, representing a rate of seven per cent. per annum. Besides, the rest has been strengthened by the addition of \$100,000, bringing this account to a total sum of \$2,000,000, which, it may be remarked, is about 46 per cent. of the paid-up capital stock of \$4,352,310.

The statement submitted shows the liquid assets of the Bank to be in a satisfactory, healthy condition, there being a substantial increase over the amount reported last year.

It is also gratifying to observe that the amount of the notes of the Bank in circulation has been much in excess of that of any other year in the history of the institution, indicating the excellent condition of its general business. It is also worthy of note that the stock of the Bank is well held, being distributed among some 1,800 shareholders.

In a word, a careful perusal of the statement will reveal an advance in practically every account, every department of the operations, and in every interest of the Bank, of such generally good character as to make the Annual Statement very satisfactory.

The changes in the personnel of important officers of the Bank will not impair the effectiveness of management. Mr. H. S. Strathy, after many years of faithful service, retired from the position of General Manager, and took a place on the Board of Directors. The filling of the vacancy thus created by the appointment of Mr. Stuart Strathy, with an excellent record as Manager and Assistant General Manager, the appointment of Mr. N. Hillary as Assistant General Manager, and of Mr. Willis as Directors' Auditor, have already been referred to, and their appointment will without doubt be in the best interests of the Bank. They have the full confidence of the Directorate, and the respect and confidence of all in financial circles who have knowledge of their experience and qualifications.

As intimated to the Shareholders last year, an official known as Directors' Auditor was appointed, whose duty it is to co-operate with and assist the Board in the investigation of every transaction, the examination of every account, record, or document in connection with the business of the Bank, and to take any course of inspectorial action, under the direction of the Board, or on his own initiative, which they or he may consider advisable or necessary to protect or promote the interests of the Bank and the Shareholders. To this end, and for these purposes, he has practically unlimited authority and liberty of access to all departments of every office of the Bank, from the Head Office to the humblest branch, and, in the discharge of his duties, is subject to no restraint, on the part of any official, in any capacity, being responsible only to the Directors, whose officer he is, and to whom he must directly make his report, upon every incident and condition that in any way affects the interests of the Bank.

Your Board of Directors, with the Directors' Auditor, have thoroughly examined and checked in detail the entire assets of the Bank at the Head Office, as comprehended in the Annual Statement, and they have personally and collectively satisfied themselves by individual examination, count and comparison, that these assets correspond in value, in sum and detail, in form and substance, with every individual record in the statement. Your Board, together with their Auditor, further examined the reports and statements from every Branch, and the inspectors have carefully inspected and examined with the greatest care these Branch accounts and report them to be as represented, and most satisfactory.

Thus, with a strong and capable official

Ideal Fence is Made to Last

Any farmer who knows fence knows Ideal is his kind as soon as he sees it. He sees the big, strong wires and how they are put together and that pretty nearly settles it.

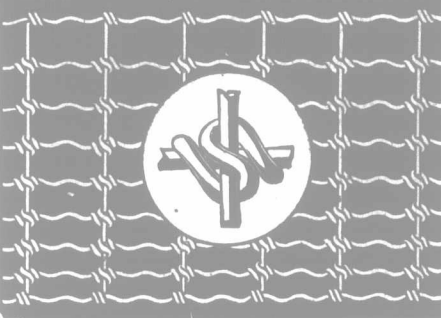
When he wants particulars, he gets them straight. He finds Ideal wires are all No. 9 wires, the heaviest that are used for fencing in Canada. ALL No. 9, mind you; not big at top and bottom with some flimsy light ones in between.

He finds they are all of hard steel. Just about twice the strength that you get in soft wire fences. He sees that the upright stays are substantial (they are No. 9, too) and he knows they help do the work of the posts. When he examines into the way the big, strong horizontals and uprights are locked together at every crossing, he knows that when he puts up Ideal fence it's there to stay.

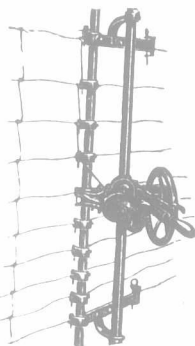
Take a look at the lock shown below. There's no getting away from it, it's the best thing of the kind used on any fence—grips the wires at five bearing points. It makes every part, strengthen every other part. There are no weak places. The fence is one complete whole. Extremes of heat and cold don't make it sag. Climbing nor anything else won't loosen it.

Don't you want that kind of a fence? It is the Standard railroad fence of Canada. More of it sold for farm use than any other. Just write and let us mail you our book on fencing, giving particulars.

THE MCGREGOR BANWELL FENCE CO., Ltd.
Dept. B. Walkerville, Ont.
THE IDEAL FENCE CO. Ltd.
Dept. B. Winnipeg, Manitoba.

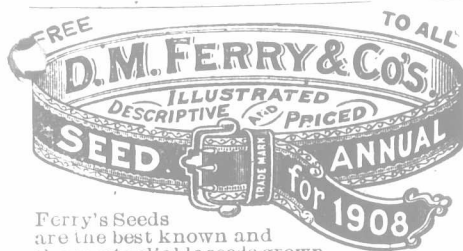


London Fence Machines



Only successful field machine. One man weaves 40 to 60 rods per day. Saves money. Builds fence to fit the ground. No waste wire. Works easy and uses Genuine Coiled Spring Wire. We furnish special high-grade spooled wire for weaving. For sale by hardware stores.

LONDON FENCE MACHINE CO.
LONDON, Limited ONTARIO.



Ferry's Seeds are the best known and the most reliable seeds grown. Every package has behind it the reputation of a house whose business standards are the highest in the trade.

Ferry's 1908 Seed Annual will be mailed FREE to all applicants. It contains colored plates, many engravings, and full descriptions, prices and directions for planting over 130 varieties of Vegetable and Flower Seeds. Invaluable to all. Send for it.

D. M. FERRY & CO., Windsor, Ont.

equipment, with all the interests of the institution in a sound, stable, and healthy condition; with a fairly justified expectation that the somewhat relaxed conditions of prosperity, commercial, industrial, and financial, will be only temporary, it is not unreasonable to anticipate for the Traders Bank a continuation of prosperity, and a repetition in the record of the year to come of the many gratifying features of the excellent report now submitted for adoption.

The Report was adopted unanimously, and a by-law was passed increasing the number of Directors to seven, and another authorizing the Directors to make provision for the retiring General Manager.

At a subsequent meeting of the Directors, Mr. C. D. Warren and Mr. J. R. Stratton were elected President and Vice-President, respectively.

QUESTIONS AND ANSWERS. Miscellaneous.

HENS EATING EGGS.

Would you kindly tell me, through your paper, the most effective way of stopping hens from eating their eggs? T. G. M.

Ans.—It is hard to break a hen from this habit. Much may be done to prevent it by using dark nests, in which the hens cannot scratch. Place the row of nests in the darkest part of the pen, but instead of having them open to the pen, have a six-inch walk between wall and nests, the hens thus entering the nests from the back, while the eggs are gathered through trap nests in the front. The nests should be roomy enough to leave no danger of crushing the eggs. If too dark, an auger hole in the trap will admit sufficient light. Lack of lime often induces the habit, but the most common cause is the taste of an egg accidentally broken. Mixing the contents of an egg-shell with mustard has been recommended. Chopping off the head of the offender is also advised, as others are almost sure to follow suit.

DRY FARMING.

Editor "The Farmer's Advocate":

In a recent issue of your very valuable paper I noticed an inquiry regarding "Dry Farming," also the answer given. I would beg to state that one method of dry farming is to sow the grain in rows and cultivate as long as possible, thereby keeping the moisture in the ground. I have found this method followed in different parts of the United States and around Medicine Hat, Alta. It is found profitable to harrow grain after it is up, especially fall wheat, when it is six or eight inches high, as it breaks up the crust and splits the wheat stools, spreading them. Harrowing should be immediately followed by rolling, and the grain will be found to grow very rapidly. Bruce Co., Ont. JNO. HEWITSON.

[Note.—We have no doubt our friend is describing what he has seen, but following the harrow with the roller is certainly poor practice in this country. The plan should be reversed, unless, indeed, the roller is, in turn, followed by the weeder, as is sometimes recommended.—Editor.]

TENANT SUFFERING FIRE LOSS.

A leases B a place, drawn on the short form of leases, for a term of five years. B complies with covenants according to lease; but at about ten months the barn, stable and granary get burnt, supposedly from a chimney on a windy day, a distance of 300 feet. A has buildings insured, but B sustains loss of contents, feed and grain.

1. Now, does the Act respecting the short form of leases compel A to replace buildings?
2. Can B legally claim a deduction in rent for his inconveniences?
3. Does rent cease until buildings are replaced?
4. Does the Act in any way aid B?
5. Can A let the place stand as it is and collect the usual rent from B?

Ont. A SUBSCRIBER.
Ans.—1. No.
2. Yes.
3. Yes, as to a proportionate part thereof, according to the nature and extent of the injuries sustained.
4. Yes, in the way above indicated.
5. No.

Feed Rather Than Breed

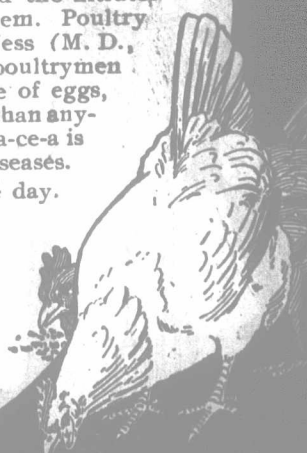
There is more in the proper management of a hen than in the hen herself—feed and care count for more than "blood." Some breeds lay better than others, but a man who don't "know how" will spoil the best hen; while a man of experience will get eggs from the hen who hasn't a disposition to lay. The secret lies in giving the hen perfect digestion, because if she does not extract from her food the elements of the egg, she is sure to be non-productive.

DR. HESS Poultry PAN-A-CE-A

fully meets the needs of the poultryman at this point. It is a tonic containing the bitter principles which medical men tell us will assist and strengthen digestion. It also holds salts of iron, which makes good blood and the nitrates which expel poisonous matter from the system. Poultry Pan-a-ce-a is the prescription of Dr. Hess (M. D., D. V. S.) and is endorsed by leading poultrymen everywhere. It makes hens lay abundance of eggs, forces chicks to early maturity and is better than anything else to help fatten market birds. Pan-a-ce-a is also a germicide and wards off poultry diseases.

Costs but a penny to feed 30 fowls one day.
Sold on a written guarantee.
1 1/2 lbs. 35c; 5 lbs. 85c;
12 lbs. \$1.75; 25 lb. pail \$3.50
Send two cents for Dr. Hess' 48-page Poultry Book, free.

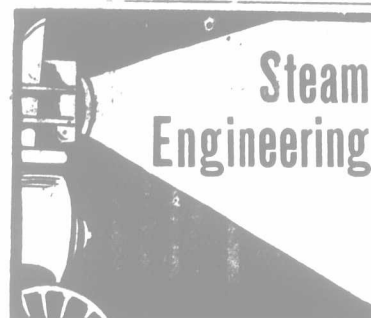
DR. HESS & CLARK,
Ashland, Ohio, U. S. A.
Instant Louse Killer Kills Lice.



The EDISON PHONOGRAPH

KEEP the young folks from leaving the home circle in search of entertainment. It is easy to entertain them at home with the Edison Phonograph, which furnishes music for dancing, gives all the new songs of the theatre and selections from the grand operas and reproduces band music, the old ballads and love songs so perfectly that it is hard to believe that it is not the real music or voice to which they are listening.

Go to your nearest dealer and hear the new Edison model with the big horn, or write today for a catalogue describing it.
WE DESIRE GOOD, LIVE DEALERS to sell Edison Phonographs in every town where we are not now well represented. Dealers should write at once to **National Phonograph Co., 100 Lakeside Ave., Orange, N. J., U. S. A.**



Steam Engineering

Spare-time home study through The Heath School of Traction Engineering (by correspondence) will make you an expert operator in from two to four months. The course is written in clear, concise, easily-understood language, so that anyone with an ordinary common school education would have no difficulty in mastering it. The School is conducted under the auspices of The Canadian Threshing and Farmer, which public tion guarantees its reliability and power to develop practical engineers. OUR ILLUSTRATED BOOKLET SENT FREE ON REQUEST.
E. H. Heath Co. Limited, Dept. T, Winnipeg, Canada.

Grip is Treacherous

It never attacks unless you are off your guard—run down. Keep your health and strength up to the mark and you are safe. "BOYRIL" gives vitality and strength. An occasional cup of "BOYRIL" will keep your health up to top notch. Its use prevents many an attack of Grip. Try as a change two or three spoonfuls of milk in a cup of "BOYRIL."



RIGHT NOW!

is the golden harvest for farmers and dairymen. Prices for dairy products are soaring. Butter has jumped from 22c a pound to 33c, 35c, 38c—and the storekeepers say they will be getting from 40c to 45c before the winter is over.

Right now is the time to buy a

U.S. CREAM SEPARATOR

It is the cream that makes the butter. And the more cream you get out of the milk, the more butter you have to sell.

Every day that you do without a "U. S." Cream Separator, you are losing money because you are losing cream.

The "U. S." gets out all the cream. It still holds the World's Record for clean skimming.

You can easily see how a "U. S." Cream Separator will pay for itself this winter—by skimming cleaner—getting out more cream—giving you more butter—which will retail at a profit-paying price.

Get a "U. S." right now and take advantage of the soaring prices. Write for booklet No. 110. It tells all about the "U. S." Thirty interesting pictures show complete construction and operation of the "U. S."

Prompt Delivery:—Our customers are served quickly from well assorted stocks of "U. S." Separators in Sherbrooke and Montreal, Que., Hamilton, Ont., Winnipeg, Man., and Calgary, Alta.

VERMONT FARM MACHINE CO.

Address all letters to Bellows Falls, Vermont, U. S. A.



486



The Tie That Binds

Examine our lock—"The Tie That Binds." Notice how it locks smooth on both sides of the line wire. Being an oval loop, it permits a long bend in the line wire. This does away with short kinks, which cause so many breaks in the fence.

This lock can't slip and adds strength and wear to the whole fence. The "Standard" may cost a little more than small, soft wire fences—but it's worth more to every farmer and stockman who wants the best. Write direct to the factory for catalogue and sample lock.

The Standard Wire Fence Co. of Woodstock Limited, Woodstock, Ont.
THE JAMES STEWART MFG. CO., WINNIPEG, MAN.
General Agents for The Great Northwest.

Standard Woven Wire Fence



The Central Nurseries

are supplying splendid value in Fruit and Ornamental Trees, Shrubs, Roses, Grapevines, New Herbert Raspberry, Rykman Strawberry Plants in varieties. All well grown, true, dependable stock. Send for our Free Priced catalogue. We ship direct to our customers, with satisfactory results. Try us. 28th year.

Seed potatoes: Climax, Eureka, Eldorado, Peck's Early, Early King, Golden Coin, and others.

Poultry: R. I. Reds; none better; cockerels from \$1 up.

A. G. Hull & Son, St. Catharines, Ontario.

Baby Rambler.
Ever blooming Crimson Dwarf. Think of roses every day from June until frost out of doors.

GOSSIP.

Mr. Alex. Cowie, Caledonia, Ont., advertises in this issue a choice variety of seed oats. Look up the advertisement.

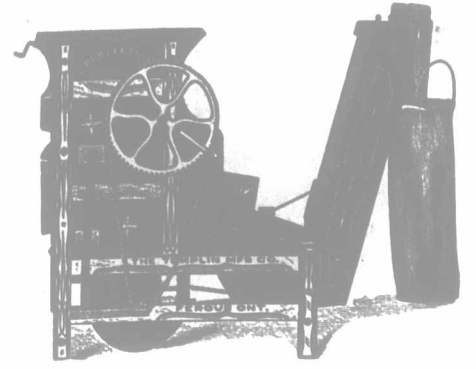
Registered Clydesdale stallions and mares are advertised for sale in this paper by Jos. H. Millard, Altona, Ont., near Stouffville Station (Midland division, G. T. R.).

A very desirable farm property of 160 acres, with good buildings, situated in the township of Markham, Ont., only 18 miles from Toronto, and ten minutes' walk from Markham Station (G. T. R.), is advertised in this paper to be sold by auction in two lots on March 14th.

Mr. Ira L. Howlett, Keldon, Ont., writes: "I have had a large number of inquiries for Yorkshires and Berkshires, and have made a number of sales. Stock is in splendid order, and can furnish sows at very reasonable prices, which vary with individual requirements. Have both show stock (fancy) and ordinary, general-utility on hand, at prices to suit the times. Have, also, a snap or two in Shorthorns."

Mr. D. Milne, Ethel, Ont., writes: "My Shorthorns are doing well, although feed is a bit scarce. Calves are coming strong, and good colors, red and dark roan; five bull calves and three heifers to date, and twelve cows to come in yet. They are of the following good old Scotch families: Campbell Clarets, Rosebuds and Bessies; Bruce Rosabels and Lady Fannys; Marr Beautys; Crimson Flowers, and others. I have recently made the following sales: To Edgar M. Beck, Waterford, Ont., the grand breeding Bruce Lady Fanny cow, Daisy B. =34792=; I have two prize-winning heifers from this cow; one of them got by Scotland's Fame (imp.) =54225=; the other by Broadhooks Prince (imp.) =55002=. To George Hinze, Broadhagan, Ont., one bull; to N. A. Milne, for shipment to Balmoral, Manitoba, one bull; to Donald McIntosh, Cookshire, Que., one bull, and prospects good for selling more soon."

Messrs. W. G. Pettit & Sons, Freeman, Ont., report the following sales of Shorthorns from their herd for January, for which they give credit to "The Farmer's Advocate" as an advertising medium: To Geo. Kinnon, Cottonwood, Sask., a very promising young imported bull belonging to the Kora family. Mr. Kinnon had an early choice of our imported bulls, and secured one that should prove a very profitable investment for him. H. H. Pritchard, Ripley, Ont., selected a very good young bull from one of our best imported cows, and sired by Imp. Prime Favorite, grand champion, Toronto, 1907. This will make a very large, heavy-fleshed bull. C. H. Quick, Leamington, Ont., purchased a choicely-bred Marr Roan Lady bull calf that should do him a lot of good, as he is sired by Imp. Prime Favorite, and his dam is a half-sister to Choice Goods. Geo. T. Stearns, Palmyra, N. Y., selected a richly-bred Ury, from the same cow as Ury Prince (imp.), which was used for several years in Mr. Chrystal's herd in Michigan. The bull which Mr. Stearns selected is one of the smooth, thick, fleshy kind, with lots of quality, and is just what is needed in New York State. Alex. Beaton, Gould, Que., purchased a very nice yearling heifer belonging to the Cruickshank Village family. Mr. Beaton did not see the heifer before making the purchase, but he writes that he is very well pleased with her. We are still in a position to offer some excellent bargains in bulls, both imported and Canadian-bred, and parties in need of such should write us or come and see what we have before purchasing. In order to make more room in our stables, we will sell a few yearling bulls at prices that cannot fail to interest intending purchasers. Our bull catalogue will be sent on application. See our advertisement in another column."



PERFECTION

Seed and Grain Separator

Patented 1901.

The best mill on the market for cleaning and grading all kinds of seed and grain.

A big improvement on the old fanning mill. Pays for itself in one season.

Highest awards Toronto, Ottawa and London Fairs, 1907.

See nearest agent, or write for free catalogue "F" to

THE TEMPLIN MFG. CO.,
Fergus, Ontario.
G.T.R. C.P.R.



A Little Every Now And Then Pays for a New Scale Williams Piano

WE want to place a New Scale Williams Piano in practically every home in Canada. We want those of moderate means to enjoy the delights of owning one of these superb instruments. Our Easy Purchase Plan points the way.

Simply by making a payment every month—you may have a New Scale Williams Piano delivered at your home after the first payment. And you have the use of the instrument all the time you are paying for it.

The richness and elegance of the New Scale Williams Piano impress you at once. When you hear the beautiful tone, you agree with musicians that the "New Scale Williams" is a masterpiece.

Write for illustrated booklets and our Easy Purchase Plan. Sent free on request. Mail the coupon to us today.

The Williams Piano Co. Limited,
OSHAWA, Ont.
20

THE FOOD DISCOVERY OF THE AGE

Molassine Meal

Are you using it? If not, you are behind the times.

ANDREW WATSON,
SOLE IMPORTER,
91 Youville Square, Montreal.

SCOTCH SHORTHORNS

My herd is represented by such noted Scotch families as Victoria, Orange Blossom, Duchess of Gloster, Irishman, Stamford and Lovely. Mostly from imported sire and dams. Write me for prices on what you want.

J. F. MITCHELL,
Burlington Jct. Sta. Burlington P. O. and Telegraph.

THE DOMINION BANK

Proceedings of the Thirty-seventh Annual General Meeting of the Shareholders.

The Thirty-seventh Annual General Meeting of The Dominion Bank was held at the Banking House of the Institution, Toronto, on Wednesday, January 29th, 1908.

Among those present were noticed: F. J. Phillips; C. B. Powell; Capt. Jessopp; W. J. Elliott; Hon. J. J. Foy; Dr. Andrew Smith; J. Stewart; Wm. Davies; W. C. Harvey; R. H. Davies; E. B. Osler, M. P.; H. L. Lovering; Archibald Foulds; H. W. A. Foster; H. Gordon Mackenzie; David Smith; Wm. Glenny; Oshawa; Dr. Grasett; Rev. T. W. Paterson; J. Bell; A. Monro Grier; W. C. Crowther; Ira Standish; Richard Brown; R. M. Gray; Barlow Cumberland; W. D. Matthews; Jas. Carruthers; G. N. Reynolds; Jas. Matthews; J. C. Eaton; H. S. Greenwood; Dr. C. O'Reilly; W. R. Brock; W. E. Booth; A. W. Austin; J. J. Dixon; S. Halligan; L. H. Baldwin; Percy Leadlay; Wm. Ross; Port Perry; Dr. J. F. Ross; H. N. Evans; F. H. Gooch; A. C. Knight; Andrew Semple; H. G. Gooderham; R. T. Gooderham; H. B. Hodgins; S. Samuel; F. D. Benjamin; James Scott; F. J. Harris; Hamilton; A. H. Campbell; Wm. Mulock; Chas. Cockshutt; W. G. Cassels; C. H. Ritchie, K. C.; C. C. Ross; A. R. Boswell, K. C.; A. C. Morris; F. E. Macdonald; Thos. Walmsley; Colonel Sir Henry H. M. Pellatt; Wm. Crocker; C. A. Bogert, and others.

It was moved by Mr. L. H. Baldwin, seconded by Mr. A. W. Austin, that Mr. E. B. Osler do take the chair, and that Mr. C. A. Bogert do act as Secretary.

Messrs. A. R. Boswell, K. C., and W. Gibson Cassels were appointed Secretaries.

The Secretary read the report of the Directors to the Shareholders and submitted the Annual Statement of the affairs of the Bank, which is as follows:

To the Shareholders:
The Directors beg to present the following Statement of the result of the business of the Bank for the year ending 31st December, 1907:

Balance of Profit and Loss Account, 31st December, 1906	\$ 28,798 33
Premium received on new Capital Stock	933,456 87
Profit for the year ending 31st December, 1907, after deducting charges of management, etc., and making provision for bad and doubtful debts	635,235 51
	\$1,597,490 71
Dividend 3 per cent., paid 2nd April, 1907	\$ 95,149 79
Dividend 3 per cent., paid 2nd July, 1907	107,978 20
Dividend 3 per cent., paid 1st October, 1907	111,351 61
Dividend 3 per cent., payable 2nd Jan., 1908	114,413 63
	\$428,893 23
Transferred to Reserve Fund	933,456 87
	1,362,350 10
Balance of Profit and Loss carried forward	\$ 235,140 61

RESERVE FUND.

Balance at credit of account, 31st December, 1906	\$3,900,000 00
Transferred from Profit and Loss Account	933,456 87
	\$4,833,456 87

In view of the financial stringency which prevailed throughout the world in 1907, and the unsettled monetary conditions existing in the United States, it has been necessary to exercise unusual caution and prudence in administering the affairs of the Bank. Our policy has been to restrict advances without interfering with the proper requirements of the customers of the Bank, and to assist in marketing the products of the country—more especially the crops of the North-western districts—at the same time maintaining strong Cash Reserves.

Having reference to our announcement at the Annual Meeting that one million dollars of new Capital Stock would be offered to the Shareholders in 1907, we have to inform you that on December 31st, \$983,700 of this amount was subscribed for, and \$848,597.50 paid up.

During the past year it was considered advisable to establish Branches of the Bank at the following points: In the Province of Ontario, at Berlin, Hamilton, Ottawa, and at the corner of Queen and Victoria Streets, Toronto; in the Province of Quebec, at the corner of Bleury and St. Catherine Streets, Montreal; in the Province of Alberta, at Strathcona; and at Vancouver, British Columbia.

The opening of our Vancouver Office not only marks our entrance into British Columbia, but completes a chain of Branches at all important centers from

QUESTIONS AND ANSWERS. Miscellaneous.

ALFALFA IN PASTURE MIXTURES.

Have had no experience in alfalfa and orchard grass as meadow or as permanent pasture near the barn. Would like to know what amount to sow per acre. The land is rich clay loam. Purpose sowing one bushel of Goose wheat and one bushel of oats, mixed, as a nurse crop, per acre. CONSTANT READER.

Ans.—Unless for a special purpose, such as calf or hog pasture, or a night pasture for cows, we do not advise having a permanent pasture near the barn. Put it rather in the remotest corner of the farm so as to save hauling of crops and manure. Alfalfa and orchard grass might make a fair pasture if sown on clean, well-drained, well-prepared land, using, say, 15 pounds alfalfa seed and 8 pounds orchard grass seed per acre.

The nurse crop proposed, viz., one bushel Goose wheat and one bushel oats per acre, is rather heavy for best results in seeding. Five pecks of barley would be better. While seeding to pasture, we would recommend using a much larger

variety of seeds. Try Prof. Zavitz's permanent-pasture mixture: Orchard grass, 4 pounds; meadow fescue, 4 pounds; tall oat grass, 3 pounds; meadow foxtail, 2 pounds; timothy, 2 pounds; alfalfa, 5 pounds; alsike, 2 pounds; white clover, 2 pounds, or a total of 24 pounds per acre. Alfalfa does not stand trampling very well, especially in autumn. We advise sowing an acre or so of alfalfa alone to be kept for green feed, any excess being cured as hay. On this plot, never allow stock to graze. If it succeeds, you will doubtless increase the area. Sow 25 pounds seed per acre, either alone or with a nurse crop of five pecks of barley.

ALFALFA QUERIES—SCRATCHES.

1. How many pounds of alfalfa seed would you sow to the acre on fairly heavy clay land?
2. Which kind of a crop would be best adapted to seed with fall wheat or spring crop?
3. Are there any different kinds of alfalfa seed? If there are, which kind would you recommend as the best?
4. What is the best remedy for dry scratches?

Montreal to the Pacific Coast, including the Capitals of the Western Provinces. Results so far indicate that these extensions will be of great benefit to the Institution.

We have to record with regret the death in January last of Mr. Timothy Eaton, whose varied business knowledge and sound judgment made him a valued member of your Directorate. Mr. John C. Eaton, his son, was appointed to fill the vacancy on the Board.

The Directors, as is customary, have verified the Head Office Balance Sheet, as on the 31st of December, 1907, including therein the auditing of our foreign balances and the certification of all Cash Reserves, Securities, and Investments.

The usual careful inspection of the various Branches of the Bank has been made during the past twelve months.

E. B. OSLER, President.

The report was adopted.

The thanks of the Shareholders were tendered to the President, Vice-President and Directors for their services during the year, and to the General Manager and other Officers of the Bank for the efficient performance of their respective duties.

The following gentlemen were elected Directors for the ensuing year: Messrs. A. W. Austin; W. R. Brock; James Carruthers; R. J. Christie; J. C. Eaton; J. J. Foy, K. C.; M. L. A.; Wilmot D. Matthews; A. M. Nanton, and E. B. Osler, M. P.

At a subsequent meeting of the Directors, Mr. E. B. Osler, M. P., was elected President, and Mr. W. D. Matthews, Vice-President, for the ensuing term.

General Statement.

LIABILITIES.

Notes in Circulation	\$ 2,913,398 00
Deposits not bearing interest	\$ 4,460,297 60
Deposits bearing interest (including interest accrued to date)	29,781,858 12
	34,242,155 72
Deposits by other Banks in Canada	219,596 70
Balance due to London Agents	1,854,408 72
Balance due to Banks in the United States	88,792 68
Total Liabilities to the Public	39,268,351 82
Capital Stock paid up	3,848,597 50
Reserve Fund	4,833,456 87
Balance of Profits carried forward	235,140 61
Dividend No. 101, payable 2nd January	114,413 63
Former Dividends unclaimed	69 75
Reserved for Exchange, etc.	54,204 34
Reserved for rebate on Bills Discounted	142,983 15
	\$48,497,217 67

ASSETS.

Specie	\$ 1,146,474 77
Dominion Government Demand Notes	4,536,579 00
Deposit with Dominion Government for Security of Note Circulation	150,000 00
Notes of and Cheques on other Banks	1,493,097 02
Balances due from other Banks in Canada	881,867 87
Balances due from other Banks elsewhere than in Canada and the United Kingdom	924,940 77
	\$ 9,132,958 98
Provincial Government Securities	287,532 44
Canadian Municipal Securities and British or Foreign or Colonial Public Securities other than Canadian	562,079 52
Railway and other Bonds, Debentures, and Stocks	2,568,425 38
Loans on Call secured by Stocks and Debentures	3,499,083 88
	16,000,080 15
Bills Discounted and Advances Current	\$31,447,382 80
Overdue Debts (estimated loss provided for)	53,406 60
Mortgages	38,274 42
Bank Premises	950,000 00
Other Assets not included under foregoing heads	7,983 70
	32,497,137 52
	\$48,497,217 67

G. A. BOGERT, General Manager.

Toronto, 31st December, 1907.

WHITES.

We have a fourteen-year-old Clydesdale mare that has had the whites for the last two seasons, and we have been unable to breed from her. We have taken her to a veterinarian several times, but he has done her no good. R. A. Y.

Ans.—Leucorrhoea is very hard to treat, and she is not likely to conceive until the disease is checked. A veterinarian should be able to handle the case better than we can direct you how to do it, but as they have failed, it can do no harm for you to try: Flush out the womb, twice weekly, with about one gallon of a two-per-cent. solution Zenoleum, heated to 100 degrees Fahr., and introduced with an injection pump or large syringe with a long nozzle. Give, internally, 30 drops carbolic acid mixed with a cupful of water and sprinkled on her grain twice a day. Continue treatment until discharge ceases, then breed her.

CLAIM FOR WELL-DIGGING.

"X. Y. Z.," Ont., your statement of case is much too lengthy for insertion, and, moreover, the matter is one that ought to be placed in the hands of a solicitor for prompt attention, and we would recommend you to proceed accordingly.

ZAM-BUK CURES PILES.

NO RETURN OF TROUBLE.

This distressing complaint is successfully dealt with by the Zam-Buk treatment. The agony of Piles is as excruciating as the disease itself is weakening, and every sufferer should lose no time in giving Zam-Buk a thorough trial. Zam-Buk subdues the pain, allays the inflammation and enables rest and comfort to come to the worn-out sufferer.

Mrs. E. Boxall, of 75 Scott St., St. Thomas, Ont., writes: "I consider it my duty to write of the benefits derived from using Zam-Buk. For some months I was a constant sufferer from bleeding piles. I had used a great many ointments, but got no relief until I had tried Zam-Buk. It cured me and I have had no return of the trouble. Since my cure, I have advised others suffering with a similar complaint to use Zam-Buk, and in each instance have heard satisfactory reports."

Zam-Buk also cures cuts, burns, scalds, ulcers, ringworm, itch, barber's rash, blood poison, bad leg, salt rheum, abrasions, abscesses and all skin injuries and diseases. Of all stores and druggists, 50c. a box, or from Zam-Buk Co., Toronto, postpaid for price; 3 boxes for \$1.25.

"LEADER"



Fence Lock

The Double Grip

Gives Double Strength

A brand new No. 9 hard steel wire fence with a lock doubly as strong as any previously devised for a woven fence—this is the "Leader" fence.

The "Leader" lock has a double grip (usual locks have but a single grip). The double grip makes doubly as stiff and strong a fence—the wires cannot be moved up, down or sideways under the most severe strain to which a fence could be put. The "Leader" is the leading fence investment. Buy it.

Frame & Hay Fence Co., Ltd.
Stratford - Canada

CANADIAN PACIFIC

SINGLE FARE TO TORONTO

for the Ontario Horse Breeders' Exhibition.

Tickets good going

FEB. 11 and 12

return limit February 15.

See local C. P. R. Agent for information and tickets.

Tobacco Habit.

Dr. McTaggart's tobacco remedy removes all desire for the weed in a few days. A vegetable medicine, and only requires touching the tongue with it occasionally. Price \$2.

Liquor Habit.

Marvellous results from taking his remedy for the liquor habit. Safe and inexpensive home treatment; no hypodermic injections, no publicity, no loss of time from business, and a cure certain.

Address or consult Dr. McTaggart, 75 Yonge Street, Toronto, Canada.

QUESTIONS AND ANSWERS. Miscellaneous.

TO MAKE HAIR GROW—CONDITION POWDER.

1. What will make the hair grow on a horse when it has been rubbed off with the harness on spots?

2. Horse, nine years old, is very dry in his hair, and seems rather dull. He is in fair condition. What would be a good condition powder for him? H. M.

Ans.—1. The growth of hair may be stimulated by rubbing well, once a week, with an ointment composed of one dram cantharides, mixed with two ounces vaseline. Or by monthly applications of tincture of cantharides, the action being that of a mild blister. A subscriber recommends half a pint raw linseed oil, half a pint coal oil, four tablespoonfuls sulphur. Mix, and rub in well on bare spots daily.

2. A good general tonic is equal parts by weight of sulphate of iron, gentian, ginger, nux vomica and bicarbonate of soda. Dose: a tablespoonful two or three times daily.

STRINGHALT—INORDINATE SWEATING.

Have a colt rising four years old, will weigh about 1,400 lbs.; was worked at two years old. When backing up or standing around in stall, hind legs jerk upwards; is all right going ahead; was first noticed about last June. Can anything be done for him, or will it ever hurt him for work or sale?

2. Mare, same age, sweats very easily; in fact, she can scarcely do anything without sweating; is not very long in the hair, either. D. C.

Ans.—1. This is probably a mild form of stringhalt. The tendons have undergone contraction as a result of inflammation in those tendons from hard work while young. It may never lessen his value for work, but will for sale. It is doubtful if any treatment would prove a remedy, and it might intensify the ailment.

2. There would appear from the information given to be something physically wrong with the mare, and a correct diagnosis can only be arrived at from an examination and fuller particulars. We would advise consulting a veterinarian.

INVERSION OF THE UTERUS.

I have a cow that puts out her calf bed at calving. Would you kindly tell me, through your paper, what is good to prevent it, and, if nothing can be done to prevent it, what is best to do when the bed has come out?

A SUBSCRIBER.

Ans.—If this occurs after calving, it is called inversion of the womb or uterus. For prevention would advise giving a purgative of one quart raw linseed oil when cow is evidently near calving, fed lightly on laxative food, as bran mash, to keep the bowels open, and keep hind parts of cow a little higher than front. If the calf bed comes out after calving, place a clean sheet under it; wash it clean with warm water. If the placenta, or cleaning, adhere to it, remove by separating it from one button at a time. Have two assistants hold up the sheet with contents high, the cow standing, then return the mass, commencing at the edge of the vulva, until all is within the passage, then, with the closed fist, shove it back the full length of the arm, and hold there for a few minutes. Give two ounces of laudanum in a pint of water as a drench. Keep standing for an hour or two, and keep hind parts highest. If pains and forcing come on, put a rope truss on, fastened to a surringle by ropes over back and under belly to prevent recurrence. A little carbolic acid in water, used for washing uterus will tend to allay pain. In some cases what is, in error, supposed to be the calf bed appears before calving. This is merely the lining of the vagina protruding. Cow generally calves safely in this case, and no evil after effects appear. Feed lightly, and keep hind parts high. Feed laxative food after calving, and do not milk out freely for four days. Take only about one-half the milk, and stop avoid milk fever, so called.

40 Imported and Home-bred 40

Scotch Shorthorns

Eight bulls and 32 females, of unexcelled merit and most fashionable breeding, the property of Mr. Robert Miller, Stouffville, Ont., and Messrs. Donald Gunn & Son, Beaverton, Ont., will be sold at Mr. Miller's Farm, a short distance west of Stouffville Sta., on



**Friday,
March 6th,
1908**

Five of the bulls are imported, 16 of the females are imported. All are in good condition. Young and healthy. A high-class lot.

Terms cash, unless otherwise arranged for before sale.

The sale will be held under cover in a comfortable-heated building. Conveyances will meet all morning G. T. R. trains at Stouffville on day of sale.

Catalogues on application to

ROBERT MILLER, Stouffville, Ont.

Second Annual Public Sale

at ANNANDALE STOCK FARM, on
Tuesday, Feb. 25, 1908,

Commencing at 1.30 p. m.

45 Head of Select Registered HOLSTEINS

15 BROOD SOWS 15

28 of the Holsteins are females. They are good tested cows and 2 and 3 year-old heifers from great producers. Either fresh or heavy with calf to **Prince Posch Calamity**. In this sale are finely-bred heifers. From such the wonderful large producers come, such as Boutseje Q. Pieterje De Kol, that gave 20778 lbs. milk during the past year; she was sold by me to the O. A. C. You may get such another here; at least, you get your money's worth; one that will give 10,000 to 15,000 lbs. milk yearly is a big improvement. There will be 17 bulls—all but a few calves are over 10 months old—mostly sired by Prince Posch Calamity; one sired by the great Clyde Paul De Kol, from a 20-lb.-butter-a-week dam; one sired by **Johanna De Colantha Lad**, a grandson of **Colantha 4th's Johanna**, the world-record cow. Dam an A. R. cow. The bulls are from the greatest of sires and choice dams, nearly all having A. R. records.

The fifteen brood sows, high-grade Yorkshires, are due in April and May to a pure-bred York. that will also be sold, as I have his get and another hog.

All will be sold "straight as a string." No reserve or by-bidding. Illustrated catalogue ready by 10th February. Tells all about them. Barns 100 rods from main streets. G. T. R., C. P. R. and M. C. R. close by.

A public meeting, as last year, will be held in the Opera House at night—after sale. Besides Dr. Annie Backus, Mr. Frank Herne, Prof. Day, Mr. Schell (M. P.), and Mr. Putnam, Col. D. L. Perry, of Columbus, Ohio, who will be attending as auctioneer, will give an address full of wit and wisdom.

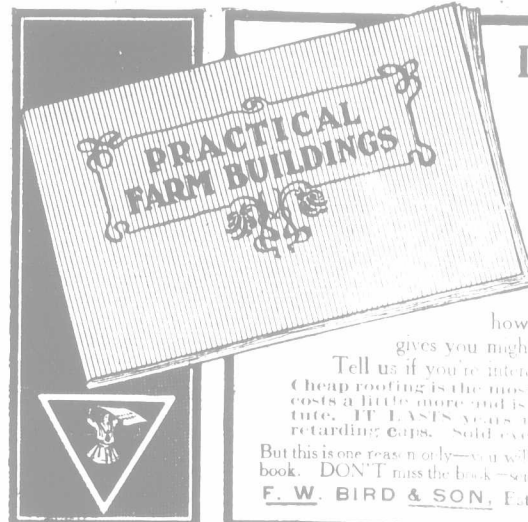
Terms—8 months' credit on approved notes. 6% discount for cash. New sale ring, under cover, will accommodate 1,500 or more.

Auctioneers:

MAJ. E. R. ALMAS, Norwich, Ont.; COL. D. L. PERRY, Columbus, Ohio;
MAJ. T. M. MOORE, Springfield; COL. L. G. PEARCE, Tillsonburg, Ont.

For catalogues write:

GEO. RICE, Tillsonburg, Ont., Prop.



Don't plan your Building or Repairing till you get this book

FREE TO YOU FOR A 2-CENT STAMP TO COVER POSTAGE.

Send your name—NOW—for a complimentary copy of "Practical Farm Buildings." Through working drawings and text it shows how to build to the best advantage. Incidentally it

gives you highly valuable information on the roofing question.

Tell us if you're interested.

Cheap roofing is the most expensive. PAROID READY ROOFING costs a little more and is worth FAR more than any cheap substitute. IT LASTS YEARS upon years. The only roofing with rust-retarding caps. Sold everywhere—we'll send your dealer's name. But this is one reason only—it will be on the others and a great deal more when you get the book. DON'T miss the book—send for it—send NOW.

F. W. BIRD & SON, Est. 1817 (Dept. 8) East Walpole, Mass.

WEAK TIRED WOMEN

How many women there are that get no refreshment from sleep. They wake in the morning and feel tired than when they went to bed. They have a dizzy sensation in the head, the heart palpitates; they are irritable and nervous, weak and worn out, and the lightest household duties during the day seem to be a drag and a burden.

MILBURN'S HEART AND NERVE PILLS

are the very remedy that weak, nervous, tired out, sickly women need to restore them the blessings of good health.

They give sound, restful sleep, tone up the nerves, strengthen the heart, and make rich blood. Mrs. C. McDonald, Portage la Prairie, Man., writes: "I was troubled with shortness of breath, palpitation of the heart and weak spells. I got four boxes of Milburn's Heart and Nerve Pills, and after taking them I was completely cured."

Price 50 cents per box or three boxes for \$1.25, all dealers or the The T. Milburn Co., Limited, Toronto, Ont.

EXECUTORS' SALE OF VALUABLE FARM PROPERTY

In the Township of Markham, County of York.

M. R. J. J. LUNAU has received instructions from the executors of the estate of the late William Baillie to sell by Public Auction at 2 p.m. on Saturday, March 14th, 1908, at the Franklin House, in the VII age of Markham, the following valuable farm property, containing in all 160 acres, adjoining and partly in the said Village of Markham, namely:

PARCEL No. 1, containing 125 acres more or less, described as follows: Being part of lot No. 10 in the 7th concession of the Township of Markham.

PARCEL No. 2, containing 35 acres, described as follows:

Being the west 35 acres of the west half of said lot No. 10 in the Township of Markham.

On said Parcel No. 1 is erected a comfortable six-roomed frame dwelling house on stone foundation with good cellar. Also bank barn (40 x 60) on stone foundation, with stable accommodation in basement. Also silo, pig house, implement-house and other buildings. It is well watered by spring creek running through the property, and spring so situated that water can be piped to the stables by gravitation.

This farm is very conveniently situated, being only ten minutes' walk from the centre of Markham via lake, where there are public and high schools, churches, railway station, markets, etc. It is also very convenient to Toronto markets, being distant only 18 miles therefrom. The soil is of the very best quality of clay loam. Ten acres of this farm is bush and broken land, and the balance is under cultivation.

The terms of sale are 10 per cent. of purchase money down at time of sale, 15 per cent. within 30 days, and the balance in cash, or may remain up on mortgage, as may be desired.

The above properties will be sold in two separate parcels as above described. Parcel No. 1 containing 125 acres, and Parcel No. 2 containing 35 acres, and will be subject to a reserve bid.

Dated at Toronto this 30th day of January, A. D. 1908.

J. J. LUNAU, Auctioneer, Markham, Ont. COOK, BOND & MITCHELL, Solicitors for Executors, Temple Bldg., TORONTO.

Stump and Tree Pullers. Self-anchoring and stump anchored. Something new. Pull an ordinary stump in 1/2 minutes, 1 to 5 acres at a setting. Different sizes to suit all kinds of clearings. For illustrated catalog address Milne Mfg. Co 886 Ninth St., Monmouth, Ill.

Mr. Thos. Skippon, Hyde Park, Ont., near London, advertises Hereford cattle for sale. His herd, founded about seven years ago, now numbers about twenty-five head all told, and has captured a fair share of prizes at the Western and other leading Ontario Shows. The herd is headed by Lord Ingleside 12th, son of a Toronto champion, and carries the blood of the noted sires and show bulls, Pratetor, March On, Keep On, Mark Hanna, also VanNatta and Fowler Strains. Young bulls and heifers are offered for sale, also cows with calves at foot and bred heifers.

QUESTIONS AND ANSWERS. Miscellaneous.

BARN AT ROAD.

My next-door neighbor has built a barn on the line of the public highway, about 60 feet from my door, which obstructs my view and decreases the value of my place very much.

- 1. Can I compel him to move the building?
2. Also, what distance does the law require between highway and barn? I advised him to build back of his house, about 80 feet from highway.

Ontario. Ans.—1. No. 2. There is no arbitrarily fixed limit such as suggested.

CURING PORK AND BEEF.

Would you let me know the best way to cure pork for summer use, and, also, how to smoke it to give it the same flavor as the bacon you buy in the store; also how to corn beef? J. H. R.

Ans.—The first part of this question was answered in "The Farmer's Advocate," page 182, January 30th issue. To corn beef: for 14 lbs. of beef allow 6 lbs. salt, 2 lbs. fine sugar, 3 ounces salt-petre, and 3 gallons water. Boil gently as long as any scum rises, removing it carefully as it forms. When quite cold, pour over the meat, completely covering it, and leave it in the brine for twelve to fifteen days.

REPAIRING LINE FENCE—ALFALFA.

1. A creek runs through my farm from one end to the other. It has been the custom of the previous owner to fix both line fences every year where the creek takes them away. Is it my duty to fix these, supposing the creek runs through my part of the line fence in both cases?

- 2. Is alfalfa as good as red clover to plow under for manure?
3. I have a field of stiff clay in bad condition. I plowed it last fall. What is the best way to treat it next summer in order to get it in good condition?

Ontario. A BEGINNER. Ans.—1. Yes. 2. Yes, better; but being very hard to plow and not quite so certain to "catch," clover would ordinarily be preferred.

3. Manure, if possible, this winter, gang plow or disk early in spring, work occasionally, and, after the other seeding is completed, bring the land to as fine a tilth as possible, and sow peas. These may either be harvested or plowed under in time to prepare the land for fall wheat, to be seeded down with about four pounds of timothy, to which should be added eight pounds of red clover and two pounds of alsike the next spring.

SCORCHED GRAIN FOR STOCK FEEDING.

- 1. Is grain which has been scorched and to some extent burnt injurious to stock?
2. How are burnt oats for milk cows?
3. How are scorched peas, oats and barley for swine or horses?

SUBSCRIBER. Ans.—1. I have no direct experience with scorched grain feed for stock. I am of the opinion, however, that the scorching would tend to make the food constipating, but otherwise there would be no injurious effect from the use of scorched grain. Part of the sugar and starch of the grain may be caramelized, forming sugar, or it may go farther, leaving it in the carbon form.

2. It is possible that burnt oats would flavor milk from milk cows. Milk cows particularly require a fairly laxative diet, and I would fancy that burnt oats would tend to have a constipating effect. I think they should be used with a considerable quantity of bran, ensilage, or materials of that kind. Whether burnt oats will flavor milk or not may be very quickly ascertained by feeding them for a short time.

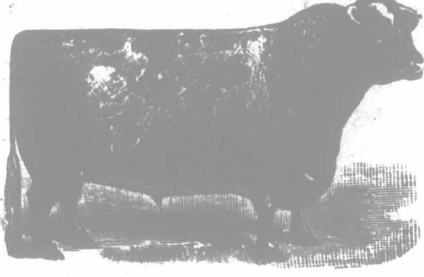
3. I do not think that scorched peas, oats, and barley would have any injurious effect upon swine or horses, provided the foods are mixed with some laxative feeds, such as bran or roots to overcome the constipating effect of the scorched grains. R. HARCOURT, Ontario Agricultural College.

40 SCOTCH AND SCOTCH-TOPPED 40 SHORTHORNS BY AUCTION

AT PROSPECT HOUSE STOCK FARM The property of Mr. F. A. Gardiner, 3 1/4 miles east of Streetsville Jct. Sta., 6 miles south of Brampton, and 7 miles north of Port Credit, on

Tuesday, March 3rd, 1908

Mr. F. A. Gardiner will sell his entire herd of 20 head, including his two high-class stock bulls, to which will be added 20 head from the noted herd of Messrs. S. J. Pierson, Son & Co.



In all there will be sold 14 bulls—some extra high-class ones among them—and 26 females, imp. and Canadian-bred; a number of local prizewinners among them.

Terms: Cash, or 7 months' on bankable paper, with 5% interest. Lunch at noon. Conveyances will meet morning trains at Streetsville Jct. and Port Credit, and will be at Queen's Hotel, Brampton, at 10 a. m. Catalogues on application to:

F. A. Gardiner, and S. J. Pierson, Son & Co. Britannia P. O. Meadowvale P. O. Auctioneers: John Smith, M. P. P.; Capt. T. E. Robson.

Ontario Department of Agriculture.

Provincial Auction Sales OF PURE-BRED CATTLE

(Registered), 100 Head, Males and Females, of Beef Breeds

will be held at the following points: QUELPH, MARCH 4; PORT PERRY, MARCH 11, 1908.

All stock inspected before being accepted. Only good representatives of the various breeds will be offered.

Special Inducement to Purchasers in Ontario:

Freight Paid: The freight on any animals purchased at these sales by residents of Ontario shipped to purchaser's station in Ontario, will be paid by the Ontario Department of Agriculture. The original receipted freight bill containing the point of shipment and destination, name and registration number of the animal purchased and shipped, the estimated weight for billing, and the rate charged per cwt., should be sent immediately to the Live-stock Branch, Ontario Department of Agriculture, Toronto.

For catalogues and particulars regarding any of the sales, address the Secretary at the point of sale, or make application to: Live-stock Branch, Ontario Department of Agriculture, Toronto.

Imp. Clydesdale Fillies by Auction

At the Snodden House Stables, Peterboro, Ont., on WEDNESDAY, FEBRUARY 19, 1908.

T. H. Hassard, Millbrook, Ont.

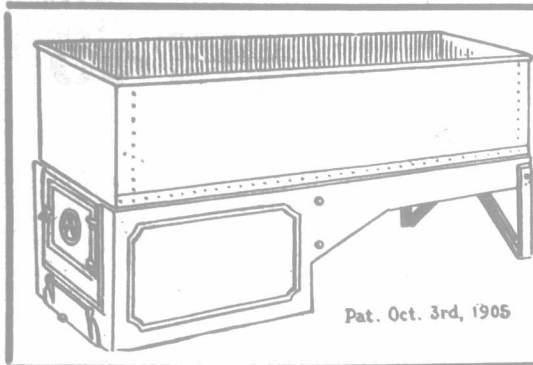
will sell by public auction 16 IMPORTED CLYDESDALE FILLIES from 1 to 4 years of age.

These fillies are a superior lot, up to a big size, solid colors, richly and fashionably bred, and several supposed to be in foal.

Terms: Cash, or 6 months' on bankable paper bearing 6 per cent. interest.

Sale at 1.30 p. m. sharp. Auctioneers: J. K. McEwen, Weston. J. H. Gardiner, Peterboro. Catalogues on application.

PLEASE MENTION THIS PAPER.

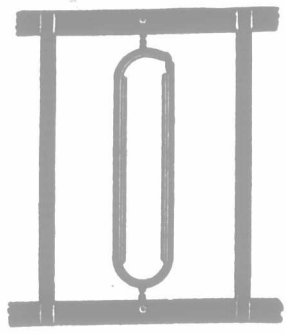


Farmers, Look Here!

We manufacture just what you have been looking for: **A SAFE EVAPORATOR AND AGRICULTURAL FURNACE.** The one furnace, with two parts. The best and cheapest thing on the market. Write for prices and full particulars.

The Mississippi Iron Works, Almonte, Ont.

Manufacturers of Circular and Drag Sewing Machines, Horse Powers, Monarch Fanning Mills, Well Drilling Machines, Ideal Steel Stanchions.



QUESTIONS AND ANSWERS. Miscellaneous.

RAILWAY NEAR BARN.

How near does the law allow a railroad to come to a barn without moving same?

Ontario.

Ans.—We are not aware of any fixed and arbitrary limit; but, commonly, there is a question of compensation to be disposed of in cases such as that which is suggested by the question.

DUCKS AILING.

My ducks took some disease in their back. They acted as if something had stepped on their back and broken it. They act like this for about three or four days, then die. It seems to be infectious. I would like to know the cause, as I have lost five like this.

C. G.

Ans.—I may say that I have never seen a case similar to this, so cannot offer any suggestion. I would recommend your correspondent to send two or three sick ducks to Prof. Edwards, of the Ontario Agricultural College, Guelph, for examination. He would be interested, and might be able to locate the trouble.

O. A. C. W. R. GRAHAM.

SILo INQUIRIES.

1. What size of silo would I need to hold ensilage for about 35 head of cattle through winter till about first of May, then feed again about a month or six weeks in dry weather in summer?

2. Would you advise building wood or cement, and what amount of material would I need for either wood or cement?

3. Also, how many barrels of cement would I need to floor my basement 44 x 60 feet?

4. What width would you advise for trench behind cows? Also, give system of ventilation.

W. T.

Ans.—1. Counting on an average feeding period of 220 days, including the summer, and allowing an average of 35 pounds of ensilage per head per day, which is liberal enough for an ordinary graded farm herd, it would require about 135 tons to carry you through, possibly a little more than you would require, but as you will probably find it possible to carry a considerably increased stock, you will doubtless find use for that much silo capacity. This could be secured by building a silo with inside dimensions of 15½ feet diameter by 30 feet in height, but we would advise instead the erection of two smaller silos, say one 12 feet in diameter by 30 feet high, capacity 80 tons, and another 10 x 28, the capacity of which would be about 55 tons.

2. We would advise building a round cement silo as being the most durable and satisfactory. A round stave silo may be built at less cost, and will answer the purpose quite as well for a number of years if built upon a stone or cement foundation. A cement silo 15 x 30 feet will take about fifteen cords of gravel and fifty barrels of cement, if mixed one to nine, wall to be, say, ten inches thick at bottom and six inches at top, which is quite thick enough if reinforced with stout wire imbedded in the concrete. Any carpenter can reckon how much lumber would be required for a stave silo. Six-inch staves are best size, and, in using two lengths, joints may be broken, a piece of hoop iron being inserted where the ends join, to prevent admission of air.

3. About 33 barrels Portland cement, mixed one part cement to ten of gravel.

4. About sixteen inches wide and six inches deep. Some prefer to have no trench or gutter, but slope the floor behind the cows gradually up from the drop to the walk.



IMPORTANT TO FARMERS

Your fences are your fortress against loss and damage. They must be strong enough to resist invasion from without, and to keep within bounds your flocks and herds. You can't afford to take chances on soft, slack, or brittle wire fences, which may fail just when most needed.

Peerless Woven Wire Fence

has the elastic springiness and resisting qualities that make an A 1 farm fence. Once up it lasts—no breaking—no falling down. There are reasons why. We can't tell them all in this ad, but if you will write to us we will send you some valuable fence facts.

The Banwell Hoxie Wire Fence Co. Ltd.

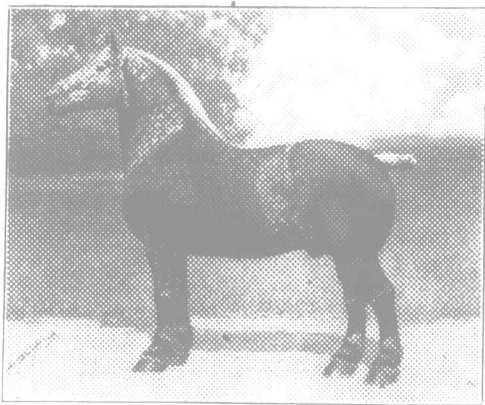
Dept. B, Hamilton, Ont.
Winnipeg, Manitoba.

The LaFayette Stock Farm, LaFayette, Indiana

J. CROUCH & SON, PROPRIETORS.

The Largest Importers in America of Percheron, Belgian and German Coach Stallions and Mares, and also Breeders of Trotting Stallions.

We won more prizes at all the leading fairs and expositions in 1907 than all others combined. Over 400 imported in 1907, three to five years old. Our drafters weigh from 1,800 up to 2,300 pounds.



We handle the three popular breeds of the world's horses. The States have about discarded all breeds of draft horses except the Percheron and Belgian. They are low down, blocky shaped, clean legs, cuppy foot and tough, and can go over rocky roads without shoes, are close made, long-ribbed, and live on half the feed that the leggy, short-ribbed, big Rom-nosed kind does. They mature at three years old.

As we have no branch barns in Canada, we ask all intending buyers to come to LaFayette, Indiana, where can be seen over 200 head of stallions, and we will pay one-half of all the buyers' expenses, and if they buy, we will pay all. Every horse is guaranteed to be satisfactory, sure breeders, and we can arrange it so in case the horse dies within a year we will furnish another horse in his place, of equal value. Prices run from \$700 up to \$2,200. Long time to responsible buyers, and all horses delivered to buyers. Can show more good horses than any importer in America.

Shires, Shorthorns and Lincolns.

At present we are offering a very choice consignment of imported stallions, mares and fillies received from the great Shire stud of R. Moore & Sons, Beeston Fields, Nottingham, England. They are a grand lot, and will be sold at right prices.

In Shorthorns we have a number of choice young bulls, three of them show animals; also an excellent lot of females—all ages.

John Gardhouse & Sons, Highfield, Ont.

Toronto, 14 miles. Weston, 3½ miles.



Long-distance phone.

SOWS DO NOT COME IN HEAT.

I have two sows, eight months old, which I wish to breed from; are in good condition; confined in a pen 8 x 10 feet, are fed on whole oats. Their drink consists of water, with some barley meal stirred in. What can I do for those sows to bring them in heat? D. M.

Ans.—We can only suggest letting them run out daily in sheltered place when weather is suitable, feeding some more heating food, as shelled corn, and letting a young boar run with them. Some sows show heat so little as to escape detection.

ICE MELTS IN ICE HOUSE.

My smallest silo, intended for summer use, was built of lumber, in one end of the barn, and is 11 x 14 feet. We took 5 feet off the end next the cow stable, and fixed up the other end for storing ice in, by placing on the bottom 5 inches of stones and gravel, and, on top of this, 6 inches of sawdust, and on this we placed the ice, leaving one foot of space for sawdust on all sides and top. We have stored ice in this place the last two winters, and it melted, seemingly, most from the bottom, so it was all gone by the middle of the summer. While this place is very cool in summer, it will not freeze in winter, excepting in extremely cold weather, as it is covered with poles and straw level with the barn floor up to top. Do you think the ice would keep better if the straw were taken off poles and made close on side next to cows, so no heat from stable would get in, or do you think we will have no success storing ice in this place?

SUBSCRIBER.

Ans.—Where ice is stored should be well drained below, and well ventilated above; also, the drier the sawdust, the better. We think, from your statement, that there is not enough sawdust below, and that it is too tight above. You might try once more putting a foot of sawdust under, and taking poles and straw off the top. Have ice at least six feet in depth; eight would be better. If ice still fails to keep, as it may, the place being so close and snug, would advise you to abandon it and choose a more open and airy situation. T.

SEED OATS, CORN, EMMER AND POTATOES.

1. Where can I get early Daubeney oats for seed to sow with barley for mixed feed?

2. What is a good variety of corn to grow for the grain in the northern part of Northumberland County, and the season rather short for growing corn for grain?

3. Where can I secure emmer seed, and what is the price per bushel?

4. What is a good variety of blight-resisting potatoes of white color, practically free from rot, and a good producer of medium sorts? H. M.

Ans.—1. The Daubeney oats are now grown quite extensively by farmers in the vicinity of St. Mary's, London, Milton, etc., and are also being offered by some of the principal seedsmen in Ontario. Watch the advertisements in "The Farmer's Advocate."

2. For grain production in the northern part of Northumberland County, such varieties of corn as the King Phillip, Genesee Valley and Salzer's North Dakota should be amongst the very best varieties to grow.

3. Seed emmer can be obtained this year from the principal seedsmen for about \$1.20 per bushel of 40 lbs. Emmer thrives best on a rich loam, but will often give good returns on a comparatively dry soil, where other grains are not apt to give good results. Emmer, when sown at the rate of 1½ bushels of seed per acre, should form a very good nurse crop with which to seed down grasses and clovers.

4. Of upwards of two hundred varieties of potatoes, which have been under experiment at the Ontario Agricultural College, there is no one variety which has been entirely immune to the rot and has given heavy yields of white potatoes per acre. One of the very best varieties for general cropping is the Empire State. It is a white potato of excellent quality which produces a large yield of potatoes of good size, and it is rather better than the average of all the varieties in its freedom from rot. C. A. ZAVITZ, O. A. C.

THE UNION STOCK-YARDS COMPANY, Ltd.
HORSE EXCHANGE
 KEELE ST., - - TORONTO JUNCTION

Auction Sales of Horses, Carriages and Harness every Monday and Wednesday. Private Sales every day.



Come and see this new Horse Exchange, it will interest you, also the Quarter-mile Track for showing and exercising

The Directors of the above Company have not spared anything in the building of this new Horse Exchange. The stables, which are built of cement and brick, will stall between 200 and 300 head of horses and are considered by judges, who have seen them, to be the most sanitary they have yet seen.

We have sold on an average of 100 horses per week since the opening of this great horse market, and now that the success of the horse business is assured, we are in a position to handle **Breeders' Stock Sales of all kinds, Cattle, Sheep, and Hogs.**

Breeders will find that advertising from a central place like Toronto will be advantageous in many ways, as this is unquestionably the most complete market of its kind in America for both buyer and seller.

We have our own railway chutes, which are the finest, and can load any number of cars at once on both G.T.R. and C.P.R. No charge for loading or unloading stock of any kind.

Correspondence solicited as to terms, etc.

HERBERT SMITH, Manager.
 (Late Grand's Repository).

CLYDESDALE STALLIONS

Our new importation has just landed. An exceedingly good lot. Some extra big fellows. They may be seen at our stables, Fraser House, London. Call and see them, or write

MESSRS. DALGETY BROS., GLENCOE, ONT.

Graham - Renfrew Co.'s
CLYDESDALES and HACKNEYS.

Our Clydes now on hand are all prizewinners. Their breeding is gilt-edged. Our Hackneys, both stallions and mares, are an exceedingly high-class lot. We also have a few high-steppers and carriage horses. Yonge street cars pass the door every hour. 'Phone North 4483.

GRAHAM-RENFREW CO., LTD., Bedford Park, Ont.

CLYDESDALES

At Columbus, Ont., the home of the winners, this year's importation just arrived. The pick of Scotland's best. For size, style, conformation, quality and royal breeding, they eclipse any former importation we ever made. Look them up in our barn on Exhibition Grounds. Over 30 head to select from.

SMITH & RICHARDSON, COLUMBUS, ONTARIO.

Imp. Clydesdales (Stallions and Fillies), Hackneys, Welsh Ponies.

I have now on hand Clydesdale stallions and fillies—Scotland prizewinners and champions; Hackney fillies and Hackney pony; also Welsh ponies. There are no better animals, nor no better bred ones, than I can show. Will be sold cheap and on favorable terms. **A. AITCHISON, GUELPH P. O. AND STATION.**

SIMCOE LODGE CLYDESDALES

Our stable of imported and Canadian-bred Clydesdale stallions and fillies was never so strong in show stuff as now, although we have had some very strong lots. Call and see what we have before buying elsewhere. **HODGKINSON & TISDALE, BEAVERTON, ONT., G. T. & C. N. R. Long-distance 'phone.**

IMPORTED CLYDESDALES! 9 stallions, 1 to 6 years of age; 10 fillies, 1 to 3 years of age, several of them in foal; 1 two-year-old Hackney stallion; 1 two-year-old Shire stallion; 3 Percheron stallions, 3 years old. All are selected animals, bred in the purple. Will be sold cheap and on terms to suit. **T. D. ELLIOTT, BOLTON, ONT. 'Phone.**

DUNROBIN STOCK FARM.

Don't buy a Clydesdale Mare or Filly until after our AUCTION SALE, on MARCH 12th, at our farm. Write for catalogue. **DONALD GUNN & SON, BEAVERTON P. O.**

25 Imported Clydesdale Stallions and Fillies 25

Two Clyde stallions, 1 Hackney stallion, over 20 Clyde mares and fillies, from 1 to 5 years of age. Many high-class show animals among this lot. Many winners in Scotland among them. They have size, quality, style, action and breeding. Come and see them. Will sell on terms to suit. **JOHN A. BOG & SON, QUEENSVILLE P. O., Ont., Newmarket Sta., G. T. R. Telegraph and telephone one-half mile from farm. Metropolitan Street Ry. from Toronto crosses the farm.**

IMP. CLYDESDALE STALLIONS AND FILLIES.—Our new importation of stallions and fillies are the best we could select in Scotland, particularly well bred, with the size, smoothness and quality that Canadians admire. Show-ring stuff. Come and see them. Will sell on terms to suit. **JOHN A. BOG & SON, QUEENSVILLE P. O., Ont., Newmarket Sta., G. T. R. Telegraph and telephone one-half mile from farm. Metropolitan Street Ry. from Toronto crosses the farm.**

IMPORTED CLYDESDALES Up to over a ton in weight, with the very richest of breeding and the best of quality. I think no better shipment of stallions ever left Scotland. I have also nine fillies, without doubt the best lot in Canada. All will be sold cheap and on terms to suit. Long-distance 'phone. **GEO. G. STEWART, HOWICK, QUE.**

Clydesdale Stallions! **ROBT HUNTER & SON, Maxville, Ont.** are now offering that grand quality horse, Baron Colin, imp., (4542), by Baron's Pride, dam by Flashwood's Best, four years old; also Kyama, Canadian-bred, rising two, imp. sire and dam, a big, grand, good colt, a show animal. Long-distance 'phone.

QUESTIONS AND ANSWERS.
 Veterinary.

FISTULA.

1. Mare has a running sore just in front of the ear.

2. Mare continuously scratches her hind legs with hind feet. G. H.

Ans.—1. This is due to a deep-seated irritant of some kind, probably a splinter of bone. The fistula must be opened up to the bottom, and the irritant removed, and the wound then dressed, three times daily, with a five-per-cent. solution of carbolic acid until healed.

2. Make a solution of fifteen grains corrosive sublimate to a pint of water, and rub well into the skin twice daily. V.

WORMS.

1. Two-year-old pregnant mare has worms.

2. Another six-year-old mare passes worms.

3. I am feeding cows on oat, barley and pea chop, with a little oil cake on dampened cut straw. Would it be better to use scalding water? J. W. C.

Ans.—1 and 2. Take six ounces each of sulphate of iron, sulphate of copper and calomel. Mix, and make into forty-eight powders. Give each mare a powder every night and morning in damp food. After the last has been taken, give the six-year-old mare a purgative of eight drams aloes and two drams ginger; but do not give a purgative to the pregnant mare.

2. It would probably be better to use the hot water, and allow it to stand a few hours before feeding. V.

DIARRHEA IN COW.

1. Cow has had recurrent diarrhea since fall.

2. Eight-months-old colt has gone forward on his hind legs at fetlocks. Since coming into the stable, he has been standing tied on a plank floor. E. J. H.

Ans.—1. This indicates serious chronic disease of the digestive organs, and it is doubtful if it can be cured. Give her a purgative of 1½ lbs. Epsom salts and 1 ounce ginger. After thirty-six hours, give two ounces tincture of opium, one ounce each of catechu and prepared chalk, every six hours until diarrhea ceases. If it occurs again, treat the same, with the exception of the purgative.

2. Blister the fetlock joints in the ordinary way so often described in these columns, and repeat the blister every four weeks all winter. Give him a box stall when in the stable, and give daily exercise in yard or paddock. V.

Miscellaneous.

DYEING A SHEEP PELT.

Would you kindly give me a recipe of how to dye a sheep pelt? J. A. D.

Ans.—Will someone who has had experience describe his method?

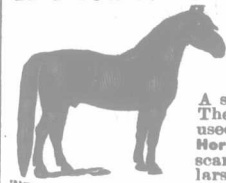
GINSENG CULTURE.

I have some notion of going into the culture of ginseng, and would like information concerning it. G. H. L.

Ans.—As ginseng is essentially a forest plant, success with it depends upon how closely forest conditions are imitated. It must have plenty of shade, and a moist, mellow, deep, loam, rich in decaying vegetable matter, free from stones and roots, and well drained. The bed should be kept clean and covered with a mulch of leaves, and two years from the time of sowing the young plants should be transplanted into a larger bed, where they will have more room. From three to five years must usually elapse before the roots are ready for marketing. Although ginseng may occasionally be found growing wild in the woods, especially in the Georgian Bay district, most cultivators have to depend largely on seed for a beginning. As the seed is quite expensive, it is better, perhaps, to begin on a small scale, say an ounce of seed, which will sow from nine to twelve square feet of bed, and work gradually into a larger area as experience is gained. We would caution anyone thinking of embarking in this enterprise, not to count his dollars till the ginseng is sold.

HORSE OWNERS! USE

CAUSTIC BALSAM.



A safe, speedy and positive cure. The safest, best BLISTER ever used. Removes all bunches from Horses. Impossible to produce scar or blemish. Send for circulars. Special advice free.

THE LAWRENCE-WILLIAMS CO., Toronto, Canada

OAKLAWN FARM

HEADQUARTERS FOR

PERCHERONS

BELGIANS

FRENCH COACHES



POINTERS FOR BUYERS

Our sales last six months nearly twice those of any similar period in our history. Animals purchased here and shown by their then owners won more championships and first prizes than all purchased elsewhere and similarly shown. Constant importations. Next one due February 5, 1908. Best animals, lowest prices, safest guarantee. 42 years of honorable business methods. Write immediately to

DUNHAM & FLETCHER
 WAYNE, DU PAGE COUNTY, ILLINOIS

Dr. Page's English Spavin Cure.

For the cure of Spavins, Ringbone, Curbs, Splints, Windgalls, Capped Hock, Strains or Bruises, Thick Neck from Distemper, Ringworm on Cattle, and to remove all unnatural enlargements.



This preparation (unlike others) acts by absorbing rather than blistering. This is the only preparation in the world guaranteed to kill a Ringbone or any Spavin, or money refunded, and will not kill the hair. Manufactured by Dr. Fredrick A. Page & Son, 7 and 9 Yorkshire Road, London, E. C. Mailed to any address upon receipt of price, \$1.00. Canadian agents:

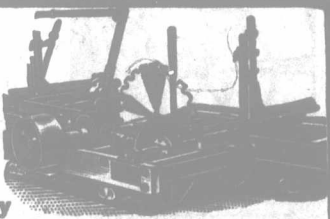
J. A. JOHNSTON & CO., Druggists,
 171 King St., E., Toronto, Ont.

Cures Spavins

The world wide success of Kendall's Spavin Cure has been won because this remedy cures—cure Bog and Bone Spavin, Curb, Splint, Ringbone, Bony Growths, Swellings and Lameness.

MEAFORD, ONT., May 22 '04. "I used Kendall's Spavin Cure on a Bog Spavin, which cured it completely." **A. G. MASON.**
 Price \$1—6 for \$5. Accept no substitute. The great book—"Treatise on the Horse"—free from dealers or Dr. B. J. KENDALL CO., Essexburg Falls, Vermont, U.S.A.

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SAW MILLS

From this size up to largest, standard mills with variable friction feed. Favorites in every lumber district. Cut most with least power, easy to handle. Edgers, Trimmers, Lath Mills, Shingle Mills, Cut off and Rip Saws, etc. Send for free catalogue. **American Saw Mill Mch'y Co.,**
 113 Hope St., Nashua, N. H., 624 Engineering Bldg., New York City.

CHOICE SEED OATS (Sensation)

Second prize in field-grain competition. Score ninety-two and one-half. Price, 65 cents per bushel.

ALEX. GOWIE, CALEDONIA, ONTARIO

Clydesdales—Stallions and mares—Lyon MacQueen (3682), 3 reg. dams. Royal Robbie (4274), 4 reg. dams; sure getters. Mares of large size, good quality, regular breeders, at right prices. **JOS. H. MILLARD, Attorn., Ont.** Stouffville Sta., G. T. R., Midland Div.

Come and see the most select lot of

Clydesdale and Hackney

STALLIONS AND MARES
Two to Six Years Old

These horses combine size, weight and quality. All of which are for sale at reasonable prices. Send for illustrated catalogue.

Graham Bros.,
CLAREMONT, ONTARIO.

JOHN CHAMBERS & SONS

Hoidenby, Northampton, England,



SHIRE.

Have at their American branch, at St. Thomas, Ont., under the management of C. K. Geary, a number of good big stallions, also several very fine fillies coming three years old, and safe in foal to some of England's leading sires. Address all communications to:

C. K. Geary, St. Thomas, Ont.

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The Tudhopes started making sleighs in 1855. Three Tudhopes are in command at the Tudhopes Works at Orillia.

It's a family affair—with a natural pride in building sleighs that live up to the Tudhope tradition of quality. And every Tudhope Sleigh is guaranteed.

TUDHOPE No. 92

This cutter is a new design, planned to suit the requirements of those who desire a "Solid Comfort" cutter with bent dash. High spring back and spring cushion, and padded quarters. Trimmed in Figured Plush, or Green Wool Cloth.

Write for free catalogue, showing the many styles made by us.
THE TUDHOPE CARRIAGE CO., Ltd. 15 ORILLIA, Ont.

GLYDESDALES AND FRENCH COACHERS, IMP.

Scottish and Canadian winners, stallions, mares and fillies. The Clydes represent the blood of such noted sires as Baron's Pride, Up-to-Time, Royal Favorite, Ethiopia and Acme. They combine size, quality and action. The French Coachers are a big, flashy, high-stepping lot, and are winners in both France and Canada. Our prices are right, and our horses as good as the best. Long-distance telephone.

ROBT. NESS & SON,

Howick, Quebec.

OAK PARK STOCK FARM HACKNEYS!

Four imported and home-bred stallions for sale. Ten imported and home-bred mares for sale. Among these are prizewinners at Toronto, Chicago and New York. Prices reasonable. Visitors always welcome to inspect stock. T. A. COX, Manager, BRANTFORD, CAN.

ADVERTISE IN THE ADVOCATE

QUESTIONS AND ANSWERS.

Miscellaneous.

NAME OMITTED.

If the inquirer from Lynedoch, Ont., will send his name and it proves to be on our subscription list, his veterinary inquiry will receive attention. If it is not already on, he may send \$1.50 for a year's subscription.

OWNERSHIP OF SLABS.

A sawmill advertises custom sawing, \$3.50 per thousand feet. Can I claim slabs and sawdust?

A SUBSCRIBER.

Ans.—It is customary for the slabs and sawdust to belong to the mill.

CROSS WITH SHORTHORNS—ALFALFA ON CLAY LOAM.

1. Which would be the best cross on grade Shorthorn cows for dairy, Holstein or Ayrshire?

2. Will alfalfa grow on clay loam that is well surface-drained?

W. L. H.

Ans.—1. Either would do well.
2. Unless there is some special condition not mentioned, we would say yes, especially if the surface be sloping to insure against danger of injury by ice.

GRADING UP SHORTHORNS.

Will you kindly inform your readers if it is possible to breed up from grades to registered Shorthorns in Canada, and, if so, how many crosses from registered bulls would be required, and what other qualifications would be required?

J. M.

Ans.—Only animals tracing to ancestry imported from Great Britain on both sire and dam's side are accepted for registry in the Dominion Shorthorn Herd-book. There is no provision whereby grades with any number of crosses by registered sires are made eligible for registration.

CHRONIC INDIGESTION.

Horse has chronic indigestion. I have been feeding him oats and bran and good hay. He has a ravenous appetite. His teeth are good. His hair is dry, and he is unthrifty. How would you treat such a horse?

J. G.

Ans.—Give one and a half pints of raw linseed oil, and, after purging ceases, give one dram each of gentian, nux vomica and sulphate of iron three times daily in half a pint of cold water as a drench. Feed good hay in moderation, sound oats, and a little dry bran, with the oats to ensure thorough mastication.

MILLET SEED FOR CHOP.

1. I would like to know the value of millet seed for chop.

2. Would it be too strong to mix it—one-third millet, and two-thirds barley, corn and oats?

I wish your valuable paper all kinds of success, and a Happy and Prosperous New Year.

M. W.

Ans.—Millet seed somewhat resembles oats in composition, though very little experimental work has been done to determine its actual food value. I believe, however, that it would be quite safe to mix it in the proportions described by your correspondent for most classes of stock. I should not think that it would be very satisfactory for hogs in the mixture described, for the reason that it contains rather too much fibre. For cattle it should prove quite satisfactory.

G. E. DAY.

O. A. C., Guelph.

EXPERIENCE WITH FLEMING'S LUMP-JAW CURE.

Editor "The Farmer's Advocate": I consider your editorial on "Shorthorns," January 9th, 1908, page 39, an able and truthful article, with which I fully agree.

I would like to give my experience with Fleming's lump-jaw cure, just for the benefit of readers of the best farm paper in Canada. We got one lump cut out, but it grew again. We then used the lump-jaw cure with great success, except we failed to graze the neck below lump. We killed lump jaw on two other steers by opening the lump with a knife and saturating a piece of batting with the cure and put it right in, and sowed, and left it for ten days. A second application may be necessary, but not always. Be sure to keep it well greased, or it will blister the hair off.

R. J. FALCONER.

Dufferin Co., Ont.

Fistula and Poll Evil

Any person, however inexperienced, can readily cure either disease with

Fleming's
Fistula and Poll Evil Cure
—even bad old cases that skilled doctors have abandoned. Easy and simple; no cutting; just a little attention every fifth day—and your money refunded if it ever fails. Cures most cases within thirty days leaving the horse sound and smooth. All particulars given in

Fleming's Vest-Pocket
Veterinary Adviser
Write us for a free copy. Ninety-six pages, covering more than a hundred veterinary subjects. Durable bound, indexed and illustrated.
FLEMING BROS., Chemists,
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Tuttle's Elixir

Greatest maker of sound horses in the world. Tested many years, never fails if cure be possible. \$100 reward if it does. For lameness, curb, splint, spavin, ringbone, swellings, etc.

Tuttle's Family Elixir

Liniment for household use. Ask for Tuttle's American Worm and Condition Powders and Hoof Ointment. "Veterinary Experience," perfect horse-man's guide free. Symptoms and treatment for all common ailments. Write for it. Postage 2c.
TUTTLE'S ELIXIR CO., 66 Beverly St., Boston, Mass.
Montreal: H. A. Tuttle, Mgr., 32 St. Gabriel St.
Beware of all imitations; only temporary relief, if any.
C. H. R. Crocker, South Farmington, Nova Scotia.

ABSORBINE

will reduce inflamed, swollen Joints, Bruises, Soft Bunches, Cure Boils, Fistula, or any unhealthy sore quickly; pleasant to use; does not blister under bandage or remove the hair, and you can work the horse. \$2.00 per bottle, express prepaid. Book 7-C free.

ABSORBINE, JR., for mankind, \$1.00 per bottle. Cures Varicose Veins, Varicocele, Hydrocele, Strains, Bruises, stops Pain and Inflammation.
W. F. YOUNG, P.O. F., 73 Monmouth St., Springfield, Mass.
Canadian Agents: LYMAN BROS. & CO., Montreal.

RIVER VALLEY GLYDESDALES AND SHORTHORNS.

For Sale—Two stallions, one imp., the other imp. in dam; 9 imp. mares 3 and 4 yrs. of age—a grand pair, with size and quality; 1 fly foal imp. in dam. Shorthorns all ages, of both sexes; straight milking strain.
A. V. CAREFOOT, Thornbury Sta., Re wing P. O.

NOTHING BUT THE BEST
New importation of Clydesdales and Hackney Stallions. For sale more Old Country premium and H. and A. Society winners than any other importer. Such horses as Acme, Monarch, Marquis, Rexelle, Ardethan Goldsmith, King's Seal, Baron's Charm, Baron's Carriek, Albee Fashion, Medallion and many others equally good. Thirty six in all. Prices reasonable.
OSWALD SORBY, GUELPH P. O., ONT.

MR A. I. HICKMAN,

Court Lodge, Egerton, Kent, England, exports pedigree live stock of every description to all parts of the world. Exported during 1907 more Shetland ponies, more Romney Marsh sheep, and more champion Oxford Downe than any other breeder or exporter, besides large numbers of other breeds of horses, ponies, cattle, sheep and pigs. Correspondence invited. Highest references given.

Clydesdales, Shorthorns and Cotswolds—For richest bred and choicest individuals of above breeds write me. My new Cotswold and Clydesdale importation will arrive early in the season.
J. C. ROSS, Jarvis P. O. & Sta.

ABERDEEN - ANGUS

For sale, 50 head to pick from, males or females by imported sire. Drumbo station.
WALTER HALL, Washington, Ontario.

THE SUNNYSIDE HEREFORDS

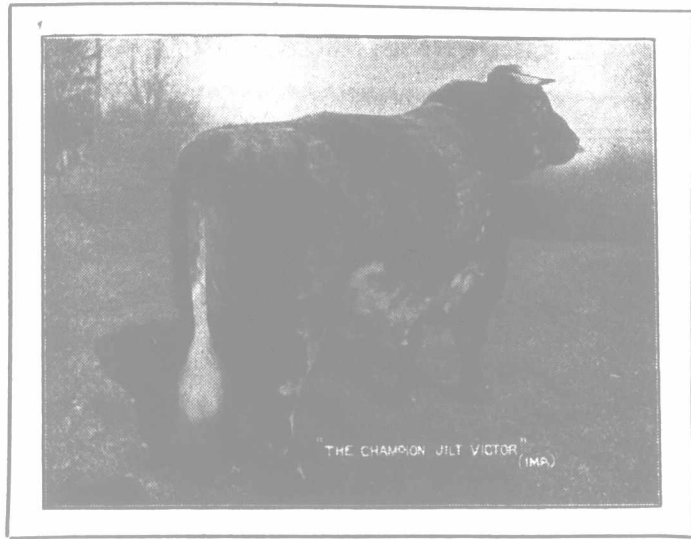
To reduce herd will sell:
10 cows at \$100 each
10 heifers at 50 each
10 bulls from \$50 to 100 each
Come and see them or address

M. H. O'NEIL,
Southgate, Ontario.

HYDE PARK HEREFORDS Young stock Cows with calves at side. Cows and heifers bred. Prices right. **THOS. SKIPPON,** Hyde Park, Ont.

Salem Herd of Shorthorns

J. A. WATT, SALEM P. O.



I will take a very limited number of high-class cows for service to Jilt Victor. I can supply any number of Shorthorns of either sex, or willingly help buyers in making selections elsewhere.

Elora Stns., G. T. R. and C. P. R., 13 miles north of Guelph. Long-distance 'phone.

1854 Maple Lodge Stock Farm 1807

An exceptionally choice lot of heifers and young bulls for sale now. Best milking strains.

A. W. Smith, Maple Lodge P. O., Ont.

Valley Home Shorthorns AND BERKSHIRES.

Our herd numbers sixty-five head. We are prepared to give bargains to suit all who wish to buy from one animal up to a carload of females and 13 bulls from 9 to 18 months old. Also 66 Berkshires of prolific strains.

S. J. PEARSON, SON & CO., Meadowvale, Ont. Stations: Meadowvale, C.P.R.; Brampton, G.T.R.

10 IMPORTED BULLS 10

Recently arrived from Scotland in good condition. They are a superior lot. Selected for herd-headers. We also have a number of Canadian-bred bulls of excellent quality, and representing the choicest breeding. Females suitable for show or breeding purposes.

W. G. PETTIT & SONS, FREEMAN, ONTARIO.

Burlington Jct. Sta., G. T. R. Bell telephone at each farm.

Maitland Bank Shorthorns

Five bulls, 13 to 16 months; six bulls, 9 to 12 months, got by Broadbroke Prince (imp.) = 5502, and some of them from imp cows; also cows and heifers, milking sort and right breeding. Lowest prices for quick sale. Come and see them, or write.

DAVID MILNE, Echel, Ont.

MAPLE GROVE SHORTHORNS

Scotch and dairy bred; up-to-date in type; prize winners at the local shows. A number of 1 and 2 year old heifers 1 year old bull, and one 5 months old—the last will make a show bull. Flora bred—will be sold easy.

L. S. POWELL, Walkenstein P. O. and Stn. G. P. R.

Six Thick, Thrifty Shorthorn Bull Calves JUST HOME FROM SCOTLAND.

They are ready to use, and I am going to sell them. Will change for your old imported bulls if good. Will also sell imported cows and heifers and home-bred bulls; also some good Shropshire and Cotswold ewes, bred to great imported sires.

ROBERT MILLER, STOUFFVILLE, ONTARIO, CANADA.

PLEASANT VALLEY SHORTHORNS

For sale: 3 young bulls by Old Lancaster Imp. from imp. dams, including Lancaster Victor first prize sr. bull calf at Don at Sherbrooke, second at C. N. E., Toronto. Correspondence solicited. Inspection invited.

Geo. Ames & Son, Moffat Stn. & P.O., P. R. Farm 11 miles east of City of Guelph.

Queenston Heights SHORTHORNS

All Scotch. The thick-fleshed, early-maturing sort. Special prices on young stock either sex. Ask for catalogue with sample pedigrees.

Hudson Usher, Queenston, Ont. Farm three miles north of Niagara Falls.

Winners at the leading shows have been sired by bulls bred here. We can sell you a good bull to head your herd of SHORTHORNS, or for use on your good grade cows. The bull catalogue explains the breeding. Write for it.

John Dryden & Son, Brooklin, Ont.

Stations: Brooklin, G. T. R.; Myrtle, C. P. R. Long-distance telephone

GREENGILL HERD OF HIGH-CLASS SHORTHORNS.

We offer for sale choice young bulls from 6 to 19 months old, sired by imp. Lord Roseberry, also cows and heifers, with calf at foot or bred either imp. or Canadian-bred.

R. MITCHELL & SONS, Nelson P. O., Ont., Burlington Jct. Sta.

Brown Lee Shorthorns!

Nonpareil Victor 63307= at head of herd. Young stock for sale at all times. Prices very reasonable. Ayr. C. P. R.; Drumbo, G. T. R.

DOUGLAS BROWN, Ayr, Ont.

PLEASE MENTION THIS PAPER

GOSSIP.

Mr. A. J. Hickman, Egerton, Kent, England, in our advertising columns, invites correspondence from parties wishing to import pure-bred stock to Canada. See the advertisement, which speaks for itself.

T. H. HASSARD'S CLYDESDALE FILLY SALE.

With draft horses selling for \$500 a pair, as they have at the Union Stockyards sales, at Toronto Junction, lately, with two-thirds of the winter over, with nothing in sight to indicate that many other offerings of imported Clydesdale fillies will be made by auction this spring, and with everything pointing to an unprecedented demand and record prices for draft horses next summer, T. H. Hassard's auction sale of sixteen imported Clydesdale fillies, at Peterboro, on Wednesday, Feb. 16th, next, should be the event of the year. Coming, as it does, at a time when farmers are not pushed with work, the strictly high-class character of the offering, combining, as they do, great size and quality throughout, coupled with the richest and most fashionable of breeding, this sale should bring out a record crowd, which it is hoped will show appreciation of Mr. Hassard's enterprise for the improvement of draft horses in Canada. The offering are all young, and in good thriving condition. Several of them were bred and likely to be in foal. Some have as high as six recorded dams, and are sired by such world-renowned horses as Baron Mitchell, Prince Thomas, Hiawatha, Godolphin, Royal Chattan, Carthusian, etc. The Scottish Studbook contains no better nor more fashionable pedigrees than some of these fillies show. Peterboro is centrally located, on both the Grand Trunk and Canadian Pacific Railways, and easy of access from any direction. The terms are liberal for anyone wanting a little time—six months' on bankable paper bearing six per cent. interest. Write for catalogue to Mr. Hassard, at Millbrook, Ont.

BURNSIDE AYRSHIRES.

The great Burnside herd of imported Ayrshire cattle, the property of Mr. R. R. Ness, of Howick, Que., is probably the most noted herd on the American continent to-day; all told, 110 strong, over half of which are imported, selected from the leading herds in Scotland. For the last two years they have won both the herd prizes at Toronto, as well as championships galore, and at the late Dairy Show in Chicago they more than sustained Canada's reputation as the home of the best of the world produces. A large number of the females of the herd are now in the Record of Merit, with milk records up to 12,000 lbs. a year, and butter records up to 528 lbs. a year. The cow, Dinty (imp.), recently purchased at the Chicago sale for the longest price ever bid for an Ayrshire cow in America, and whose record is 12,000 lbs. of milk in one year, is the dam of an exceptionally choice bull calf that from present indications will make a show bull of a very high order. Besides him there are only four other bull calves in the herd, all fall calves, and all sired by that great stock bull and champion of champions, Imp. King's Own, a bull that has yet to take second place in the show-ring and pronounced by Scottish breeders who saw him last year to be the superior in type of any bull alive in Scotland. A large number of his daughters are now in the herd; many of them out of imported dams. Among them are winners at Toronto, Sherbrooke and Ottawa. Few breeders of pure-bred stock have made success equal to that of Mr. Ness with Ayrshires. His importations for several years have averaged 60 and 70 head a year. But large as this number is, so great is his foreign and home trade that orders are continually coming in that have to be booked until new importations arrive. Another lot is expected to arrive in the early spring, being now selected by Mr. Mitchell, one of the leading breeders of Scotland. Parties wanting anything in the Ayrshire line should get their orders booked in good time to avoid disappointments. Mr. Ness has long-distance telephone connection.

MAKES HIS OWN STOCK FOOD

In interviewing a prominent stock dealer recently, the question of Stock Foods was discussed. He states that for some time he has been making his own stock food, and that the results he had obtained were very satisfactory, that by making it himself he was sure of obtaining only the best and purest of drugs and in the proper proportions, and that the ingredients would not produce the harmful results that he had experienced with many of the preparations now on the market. As a conditioner and flesh-producer for all kinds of stock, he found nothing that would equal this home mixture, both in economy and results. He has given this recipe to be published for the benefit of stock owners in general, and is sure that it will be to their advantage to use it. He found that best results were obtained by using one pound Barnes English Compound and mixing with three pounds of Linseed Meal and six pounds of Corn Meal. Barnes English Compound can be procured from S. G. Amaden, Windsor, Ont., who will send a one-pound package, sufficient to make ten pounds of the home mixture, postpaid, on receipt of 50c., money order or stamps.

BROOKS' NEW CURE FOR RUPTURE!

Brooks' Appliance. New discovery. Wonderful. No obnoxious springs or pads. Automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No knives. No lymphol. No fees. Durable, cheap. Pat. Sept. 10, '01. SENT ON TRIAL. CATALOGUE FREE. C. E. BROOKS, 6870 Brooks' Bldg., MARSHALL, WICH.

MONEY IN CANARIES

More profitable than poultry. Examine a canary. We give advice free. Our new egg is "Money in Canaries," tells all about it. With book we send free, if you name this paper, a 10c packet BIRD BREAD. Also, "How to Kill Birds of Lice," and "Bird Magazines." Send 5c to-day; stamps or cash. Refunded if you buy birds from us. Birds shipped anywhere any time. Write us before buying. Ad res.

COTTAM BIRD SEED

28 Bathurst St. London Ont.

Shorthorns—Sweepstakes herd at London, Ayrshire.

Wallacetown Redney, Ridgetown and Highgate, 1907. We have for sale at reasonable prices 3 choice young bulls, 1 red and 2 roans, of grand type and quality. All sired by the good breeding bull, Ridgewood Marquis—45295—, a son of the old champ on, Spicy Marquis. Also a few young cows and heifers. JNO. LEE & SONS, Highgate, Ont.

T. DOUGLAS & SONS

STRATHROY, ONT. Breeders of Shorthorns and Clydesdales. 15 bulls, 60 cows and heifers, 1 imp. stallion, imp. and home-bred fillies. Write us what you want or come and see our stock. Farm 1 mile north of town.

SHORTHORNS

For want of stable room will sell cheap 16 heifer calves, 13 yearling heifers, 4 two-year-old heifers in calf and 3 red bulls about 14 months old. Right good ones. CLYDESDALES.—Two-year-old mare in foal, and a good pair 4 and 5 years old. Write, or come and see them.

JAMES McARTHUR, GOBLE, ONTARIO.

SPRING VALLEY SHORT ORNS

Two young imported bulls of the very best quality and breeding. Six Canadian-bred bulls, mostly the get of Bapton Chancellor (imp.). Prices right.

KYLE BROS., AYR, ONTARIO.

R. H. REID,

Glover Lea Stock Farm, PINE RIVER, ONT.,

BREEDER OF SHORTHORN CATTLE Golden Cross (imp.) at head of herd.

FLETCHER'S SHORTHORNS & YORKSHIRES

Present offering: Young bulls red or roan, 10 to 13 months old, sired by my noted stock bull (imp.) Joy of Morning; also heifers and cows in calf. In Yorkshires: Choice sows bred, and boars fit for service, from imp. sire and dam.

GEO. D. FLETCHER, Binkham P.O., Ont. Erin Stn., C. P. R.

SHORTHORNS FOR SALE—Four choice bulls, all from imp. sire; two from imp. dams. Females of all ages. Scotland's Fame (imp.) at head of herd for sale or exchange. ALEX. BURNS, Rockwood P.O. and G.T.R. Station.

LISTEN!

We are offering **Special Bargains** in **Shorthorns** just now. The **Reason** is that we have a **Large Stock** and **Feed is Scarce**. Most of you know the **Kind of Cattle** we have, so that it is useless repeating the usual formula. In order to **Reduce Our Stock**, so that we may be able to pull through the winter, we **Will Sell at Prices** which will **Well Repay the Purchaser** who has feed to keep them until spring. We have pretty nearly anything you want. If you can not come to see, write and tell us as nearly as possible what it is, and we will frankly tell you whether or not we can supply.

John Clancy, Manager. **H. Cargill & Son, Cargill, Ont.**

Bog Spavin

Cure the lameness and remove the bunch without scarring the horse—have the part looking just as it did before the blemish came.

Fleming's Spavin Cure (Liquid) is a special remedy for soft and semi-solid blemishes—Bog Spavin, Thoroughpin, Splint, Curb, Capped Hock, etc. It is neither a liniment nor a simple blister, but a remedy unlike any other—doesn't irritate and can't be misused. Easy to use, only a little required, and your money back if it ever fails.

Fleming's Vest-Pocket Veterinary Adviser describes and illustrates all kinds of blemishes, and gives you the information you ought to have before ordering or buying any kind of a remedy. Mailed free if you write.

FLEMING BROS., Chemists,
75 Church Street, Toronto, Ontario

Shorthorns!

WOULD EXCHANGE

A few high-class Shorthorns for PURE-BRED OR GOOD GRADE SHEEP, Shropshires preferred.

D. Allan Black, Kingston, Ontario.

EAST BANK HERDS

Shorthorn Cattle, Yorkshire and Berkshire Swine.

As I must leave farm in March, I am offering 40 sows of choice breeding and quality. Prize-winners and the get of prizewinners. Also cows and calves bred, fed and sold right.

IRA L. HOWLETT, KELDON.

J. Watt & Son

For sale—2 high-class bull calves of the richest breeding; 30 young cows and heifers, a number of which are well gone in calf to Imp. Pride of Scotland. Moderate prices. Correspondence invited.

Salem P.O., Elora Sta. G.T.R. & C.P.R.

Glen Gow Shorthorns

Our present offering is 9 bulls, from 6 to 14 months of age, sired by Imp. Ben Loman and Imp. Joy of Morning, and out of Imp. and Canadian-bred cows. Also a number of very choice heifers. No fancy prices asked. Long-distance phone.

WM. SMITH, Columbus P.O.

WILLOW BANK

Shorthorns and Leicester.

ESTABLISHED 52 YEARS.

Have a special good lot of either sex to offer in Shorthorns of various ages. Also a few choice Leicester sheep. Write for prices, or, better, come and see. Choice quality and breeding.

JAMES DOUGLAS, CALEDONIA, ONT.

Shorthorn Bulls—Ready for service. One will make a show bull. Also young things from Matchless, Crimson Flower, Miss Ramsden, Rosemary, Diamond and Lady Fanny dams, the get of Chancellor's Model. Prices to suit times. Come and see. ISRAEL GROFF, Elmira, Ont.

Shorthorns & Leicesters for sale. Two young bulls for sale from good milking dams. Leicesters—a few females for sale, different ages. JOHN LISHMAN, Hagerstown, Ont., P. O. and Stn.

ROSE COTTAGE STOCK FARM—2 Short-horn bulls for sale—14 and 20 months—one red and one roan. The red a Matchless. The roan, sired by Royal Prince, is a full brother to Fair Queen and Queen Ideal, the two champion females of two continents. H. K. Fairbairn, Thedford, Ont.

High-class Shorthorns Royal Chief, a son of Mildred's Royal, at head of herd. We are offering a few choice heifers of show-ring form. Pure Scotch. Terms reasonable. A. DUNCAN & SONS, Carleton Place, Ont.

SCOTCH SHORTHORNS!

We now offer four heifer calves 10 and 11 months old. All reds. Bred from Imp. sire and dams. Will be sold right. C. RANKIN & SONS, Wyebridge P.O., Wyevale Sta.

GOSSIP.

BROWN BROS.' HOLSTEINS.

The great Lyn herd of Record-of-Merit Holsteins, the property of Brown Bros., Lyn, Ont., were never in better condition at this time of year, to use the words of the happy owners. They have tried to hide the fact from the cattle that feed was scarce and prices high, and, certainly, judging from the appearance of the herd, the cattle have not, as yet, realized any shortage in the daily ration of good ensilage, pulped roots and meal. Fifty head make up the total of the herd at present, and nearly all of the females of milking age are in the Record of Merit. During the past year, members of this herd stood second in aged class, first and third in four-year-old class, first and third in three-year-old class, in official tests for the Dominion. The cow, Inka Josephine Abberkirk, that stood second in aged class, was again tested, eight and a half months after freshening, and within three and a half months of again freshening, and made 15.3 lbs. butter in a week, which is claimed to be the largest record made by any cow in Canada or the United States, eight months or more after calving last year. The herd is headed by a grandson of Pietertje Hengerveld De Kol, who is unquestionably one of the greatest sires of the breed, he having now 71 Advanced Registry daughters, one of which, De Kol Creamello, holds the world's milk record of 119 lbs. in one day, and 10,017 lbs. in 100 days. Another daughter has a seven-day butter record of 29.45 lbs., and two other daughters have records of over 26 lbs. each. He is also sire of Sarah Jewel Hengerveld, whose butter record is 24½ lbs. in seven days, and 97.70 lbs. in 30 days. This cow is now in the herd in fine condition, and bred to calve in May, when Messrs. Brown Bros. expect her to largely increase her record. Her four-year-old daughter, also in the herd, made, in an official test last summer, 20 lbs. 13 ozs. of butter in seven days, and another daughter, under two years of age, made nearly 14 lbs. The stock bull, Count De Kol Pietertje Paul, has, on his sire's side, 42 butter records in his extended pedigree that average 23.3 lbs. in seven days. His dam has a record of 25.12 lbs. as a four-year-old. With a stock bull with such official backing, mated with such a high-class herd of Record-of-Merit cows, the produce should be eagerly looked for by prospective buyers, as indeed they are. Sired by the stock bull are two young bulls that will be fit for service in the spring; one out of Car Born De Kol, official record, 20.12 lbs. The other is out of an eighteen-pound, official record cow. Another about five months old is out of Inka Josephine Abberkirk, above described. All these are sired by the stock bull. Then there is one sixteen months old, sired by Beryl Wayne Paul Concordia, whose four nearest dams have records that average 22 lbs. 10 ozs. each in seven days; while both his dam and grandam are in the Record of Merit. In females for sale are a number of heifers coming two years old, sired by Beryl Wayne Paul Concordia; two heifers, rising three, with records of 11 lbs. each; two five-year-olds, one of them with a three-year-old record of over 18 lbs., the other with a record of 16 lbs. at same age. These latter two are sired by Lady Waldor's De Kol, whose dam has a record of 22½ lbs. in seven days, and the dam of one of them has a record of 22 lbs., and the dam of the other has a record of 19 lbs. Both are now in calf to the stock bull. This, without doubt, is one of the choicest offerings of Holsteins in Canada. Write the Brown Bros., to Lyn P. O., Ont.

STEVENSON'S



RIFLES

are so quick-firing, straight-shooting and hard-hitting, that a frog on the jump is an easy mark for the boy who has had a Stevens only a little while. Mechanism is simple—nothing to get out of order—unapproached for accuracy by any other rifle in the world.

HERE ARE OUR LEADERS	
Little Scout.	\$2.25
Stevens-Maynard, Jr.,	\$3
Crack Shot.	\$4
Little Krag.	\$5
Favorite.	\$6

For sc. in stamps to cover postage, we will send free, our complete catalogue of Shotguns, Rifles, Pistols, showing all sorts and styles, and describing the arms in detail. Gives interesting information about Cartridges, Ammunition, Sights, Targets, Care of Firearms, etc. Most good dealers have Stevens Firearms. Insist on getting the genuine. If you find it difficult, write to us.

J. STEVENS ARMS & TOOL CO., 25 Front Street, Chicopee Falls, Mass., U. S. A.

Shorthorns, Cotswolds, Berkshires

For sale: 2 bulls 18 months, 1 bull 12 months, and 4 from 7 to 9 months; and females all ages. In Cotswolds a few good ewe lambs. Nothing to offer in Berkshires.

CHAS. E. BONNYCASTLE, P. O. and Station, Campbellford, Ont.

J. BRYDONE,

Breeder of pure Scotch Shorthorns. Breeding females imported. Headed by the pure Cruickshank (Duthie-bred) bull, Bittytton Victor (Imp.)—50008—(57807). Young stock from Imp. dams for sale.

Prices reasonable. Telegraph, Telephone, R. R. Sta. and P. O., Milverton.

LIVINGSTON'S OIL CAKE MEAL.

OLD PROCESS

Nothing is better for fattening steers quickly and putting them on the market in prime condition than Oil Cake Meal. Thousands of Canadian and English stockmen use Livingston's, and would have no other. It is equally good for milk cows. They give more and better milk when fed Livingston's Oil Cake Meal. Also used for horses, sheep and hogs. Write for information regarding prices, etc., etc., to

DOMINION LINSEED OIL CO., LIMITED
Montreal, Que. Baden, Ont.

SHORTHORNS AND LINCOLN SHEEP.

Two bulls, 11 and 12 months old—a Miss Ramsden and a Bessie, both by the good breeding bull, Proud Gift—50077—(Imp.), also cows and heifers in calf by him. Inspection solicited. Always have some choice Lincoln sheep for sale at reasonable prices.

J. T. GIBSON, DENFIELD, ONTARIO.

A. EDWARD MEYER,

BOX 378, GUELPH, ONT., BREEDS

Scotch Shorthorns

exclusively. Herd bulls: Scottish Hero (Imp.)—55042—(90065), a Shethin Rosemary; Gloster King—68708—283804, A. H. B., a Cruickshank Duchess of Gloster. Youngstock for sale. Long-distance phone in house.

Shorthorns!

BELMAR PARC.

John Douglas, Manager, Peter White, Pembroke, Ont.

Calves for sale by our grand quartette of breeding and show bulls:

Nonpareil Archer, Imp. Proud GIR, Imp. Marigold Sailer. Nonpareil Eclipse.

Females. Imported and from imported stock in calf to these bulls.

An unsurpassed lot of yearling heifers.

SHORTHORN BULLS FOR SALE.

I have for sale two young bull calves: 1 red, 14 months, reg. in U. S. Herdbook, and one dark roan about the same age—a good one. Also a few females.

Hugh Thomson, Box 556, St. Mary's, Ont.

Shorthorns and Leicesters

For sale: One extra good young bull, 11 months old, from imp. sire and dam; also a few good young Leicester ewes in lamb. At easy prices for quick sale.

W. A. Douglas, Caledonia station, Tuscarora P. O.

Scotch Shorthorns

Our breeding females are very heavy milkers, also good individuals. For sale are a few young bulls and a few choice heifers, all from imported sires, and a number from imported dams. The imported Bruce Mayflower bull, Royal Bruce 55038, heads the herd.

R. J. DOYLE, Box 464, OWEN SOUND, ONT.

SIMPLE HOME RECIPE.

Get from any prescription pharmacist the following:

Fluid Extract Dandelion, one-half ounce; Compound Kargon, one ounce; Compound Syrup Sarsaparilla, three ounces.

Shake well in a bottle and take a tea-spoonful dose after each meal and at bedtime.

The above is considered by an eminent authority, who writes in a New York daily paper, as the finest prescription ever written to relieve Backache, Kidney Trouble, Weak Bladder and all forms of Urinary difficulties. This mixture acts promptly on the eliminative tissues of the Kidneys, enabling them to filter and strain the uric acid and other waste from the blood, which causes Rheumatism.

Some persons who suffer with the affections may not feel inclined to place much confidence in this simple mixture, yet those who have tried it say the results are simply surprising, the relief being effected without the slightest injury to the stomach or other organs.

Mix some, and give it a trial. It certainly comes highly recommended. It is the prescription of an eminent authority, whose entire reputation, it is said, was established by it.

A druggist here at home when asked stated that he could either supply the ingredients, or mix the prescription for our readers, also recommends it as harmless.

WHEN NAT GOODWIN WAS THE BELL.

"My rubber," said Nat Goodwin, describing a Turkish bath that he once had in Mexico, "was a very strong man. He laid me on a slab, and kneaded me and punched me and banged me in a most emphatic way. When it was over, and I had gotten up, he came up behind me before my sheet was adjusted, and gave me three resounding slaps on the bare back with the palm of his enormous hand.

"What in blazes are you doing?" I gasped, staggering.

"No offense, sir," said the man. "It was only to let the office know that I was ready for the next bather. You see, sir, the bell's out of order in this room."

QUESTIONS AND ANSWERS. Miscellaneous.

YELLOW VS. WHITE CORN.

Could you tell me what is the difference, if any, in the feeding value of white and yellow corn? W. H. R.

Ans.—Practically there is none, though yellow looks richer and is usually preferred.

THRUSH.

Can you, through your "Veterinary" columns, give me the description of thrush in horses, and any cure? W. B.

Ans.—Thrush is the result of an inflamed condition of the membrane that secretes the horn of the frog. The frog cracks, decays, and has an offensive smell. To cure, pare away all partially-detached or decayed horn, and keep perfectly clean. Clean out the cracks, and fill them full of calomel every second or third day. Keep feet perfectly dry; or, if the horse has to be worked, fill up cleft of the frog with tow smeared with pine tar. A competent veterinarian uses and strongly recommends formalin, which a druggist will supply, one part to five or six of water. Clean out the foot, then syringe or douse daily with the solution.

ERADICATING PERENNIAL VETCHES—COLT'S TAIL STRAIGHTENED.

1. What is the best method of getting rid of wild peas?
2. What can be done to make a spring colt carry its tail straight? It is inclined to carry it to the right side. J. P. B.

Ans.—1. Wild peas, or, rather, perennial vetches, if abundant, should be taken seriously. Gang plow stubble as soon after harvest as possible. Cultivate frequently during fall with broad-tooth cultivator, following each cultivation with stroke of the harrow. The next season grow a hoe crop, turnips, mangels or corn, and keep clean.

2. An iron crupper covered with leather is used in some cases. Some veterinarians claim that by a surgical operation the tail can be straightened.

COLT PAWING—DEHORNING QUERY.

1. What is the best way to break a colt of pawing, especially while eating?
2. Are the horns of a yearling or two-year-old likely to grow again after dehorning? C. B.

Ans.—1. The following plan was quoted in our January 9th issue from The Farmer's Advocate and Home Journal of Winnipeg: "Strap to the leg just above the knee a short piece of fairly heavy chain, about three or four links. When pawing begins, the chain swings free, and, after a rap or two from it on the cannon bone, the horse learns to keep his feet on the floor. This appliance is said to be an effectual cure for the habit. It possesses, at all events, the merit of simplicity, and may be easily tested."

LICE ON CATTLE—SCRATCHES.

1. Please give remedy for blue lice on cows and calves.
2. Also, remedy for scratches on horses' heels.
3. Where can I get Crown peas for seed? SUBSCRIBER.

Ans.—1. Mix dry cement and insect powder (pyrethrum) and sift into hair along back and neck. This will work down through the hair and clean out the vermin.

2. Feed only bran mash for twelve hours, then give a purgative ball of nine drams aloes and two drams ginger, which your druggist or veterinary surgeon will prepare. If a bad case, poultice heels with boiled turnips or linseed meal, with a little powdered charcoal for two days and nights, renewing every eight hours. Then dress, three times daily, with a lotion consisting of one ounce each of sulphate of zinc and acetate of lead, and two drams carbolic acid to a pint of water. If an ordinary case, use the lotion without poulticing. Do not wash the legs. If they get wet, rub them dry; if muddy, allow them to dry, and brush.

3. Write seedsmen advertising in this paper.

STONEYCROFT STOCK FARM, St. Anne de Bellevue, Quebec.

(Adjoining the new Macdonald College.)

Breeders and Importers of High-class

Ayrshire Cattle, Clydesdale Horses, Yorkshire Swine and Collie Dogs

Anything for sale. We offer especially a few select young bulls to clear cheap. Orders booked for spring pigs.

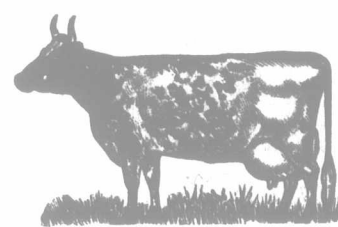
HAROLD M. MORGAN, Prop. E. BJORKELAND, Manager,

Bell 'Phone connection.



SPRINGBURN STOCK FARM.—Ayrshire Cattle, Oxford Down Sheep, Berkshire Pigs. Young stock for sale. Buff Orpington poultry, eggs \$1 per 13, \$4 per hundred; orders now being booked. **H. J. WHITEKER & SONS, Williamsburg P. O.**

AYRSHIRES Young bulls from producing dams and same sire, from 7 months up to 2 years. Rare good ones and will speak for themselves. **H. DYMENT, Hickory Hill Stock Farm, Clappison, Ont. Dundas Station and Telegraph.**



AYRSHIRES! SEE STOCK NOTES.

To dairymen:—We offer cheap 3 young bull calves, bred from large, heavy-milking cows with good tests. To breeders:—We have several very choicely-bred young bull calves, combining showing and dairy qualities; 3 young bulls fit for service; spring females, any age, either milking or dry. Orders taken for importing in 1908. Our J. Belsion is now in Scotland.

Phone Campbellford. **ALEX. HUME & CO., Menie, Ont.**

STEVENS DAIRY FARM HOLSTEINS

I have now for sale two bull calves 6 months old sired by a grand son of Pi-tertie Hengerveld's Count De Kol; also four choice young cows due to calve in February.

W. C. STEVENS, PHILLIPSVILLE P. O., DELTA STATION.

Maple Hill Holstein-Friesians

Bull calves from No. 1 dams, sired by bulls with great official backing. Write for prices.

G. W. Clemons, St. George, Ont. Holsteins and Yorkshires.

R. HONEY, Brickley, Ontario,

offers a very choice lot of young bulls also boars and sows fit to mate.

SPRING BROOK HOLSTEINS AND TAMWORTHS.—Holsteins of richest breeding and highest production. Tamworths of best Irish blood and ideal bacon type. Herd headed by prizewinning Imp. Knowle King David Stook of all ages and both sexes for sale. Young sows bred to imp. boar. Write, or come and see: **A. C. HALLMAN, Breslau, Waterloo Co., Ont.**

QUEEN CITY HOLSTEINS.

15 young cows due to calve during next 3 mos.; bred to bulls having high official backing. Orders booked for bull calves at moderate prices. A few bulls ready for service. Farm 7 miles north of Toronto, near the Metropolitan Ry. Write: **R. F. Hicks, Newton Brook, Ont.**

"THE MAPLES" HOLSTEIN HERD

Young bulls fit for service. Bull calves. Also a few choice heifer calves. **Walburn Rivers, FOLDER'S, ONT.**

MAPLE GLEN HOLSTEINS

Herd of 25 head with A. R. O. breeding, backed up by butter tests of over 18 lbs. as a two-year-old to over 26 lbs. as a cow. A good herd to select from. Two spring bull calves on hand. A. R. O. test of one is over 96 lbs. for dam and s. dam. Come and inspect the herd. Any animal will be offered for sale. **G. A. GILROY, GLEN BUELL, ONT.**

LYNDALE HOLSTEINS!

Bull calves for sale out of cows with records of from 18 to 20 lbs. also 3 heifers coming 3, and a number of young cows in Record of Merit, bred to a grandson of Pi-tertie Hengerveld's Count De Kol. **BROWN BROS., LYN, ONTARIO.**

HOLSTEINS We must sell at least 25 cows and heifers at once in order to make room for the increase of our large herd. This is a chance of a lifetime to buy good cattle at bargain prices. The best way: arrange to come and look the herd over. If you cannot, we will do our best for you by correspondence. Also a few young bulls. 100 head to select from. Imported Pontiac Hermes, son of Hengerveld De Kol, world's greatest sire, head of herd. All leading breeds represented. **H. E. GEORGE, Grafton, Ont. Putnam station, near Ingersoll.**

FAIRVIEW HERD is the place to buy your next bull. I can furnish you with a bull sired by our great herd bull, **PONTIAC KORNDYKE**, who has 19 daughters in the last year's report that made official records from 19 pounds at less than two years old to over 311 pounds at four years, and the whole number averaged over 4 1/2 fat. No other bull in the world has ever made such a showing in one year. I have just tested another of his daughters that made 26.40 pounds butter in seven days with second calf. I have over 50 cows and heifers in calf to him. Come and look my herd over before making your selections elsewhere. **E. H. GELAR, Newcastle, St. Law. Co., N. Y., near Prescott.**

RECORD OF MERIT HOLSTEINS Herd 110 strong. Over 40 head now in the Record of Merit. Two of the richest-bred bulls in Canada at head of the herd. For sale: 12 bulls, from 3 months to 1 year of age, all out of Record of Merit cows and sired by the stock bulls. **P. D. EDM, Oxford Centre P. O., Woodstock Station.**

EVERGREEN FARM HOLSTEINS are headed by the richly-bred bull, **Sir Mercena's Favorit Dam, Favorit 7th, and sire's dam, Mercena 3rd**, have records averaging 23 1/2 lbs butter in 7 days—85% fat. Young bulls out of Advanced Registry cows; also young females. **F. O. DEWITT, Burgessville, Ont.**

RIVERSIDE HOLSTEINS For sale: Eight young bulls from 3 to 8 months old, out of Record of Merit cows, sired by Johanna Rue 4th's Lad and Sir Pi-tertie Poeh DeBoer, whose dam and sire's dam average in official test 25.87 lbs. butter in 7 days, and 87.5 lbs. milk 1 day. **J. W. RICHARDSON, Caledonia, Ont.**

HILTON STOCK FARM—Holsteins. Oatswolds and Tamworths—Present offering: 80 young cows; a nice lot of young pigs; few boars six months old, and sows in pig. **R. O. MORROW & SON, Hilton P. O. Brighton Tel. and Stn.**

Grove Hill Holstein Herd Offers high-class stock at reasonable prices. Only a few youngsters left. Fair not sold. **F. R. MALLERY, Frankford, Ontario. G. T. B. and C. O. Railway connections.**

Homestead Holsteins Yearling bulls for sale, out of cows with records from 16 to 21 lbs., and sired by **Rettie Bros'** famous bulls, **Cornelius Poeh** and **Count Mercena Poeh**. Write for prices. **G. & F. Griffin, Box 43, Burgessville, Ont.**

FOR QUICK SALE.—Choice registered Holstein bull calves at \$25.00 each, sired by Prince Gretqui De Kol, whose dam has an official record of over 18 pounds at three years old. Express paid anywhere in Ontario. **W. A. BRYANT, Cairnform, Ont.**

ROCK SALT for horses and cattle, in ton and car lots. **TORONTO SALT WORKS, TORONTO.**

Trout Run AYRSHIRES and POULTRY I imported bull calf, 2 August bull calves from imported stock, 1 May bull calf. Females all ages; heavy milkers and from heavy milking stock, with good tests. Also Shropshire ram lambs, Buff Orpingtons, B. P. Rocks, B. Leghorns, Mammoth Pekin ducks at \$1.25 each. Toulouse geese, \$6 per pair. Prices very reasonable, considering quality. For particulars write: **William Thorn, Lynedoch, Ontario, Trout Run Stock Farm.**

SHANNONBANK Ayrshires and Yorkshires—Am now offering 2 young bulls 10 months old, and half a dozen heifer from 6 to 12 months of age, bred from producing, show sire and dams. Yorkshires, both sexes, imp. in dam sire and dam, different ages. **W. H. TRAN, Cedar Grove P. O., Locust Hill Sta., C. P. R.**

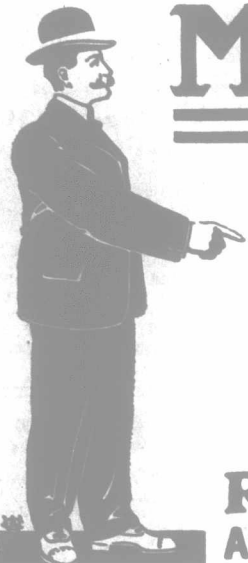
Hillview Herd of Prizewinning AYRSHIRE CATTLE. All animals bred and carefully selected for size, constitution, long tests and deep-milking qualities. Select animals of both sexes, imp. in dam sire and dam, different ages. For further information and prices write **A. KENNEDY & SON, Hillview Stock Farm, Vernon, Ont. Winchester Station, C. P. R.**

D. M. Watt, St. Louis Station, Quebec, breeder of **HIGH-CLASS AYRSHIRES** Canadian and Scotch-bred. All of deep milking qualities.

AYRSHIRES FROM A PRIZEWINNING HERD Have some nice bull and heifer calves for sale at reasonable prices. For particulars, etc., write to **W. M. STEWART & SON, Campbellford Stn., Menie P. O., Ont.**

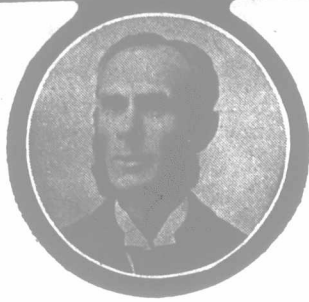
METAL EAR LABELS with name and address and numbers. No trouble to know your stock. Write for free sample. **F. G. JAMES, Bowmanville, Ont.**

RAW HIDES, SKINS, & C. CONSIGNMENTS SOLICITED. Write for LATEST PRICE LIST. **E. T. CARTER & CO., TORONTO ONT.** **FURS** The Largest WOOL, HIDE & FUR HOUSE in Canada



Mr. FARMER

Do You
Know
PROF.
SHAW



The Great
LIVE
STOCK
Authority



READ WHAT HE SAYS
ABOUT STOCK FEEDS AND STOCK FEEDING

Professor Thomas Shaw is one of the world's greatest authorities on feeding and care of live stock. He will be recognized as one of the old time Guelph Agricultural College Professors and one of the best known feeding authorities. He has devoted nearly fifty years of his life to scientific feeding experiments, the results of which have saved our farmers many millions of dollars. He is the author of numerous text books which are in daily use in all agricultural schools.

On the subject of feeds and feeding here is some plain, practical talk by Prof. Shaw. Every farmer will do well to tuck this up in his feed barn. Put it where you can follow its teachings literally—word for word—because you cannot get any better advice on this important topic. He says:

1st.—“A mixed feed of grains, corn, oats and barley, (ground and properly balanced, that is, the right quantities of each to produce a feed that contains the proper nutritive elements, protein carbohydrates and fat) will give better results and for a longer period than any one grain of equal or similar nutritive character. The reason is plain. They form a feed that supplies power, energy, heat, life, flesh and fat in the correct form from which the animal derives the greatest benefit. Again stock will not tire of a mixed ration and hence relish it better.

2d.—“A mixed grain feed of corn, oats and barley fed for meat or milk production in ground form, mixed with fodder or ensilage will effect a *saving of 20 per cent in feed* over the usual method of feeding whole grain, besides producing far greater returns in milk and meat.

3d.—“No single grain furnishes a perfectly balanced ration for farm stock.

4th.—“Corn, oats and barley, *properly blended*—that is, *balanced* as regards nutritive value, make an ideal grain ration for horses, cattle, sheep and swine, in fact, one that cannot be easily surpassed.

5th.—“Outside the corn belt a mixed ration of ground corn, oats and barley, and sometimes bran, should be a standard grain ration for meat and milk production and also for heavy farm horses.

6th.—“Corn, oats and barley in a properly balanced ground ration forms a feed that furnishes the work horse with flesh, fibre and muscle making tissue, enabling him to stand hard work and maintain good life and flesh.”

Our own feed experts have worked along similar lines, and we have produced a feed such as Professor Shaw recommends. It is—

Schumacher Stock Feed

a perfectly balanced ration of the best feeding parts of Corn, Oats and barley products. This feed is the result of practical experience. There is not a particle of theory about it. We have watched the effect of various feeds upon horses in daily use on the farm, on the road and in the lumber camps; upon market, breeding and dairy cattle; upon sheep and hogs. Schumacher Stock Feed is the result of these observations and experiments. It is the feed that produces the greatest net results in dollars and cents.

Schumacher Stock Feed furnishes feed variety. This means that live stock of all kinds will relish it better and lick up the last morsel. It furnishes in the correct proportions the elements that make flesh, bone, muscle,

tissue, fat and energy. It puts the bodily organism into condition to produce *more milk, more meat, more power*, at a lower cost than you have heretofore thought possible.

Feeding whole grain is like throwing money away, because a large percentage passes through the animal in an undigested condition. You can sell your grain and buy Schumacher Stock Feed and make money by the transaction. It is finely ground and thoroughly kiln-dried. Nothing is lost or wasted in the process of digestion. Try Schumacher Stock Feed for 30 days and you will agree with thousands of other progressive feeders that it is truly *the feed to feed for any need for every breed*. It is sold only in sealed and branded sacks with the guaranteed analysis on every sack.

ALL GOOD DEALERS SELL IT. IF YOUR DEALER DOES NOT HAVE IT, WRITE TO US.

The Quaker Oats Company Peterborough, Ont.

Brampton Jerseys!

Select your stock bull or family cow from Canada's most famous and largest Jersey herd.

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

Jerseys 2 Extra Choice Young Bulls For Sale, 8 and 9 months old, grandsons of the great Financial King, out of large, heavy-milking dams. Inquiries solicited. **ARTHUR H. TUFTS,** Box 111, Tweed, Ont.

Sheep Breeders' Associations.

American Shropshire Registry Association, the largest live-stock organization in the world. G. Howard Davidson, Pres., Millbrook, N. Y. Address correspondence to **MORTIMER LEV BRING,** Secretary, Lafayette, Indiana. or

SHROPSHIRE SHEARLING EWES

for sale, bred to high-class imported Butlar ram.
GEO. HINDWARSH, AILSA CRAIG, ONTARIO.

Heien was watching some flies on the window-pane, when she called to her mother: “Mama, come and see if this is the bosom fly!”
“The bosom fly, child! What kind of a fly is that?”
“Oh—the one they sang about in church last Sunday—let me to thy bosom fly.”

Shropshires and Cotswolds

I am now offering 35 shearling rams and 50 shearling ewes, also an extra good lot of ram and ewe lambs from imported Minton ewes and Butlar ram.

JOHN MILLER,
Brougham P.O. Claremont Stn., O.P.R.

WHEN WRITING ADVERTISERS
PLEASE MENTION THIS PAPER

FURS WANTED IN ANY QUANTITY OF ALL KINDS HIDES

WRITE FOR
PRICE LIST

SHIPMENTS
SOLICITED

JOHN HALLAM III FRONT ST. EAST TORONTO

Farnham Farm Oxford Downs

We are now offering a number of select yearling rams and ram lambs, sired by imported ram, for flock headers; also yearling ewes and ewe lambs. Price reasonable.

Henry Arkell & Son, Arkell, Ontario.
Arkell, C. P. R.; Guelph, G. T. R.

FAIRVIEW SHROPSHIRE

We wish our customers a prosperous New Year. Allow us to heartily thank you for your many kind words of appreciation of sheep sent in 1907. We congratulate ourselves in not having a single complaint of sheep sent out all the year. We still have a few good ewes and ewe lambs, bred to or sired by our famous champion rams, **J. & D. J. CAMPBELL, Fairview Farm, Woodville, Ont.**

SHROPSHIRE

Choice breeding ewes for sale at reasonable prices. White Wyandottes at all times.
W. D. MONKMAN, BONDHEAD, ONT.

Southdowns

FOR SALE: 2 imported prizewinning rams, and 60 home-bred and imported ewes. **COLLIES.**—Puppies by champion sire, and out of prizewinning dam.

Robt. McEwen, Byron, Ont.

QUESTIONS AND ANSWERS. Miscellaneous.

FROZEN WHEAT FOR POULTRY.

Would frozen wheat be good for to give hens to make them lay, such as they are shipping from Manitoba now?

W. A. B.

Ans.—Yes.

LIME WATER—POULTRY BULLETIN.

1. I find a recipe for the cure of indigestion in calves, and I find lime water is one of the ingredients. I would like to know just what lime water is, and how it is made.

2. To whom should I write for a copy of Bulletin No. 54 on the management of poultry?

W. C.

Ans.—1. Lime water is made by slacking a little lime in a pail, then filling the pail with water, and thoroughly stirring it. Then allow it to stand, and the clear water on top is lime water. The quantity of lime to a given quantity of water is not material, as the water will dissolve only a certain quantity, and the undissolved lime will sink to the bottom. Add to the milk about one-quarter of its bulk of lime water.

2. Bulletin No. 54, on the “Breeding, Feeding and General Management of poultry,” may be had on application to Dr. Wm. Saunders, Director Experimental Farms, Ottawa, or to A. G. Gilbert, Poultry Manager, Central Experimental Farm, Ottawa.

MINORITY.

1. Until what age is a son compelled to stay at his father's home?

2. Can the father compel the son to work on the farm?

3. What is the penalty for a son not of age leaving the parental home?

4. Is a son entitled to a dowry on coming of age?

5. Where could the seed of ginseng root be got, and how could it be grown? Ontario.

Ans.—1. Twenty-one.

2. Yes.

3. The father may compel the son to return, using such reasonable force as may be necessary for the purpose; and he may also, in the exercise of corrective authority, administer a moderate chastisement.

4. No.

5. The seed may be had from seedsmen advertising in this journal. The seed should be sown in the fall in a carefully-prepared bed, in rows two or three inches apart, and set one or two inches apart in the rows. One ounce of seed will sow about ten square feet. A book on “Ginseng Culture” may be ordered through “The Farmer's Advocate” office, which will give far more information than can be given at this time.

ARE COWS SUCKLING CALVES SLOW TO COME IN HEAT.

1. I would like a little information on putting two calves on one cow, and letting them suck. People tell me the cows will not come in heat, and we will not be able to get them in calf again. Is this so? Or is there not a certain day after the cow has calved on which she could be bred again?

2. How many cattle will a silo 12 x 30 feet feed, and how many tons will it hold?

M. S.

Ans.—1. Cows that are suckling calves are generally slower to come in heat than are those milked by hand, and occasionally a cow fails to come in season while nursing. If nursing two strong calves, the draft upon her would be somewhat greater than in nursing one, and she might be slower coming in heat. Generally a cow being milked by hand will come in heat in a month to six weeks after calving, if she is in good condition and well fed. Cows nursing calves generally take two months, but there are exceptions in each class. There is no certain day in which a cow may be bred, unless she is in heat in the regular way.

2. A circular silo 12 x 30 feet will hold about 80 tons of corn silage, if well tramped as it goes in. This will feed about twenty cows seven months, allowing 40 pounds per cow per day, which is liberal feeding in connection with hay and a light ration of meal and bran. Allowing for a yield of fifteen tons per acre, which is a fairly good crop, this would take about six acres of corn.

How Is Your Cold?

Every place you go you hear the same question asked.

Do you know that there is nothing so dangerous as a neglected cold?

Do you know that a neglected cold will turn into Chronic Bronchitis, Pneumonia, disgusting Catarrh and the most deadly of all, the "White Plague," Consumption.

Many a life history would read different if, on the first appearance of a cough, it had been remedied with

Dr. Wood's Norway Pine Syrup

This wonderful cough and cold medicine contains all those very pine principles which make the pine woods so valuable in the treatment of lung affections.

Combined with this are Wild Cherry Bark and the soothing, healing and expectorant properties of other pectoral herbs and barks.

For Coughs, Colds, Bronchitis, Pain in the Chest, Asthma, Croup, Whooping Cough, Hoarseness or any affection of the Throat or Lungs. You will find a sure cure in Dr. Wood's Norway Pine Syrup.

Mrs. C. N. Loomer, Berwick, N.S., writes: "I have used Dr. Wood's Norway Pine Syrup for coughs and colds, and have always found it to give instant relief. I also recommended it to one of my neighbors and she was more that pleased with the results."

Dr. Wood's Norway Pine Syrup 25 cts. per bottle at all dealers. Put up in yellow wrapper, and three gold stars the trade mark. Refuse substitutes. There is only one Norway Pine Syrup and that one is Dr. Wood's.

LARGE ENGLISH YORKSHIRES



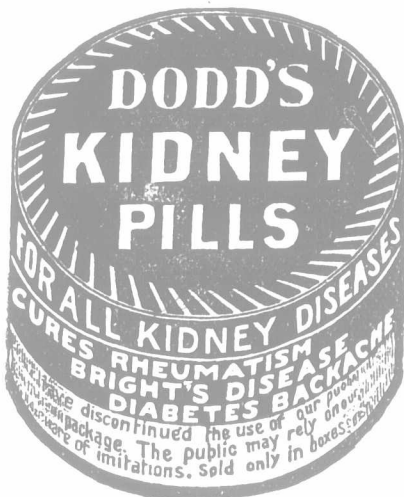
Pigs of the most improved type of both sexes all ages, for sale at all times. We have more imported animals in our herd than all other breeders in Canada combined. We won more first prizes at the large shows this year than all other breeders combined. We won every first but one and all silver medals and Bacon prizes at Toronto and London, and at St. Louis we furnished all the first-prize hogs in the breeding classes except two; also supplied both champion and grand champions. Prices reasonable.

D. C. FLATT & SON, Millgrove, Ont.

For Sale—Ohio Improved Chester Whites, the largest strain, oldest established registered herd in Canada; young sows in farrow; choice young pigs, six weeks to six months old; pairs not skin; express charges prepaid; pedigrees and safe delivery guaranteed. Address E. G. GEOFFREY, Putnam, Ont.

AND THEY WONDERED.

At a banquet, held in a room the walls of which were adorned with many beautiful paintings, a well-known college president was called upon to respond to a toast. In the course of his remarks, wishing to pay a compliment to the ladies present, and designating the paintings with one of his characteristic gestures, he said: "What need is there of these painted beauties when we have so many with us at this table?"



DODD'S KIDNEY PILLS

CURES ALL KIDNEY DISEASES

RHEUMATISM BRIGHT'S DISEASE DIABETES BACKACHE

These pills are the only ones that will cure the above diseases. They are sold in boxes of 100 pills. The public may rely on the genuineness of the package. The public may rely on the genuineness of the package. The public may rely on the genuineness of the package.

QUESTIONS AND ANSWERS. Miscellaneous.

RE DRIPPING CHIMNEY.

Editor "The Farmer's Advocate":

Have seen several enquiries in "The Farmer's Advocate" lately re the drip from house chimneys. In the fall of 1905, I purchased an air-tight heater, and, after about three months' use, the chimney began dripping, and now the chimney is nearly spoiled. The drip is nearly continuous, and smoke issues through at times. This chimney gave us no trouble formerly. The chimney to the cooking stove or range, under the same conditions, does not drip at all; plenty of air, which cannot be given in the air-tight or hot-blast.

EXPERIENCE.

[Note.—See answers re this difficulty by Mr. Day in this issue.]

DOSE OF BELLADONNA.

I always read your answers to questions in the "Veterinary" department with interest, as they are instructive and helpful in many respects. Upon looking them over this morning, I find that you must have made a mistake in the answer to question 5, "Miscellaneous," on page 100, January 16th issue. The quantity of belladonna would be about eight times too much, I would think. Perhaps it is a typographical error, but everyone wouldn't know, so I thought I would write these few lines, as you always want communications that would be of interest to your readers. Hoping this will not be trespassing on your good nature.

M. W. S.

[Note.—We are always pleased to have readers call our attention to possible errors. Mistakes will occur in spite of the greatest care. In this case, however, the prescription was correctly given. Our friend will observe, on consulting the formula, that it was fluid extract of belladonna that was recommended. The standard dose of this extract for the horse or ox is 1 to 2 fluid ounces. Of the solid extract, the dose for the horse is given in veterinary works as 1 to 2 drams. Doubtless, it was the dose of the solid extract that our correspondent had in mind.—Editor.]

STOCK FOR 100-ACRE FARM—FARM HORSES.

1. In your opinion, how many head of cattle, etc., should the average 100-acre farm in this county carry?
2. Would the following be too many: 5 horses, 2 two-year-old colts, 3 yearlings, 12 cows, 4 heifers, 6 calves, 2 feeders, 6 sheep and produce to be sold as yearlings, 1 ram, 2 brood sows and 200 hens? Feed and sell about twenty fat pigs a year; milk all used for butter; good silo.
3. How would you crop the farm, that is, how many acres pasture, hay, oats, etc., would be required to feed the stock, supposing an average crop year and farm?
4. Would there be a surplus of any product, that is, hay or grain, left for sale?
5. What are the main objections to the Percheron horse, are they not better or more suitable farm horses than the Clydesdale or Shire?
6. Are Suffolk Punches not more suitable than the Clydesdale or Shire?

C. L. B.

Ans.—1. One mature animal for each three acres would be very fair. Some specialists, by extra manuring and growing soiling crops have been able to increase the number of stock kept to two head per acre.

2. Rather too many, unless silage or other soiling crop were fed in the fall months.

3. Forty to fifty acres pasture, sixteen of hay, eight of corn, and twenty-four acres of oats and barley.

4. Not likely. That would depend on how stock was fed in winter.

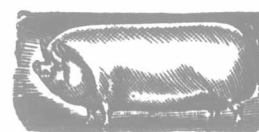
5 and 6. Any of the breeds named make good farm horses. It is largely a matter of personal fancy or choice, and of the demand and market prices obtainable. We know of no valid objection to either the Percheron or the Suffolk Punch as farm horses. They are easily kept, strong, healthy, as free from unsoundness as any, and have excellent dispositions.

Elmhurst Berkshires

We have a number of choice young boars ready for service. Some imported, others imported in dam—also from imp. sire and dam—which we will price right for quick sale. Write us for what you want.

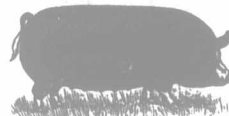
H. M. VANDERLIP, Importer and Breeder, CAINSVILLE P. O., BRANT CO.

YORKSHIRES of Choicest Type and Breeding.



I have on hand 75 brood sows of Princess Fame, Cinderella, Clara, Minnie, Lady Frost and Queen Bess strains. My stock boars are true to type and richest breeding. For sale are a large number of sows bred and ready to breed, boars fit for service, and younger ones of both sexes. Pairs and trios not akin J. W. BOYLE, P. O. Box 563, Woodstock, Ont.

ENGLISH BERKSHIRES



Boars ready for use. Choice sows to farrow in March and April. Shorthorns of both sexes.

JOHN RACEY, Lennoxville, Que.

Glenburn Herd of Yorkshires

Winner of gold medal three years in succession. 6 young boars from 5 to 9 months; also 75 young sows, from 6 to 12 weeks old.

David Barr, Jr., Box 3, Renfrew, Ont.

Large English Berkshires

For sale from imported stock. Boars with pig and pigs for sale all ages. At reasonable prices. Guarantee satisfaction. Boars and sows delivered at Woodstock station, O. P. R. or G. T. R.

JOSHUA LAWRENCE, Oxford Center, Ont.

MAPLE GROVE YORKSHIRES



Imported and Canadian-bred boars and sows of the best possible breeding, with lots of size and quality. A fine lot of both sexes and all ages. Everything guaranteed as represented. Prices reasonable.

H. S. McDIARMID, Fingal P. O., Shedden Sta.

PINE GROVE BERKSHIRES

Bred from imp. and Canadian-bred sires and dams, which are of choicest breeding. Stock, all ages, for sale. Some imp. in dam. Guaranteed as represented.

W. W. BROWNIDGE, Milton, C.P.R. Ashgrove P.O. Georgetown, G.T.R.

MONKLAND YORKSHIRES

are the easily fed, quick maturing kind. The sort the farmers want. All ages for sale. 100 sows bred now.

JAMES WILSON & SONS, FERGUS, ONTARIO.

Large White Yorkshires!

Am offering at the present time a choice lot of boars ready for service, from imported stock, also young pigs of both sexes, not akin. Prices right, and quality of breeding unequalled. Write or call on

H. J. DAVIS, WOODSTOCK, ONT.

NEWCASTLE TAMWORTHS.

Oldest established herd in Canada. For sale: 12 young sows sired by Colwell's Choice and Newcastle Warrior, both Toronto champions, and bred to Imp. Chalderton Golden Secret; also younger ones, both sexes, by him, and out of dams by above Cha. sires. Several boars fit for service. Will sell right for quick sale.

A. A. COLWILL, NEWCASTLE, ONT.

MOUNT PLEASANT HERD of Tamworths and Holsteins.—For sale: Pigs of either sex, from 6 weeks to 7 months; pairs not akin; also bull and heifer calves under 5 months. Phone in residence. BERTRAM HOSKIN, The Gully P. O.

OAKDALE BERKSHIRES

Largest Berkshire herd in Ontario. Stock boars and several brood sows imported. For sale: Sows bred and ready to breed, boars ready for service, and younger ones, all ages, richly bred on prize-winning lines and true to type. Everything guaranteed as represented. Long distance phone. L. E. MORGAN, Milliken P.O., Co. of York.

Yorkshires and Tamworths—Either breed, any age, both sexes; sows bred and ready to breed. Yorkshires bred from imp. sire and dam. Tamworths from Toronto winners. Pairs not akin. As good as the breeds produce. CHAS. CURRIE, Schaw Sta. C.P.R. Morriston P.O.

Meadowbrook Yorkshires.

Young stock of both sexes. A number of sows old enough to breed, all sired by Imp. Dalmeny Topman. Everything guaranteed as represented. J. H. SNELL, Hagersville P.O. & Station.

LARGE ENGLISH YORKSHIRES.

We have a limited number of choice young pigs for sale, bred from our choicest sows and got by the imported boars, Dalmeny Joe 13577 and Broomhouse Beau 14514. Pigs from the latter won all the first prizes at the Ottawa Fat Stock Show last March for the best dressed carcasses, and sweepstakes over all breeds or grades. We guarantee satisfaction in all mail orders. JOSEPH FEATHERSTON & SON, STREETSVILLE, ONT.

SUNNYMOUNT BERKSHIRES

Boars fit for service sows safely in pig, young sows 4 months old, young sows and boars 3 months old, imported in dam.

JOHN McLEOD, Importer and breeder, Milton P. O. and Sta., C.P.R. & G.T.R.

Willowdale Berkshires

are unsurpassed for quality and breeding. Young stock, all ages, for sale reasonable. Satisfaction guaranteed. Long distance telephone in residence.

J. J. WILSON, Importer and Breeder, Milton P.O. and Station, G.T.R. and C.P.R. When Writing Mention this Paper.

FAIRVIEW BERKSHIRES

Bred from imported and Canadian-bred sires and dams, and bred on prize-winning lines. My brood sows are large, choice animals. Young stock of both sexes. Some sows bred to imp. boars. HENRY MASON, SCARBORO P. O. Street cars pass the door.

Duroc-Jerseys

Boars fit for service. Sows ready to breed. Several sows in pig, also younger ones. Imported Canadian Boy 13097 heads our herd. MAC CAMPBELL & SONS, Harwich, Ont.

Yorkshires

Boars ready for service; sows ready to breed, and bred; young pigs just weaned and ready to wean. Cotswold and Shropshire rams, yearlings and lambs, registered. GEO. M. SMITH, Haysville, Ont.

I CAN CURE YOU WITHOUT DRUGGING

AND YOU CAN PAY WHEN CURED.

You are the man who is weak and wants to be strong.

You have tried drugs and have not been cured, so now you want the cure before you pay.



I am the man who has the means of restoring vigor to weak men.

I know just what my Belt will do, and if I say I can cure you I want no pay till I do so.

Let any man who is weak, broken down, old and decrepit in physical weakness, full of pains and aches, gloomy, despondent and cheerless—any man who wants to be stronger and younger than he feels—let him come and tell me how he feels, and if I say that I can cure him he can depend upon it. This is to men who are afflicted with nervous debility, who get up tired in the morning, have Backache, Rheumatism, Stomach, Liver, Bladder and Kidney Trouble, who are constipated, or suffering from nerve or muscle weakness or some forms of Paralysis and Locomotor Ataxia. I don't want money that I don't earn. I don't need it, and am not after it. But I am after the dollars that are now going wrong in the quest of health. Look at all the poor wrecks of humanity that are spending all they earn on drugs—dope that is paralyzing their vital organs—that have spent all they have earned for years without gaining a pound of strength for the hundreds of dollars wasted.

That is the money that I am after, because for every dollar I take I can give a thousand per cent. interest to the man who invests it. I have cured so many cases right here that I can prove my claims to you, but if that proof is not enough I'll give you the names of men right near you—where you are. Is that fair? Most of the belts that I am selling now are to men who have been sent here by their friends whom I have cured. I think that is the best evidence that my business is a success from the standpoint of cures, as well as on the dollar side.

Just lately I have received letters of praise from these men who have used my

DR. McLAUGHLIN'S ELECTRIC BELT.

Dr. McLaughlin:

Dear Sir,—Your Belt has done wonders for me. I very seldom get the pains now, and wish I had tried it before, as I can do my work twice as well. I have told several about what the Belt has done. I cannot thank you enough for what you have done for me, and I am sure I would have given twice as much if I only thought it would have done so much good. I have been treated for years by all sorts of doctors, but I have received more benefit from your Belt than all of them, so I tell you I am perfectly satisfied with my investment, and will recommend it to all I can. Again thanking you for your kindness, and all you have done for me, I remain,

Truly yours,

W. ATWELL.

Bolton, Ont.

I don't want your money without giving you value for it. I know it will cure in any case that I undertake. If I can't cure, I'll tell you frankly. You have nothing to lose, for if you wish you can use the Belt entirely at my risk, and if it doesn't cure you it will not cost you one cent. The only condition I impose is that you give me security for the Belt while you are using it, as evidence of good faith on your part.

Give me a man (or woman, for that matter) who has been sick and suffering for years, and taken medicine until the system is all run down and debilitated, the stomach unable to digest the food, and the nerves shattered. My Electric Belt will give new life to every organ, drive out disease and restore health.

I have the grandest invention of the age for weak men; the surest and easiest cure for all nervous and chronic diseases. Its wonderful power is directed to the seat of the nervous system, through which its vitalized strength penetrates into all parts of the body, carrying new life to every function which has been weakened by excess or dissipation, restoring energy to the brain and power to the vital organs. No weak man, no delicate or sickly woman will ever regret a fair trial of my Belt.

Send for My Book Today.

Do you want to feel big, husky and powerful, with your veins full of youthful fire, your eye clear, and your muscles strong and active? If you do, fill out this coupon and send it to me and I will send you a book which will inspire you with the courage to help yourself. It is full of the things that make people feel like being strong and healthy, and tells of others like yourself who were just as weak once, but are now among nature's best specimens of strong and healthy human beings. Cut out the coupon and send it to-day, and get this book, free, sealed, by return mail. Call for free consultation. Office Hours, 9 a. m. to 6 p. m. Wednesday and Saturday till 9 p. m.

DR. M. S. McLAUGHLIN,
112 Yonge St., Toronto, Can.

Please send me your book for men, sealed, free.

Name

Address

CUT THIS OUT.

SEND IT TODAY.

GOSSIP.

G. D. WAGER'S SHORTHORNS.

Mr. C. D. Wager, of Enterprise, Ont., whose advertisement of Scotch and Scotch-topped, imported and Canadian-bred Shorthorn cattle has been running regularly in this paper for a couple of years, is one of the business farmers running their farms on business principles. The herd was established several years ago by the purchase of a few Lady Eden, Mayflower and Lavinia-bred females, to which has since been added half a dozen imported cows from Mr. W. D. Flatt, of Hamilton. They are: Winnifred 3rd, a Wimple; Belladonna 2nd, a Bellona; Airy Duchess 3rd, a Broadhooks; Silver Belle, a Village Maid; Byres Orange Blossom, an Orange Blossom, and Robina 2nd, a Rosebud, the whole making an exceptionally choice and fashionably-bred herd. As is well

known, the Lady Edens are the tribe that has done so much good, and produced so many winners for the Hon. John Dryden & Son. The present stock bull is Starry Morning, a Cruickshank Secret, son of Rosy Morning, by the great Merry Morning; he is a roan, thick, even and a mellow handler, put up on show lines. His predecessor in service, and the sire of all the young things, was Lord Banff's Conqueror, by Imp. Lord Banff; dam by Ivanhoe; he was a great show bull, a Toronto winner, and a sire of a high order. Winnifred (imp.) is now suckling a bull calf by him that, if present indications continue until maturity, will make a sure winner. Silver Bell (imp.) has also a very choice roan bull, about ten months old, by him. Airy Duchess (imp.) has also a bull about ten months old, a red, by same sire, that is the right sort. Then there is another red nine-months-old, out of a Lady Eden

bred cow, a good one, all by Lord Banff's Conqueror. In heifers there are five, from one to two years of age, by the same sire. Any of these are for sale, and, at the prices asked, considering the quality and rich, royal breeding, should go soon. Long-distance phone connection.

TRADE TOPIC.

TURNIPS AND SUGAR BEETS.—Mr. J. E. Killen, of Windsor, Ont., an observant traveller of the Wm. Rennie Co., informs us that he noticed, on a recent trip through Guelph, the Magnum Bonum turnip still holds its own in that neighborhood as a hardy variety, possessing fine shape and giving a good, solid weight, well adapted for shipping purposes. A shipper, who sent out ten carloads of turnips in one week to United States points, says: "Chicago asks for

our purple-top and yellow-bottom turnip." Mr. Killen adds that farmers would have better turnips if they would cover them up better, and not expose them to the severe weather.

Rennie's Tankard Cream sugar beet has been exceptionally good this past year, many of the roots weighing over 20 pounds each. It is full of nourishment and a grand feeder for stock that do not take their food readily. With its heavy clean roots and high feeding value, he considers it one of the finest stock-feeding beets known.

There was a young fellow named Allen Tyne

Who proposed to the lovely Miss Ballantyne;

When the lady said, "Yes,"

He said, "Well, I guess!"

Miss Ballantyne's Allen Tyne's Valentine!