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THE FARMER'S ADVOCATE & HOME MAGAZINE

WILLIAM WELD, EDITOR AND PROPRIETOR.

THE LEADING AGRICULTURAL JOURNAL PUBLISHED IN THE DOMINION.

The FARMER'S ADVOCATE is published on or about the 1st of each month. It is impartial and independent of all cliques or parties, handsomely illustrated with original engravings, and furnishes the most profitable, practical and reliable information for farmers, dairymen, gardeners or stockmen, of any publication in Canada.

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Our Monthly Prize Essays.

CONDITIONS OF COMPETITION.

1.—No award will be made unless one essay at least comes up to the standard for publication.

2.—It is not necessary for essayists to agree with our policy, so long as they give sound reasons for differing from us.

3.—The essays will be judged by the ideas, arguments, conciseness and conformity with the subject, and not by the grammar, punctuation or spelling, our object being to encourage farmers who have enjoyed few educational advantages.

4.—Should one or more essays, in addition to the one receiving the first prize, present a different view of the question, a second prize will be awarded, the sum being decided by ourselves in each case, and the essay will appear in the same or in a succeeding issue.

Our prize of \$5.00 for the best original essay on *How should the Farmer Treat his Hired Men, and how can he Employ them most Profitably?* has been awarded to S. A. Leidman, Binbrook, Ont. The essay appears in this issue.

A prize of \$5 will be given for the best original essay on *What Out-door Work should Farmers' Wives and Daughters Perform?* Essays to be handed in not later than May 15th.

A prize of \$5.00 will be given for the best original essay on *The Best Education for Farmers' Sons and Daughters who Remain on the Farm.* Essays to be handed in not later than June 15th.

London, Ont., April 9th, 1886.

DEAR SIR,—I am exceedingly well pleased with your journal, which gives evidence of rapid improvement in every issue. Every person interested in the advancement of stock raising should take it. I appreciate the independent stand that you take in regard to agricultural affairs. Although I may not coincide with all your views, I believe that you have done much good towards the prevention of the spread of contagious diseases among the farm stock of our country. One instance I am well aware of, that your statements were improperly confused. Send the journal as usual.

Yours, &c., J. D. O'NEIL, V.S., 359 Talbot St.

Editorial.

On the Wing.

Lachine is prospectively the most prosperous municipality in the Province of Quebec; it is located ten miles west of Montreal. It is known in history from its rapids, over which the Indian has been celebrated for piloting the St. Lawrence steamers. These rapids and waterfalls tend to make the locality more healthy than other sections. Lachine is now to be more widely celebrated. We were fortunately present on the 19th of March, 1886, when the foundation of the first pier of the most important bridge in Canada was being laid. This bridge is for the C. P. R., and will cross the St. Lawrence. It will be built on the solid rock, no excavations being necessary. It will not be half as long as the Victoria Bridge, and will be constructed at one-fifth the cost. It is over this bridge that the passengers from Australia and China, per the C. P. R., must cross. It will be on the cantilever and truss principles.

Already manufacturers are turning their attention to this locality. For instance, the great Dominion Wire Fence Works Co. have constructed the most extensive works of the kind in the Dominion at this place. The Dominion Bridge Company have also constructed their works here. They claim to have the largest truss roof in this Dominion on their building, 700 feet long, 120 wide, and no internal support but the rafters that form the roof. Cars are arranged so as to move any heavy weight from one part of the building to another. Lachine has been long a favorite summer resort. Now it will rapidly grow, and for many purposes it will be found preferable to Montreal. Here the celebrated Dawes' ales are made. We would advise the Lachineites to prepare for the coming rush, and have all their streets straightened and widened as much as possible.

While here we visited the stock farms of Messrs. Dawes & Co.; first, the herd of about 40 head of Herefords, and these beautiful, docile, thrifty animals could hardly be surpassed for symmetry. Messrs. Dawes spare no expense to procure the best, and to have them cared for. Then the herd of Polled Angus; next the Jerseys, which are the purest stock, imported direct from the Island of Jersey, with milk records and pedigrees to satisfy the most fastidious. On page 137 will be found a group of imported Jerseys, taken from the herd. Angela's Ivy 14743, the head of the herd, imported last year, was selected by Capt. P. LeBrocq, of

St. Mary's. He is by Farmer's Ivy 806 P. S. The following is a list of the prizes taken by Angela's Ivy in Jersey, in 1883: 5th over the Island and 4th Herd Book prize; in Aug., same year, Jubilee Show, 3rd over the Island, 3rd Herd Book, and 2nd Governor's prize. In 1884, 3rd over the Island, 3rd Herd Book, and 2nd Governor's prize; same year, St. Peter's Local Show, 2nd prize, and 1st State prize for a dairy bull, in September, same year; 2nd over the Island, at the Jersey Farmers' Association, when shown with five of his yearling heifers. In 1885, 2nd over Jersey, 2nd St. Peter's Show, and 2nd State prize. Angela, late Queen of Darkness, the dam of Angela's Ivy, has taken the following prizes: 2nd over Jersey, 1875; 2nd over Jersey in 1876; 1st in 1877, when she beat Coomasie; 2nd in 1880, all the times shown over the Island, and, as said by a good judge, "One of the best cows I ever saw." Badier Bess 30001, imported in 1884, is by Farmer's Glory 274 P. S., 5196 A. J. C. C.; her dam, St. Lawrence Bess 2124, was by Welcome 172. Badier Bess is an extra good butter cow. Napier's Riston 32801, imported last year, has calved, and gives promise of being a very good cow; she traces on the sire's side to Merry Boy 61 P. S., Stockwell 2nd, 24 P. S., etc., etc. Neptune's Pride 814 P. S. and 32803, imported last year, dropped her first calf on this side in September last; she gives a good quantity and very rich milk. Gay Lass 34817 A. J. C. C., also imported last year, is now just fifteen months old, and on her sire's side traces back to Duke 76 P. S. and Coomasie 1442, and on her dam's side to Stockwell and Noble 104. Besides the above mentioned, there are several fine aged cows, two years old, and yearling heifers and heifer calves, all imported, and tracing to some of the best stock on the Island, as the Welcomes, King of St. Peters, Wolesly, etc., etc. There are also five yearling imported bulls, and two bull calves; three of the above yearling bulls are by Welcome 366 P. S., and all are entered in American Jersey Cattle Club Record.

Next we were shown the Clydes, mares colts and horses; but to begin to describe the beauty of the males and action of his stud of horses, mares and geldings—of his carriage and trotting stock, would occupy this whole paper; the animals must be seen to be fully appreciated. Mr. Dawes was just about shipping several of his surplus stock of carriage and trotting horses to New York when we were there.

April 17th, on board steamship Parisian, for Liverpool.—Here we meet Mr. T. Ballantyne,

M. P., the President of the Western Dairy-men's Association; also Mr. D. M. McPherson, of Lancaster. Both of these gentlemen are sent by the Ontario Government to represent the dairy interests of Ontario. Mr. Ballantyne is a well known cheese buyer and cheese maker in the West. Mr. McPherson is the most extensive manufacturer of cheese in this Dominion; he is a native of Canada, aged 37. At the age of 21 he commenced cheese making with only eight cows; he read about the business, attended dairymen's conventions, observed and noted failures and successes very minutely; he now owns 66 cheese factories; he made over five million pounds of cheese last year, using the milk from about twenty thousand cows. The cheese realized over four hundred thousand dollars, which sum was principally paid to his eighteen hundred patrons. The patrons are the farmers who supply the milk; they supply the milk of about twelve cows each on an average, some sending milk from a larger number and some from a less number. Mr. McPherson's factories are all in the counties of Glengarry and Huntingdon. He has everything regarding the manipulating of the milk, the manufacture of cheese and marketing of it, all systemized in the best of order. He has his territory laid out and controlled by a general manager, who has it again laid out under three instructors. These men have to visit each factory at least once a week, and examine everything about the manufacture and management of each factory. One cheese maker is employed at each factory, who must do his duty properly or immediately be discharged. A strict scale of rules are laid down, so that everything must be managed with the strictest regard to rectitude, the thermometer and the clock. Returns are all daily tabulated and sent weekly for Mr. McPherson's inspection; thus he can exactly tell what quality of cheese he has. He says he has his plans down to such a basis as to be able, by giving notice, to have just such a quality of cheese as any dealer may require. The cows average to the owners, or patrons, as they are termed, from \$20 to \$40 per season. A large number of the farmers had their farms mortgaged before they adopted this dairying system, and despite the greatest care and economy, could not see their way to redeem them. The cheese has paid off their encumbrances, and the farmers that have adopted cheese making are now doing well, making money and improving their estates every year. There is a marked improvement in the amount of cheese made per cow, and an improvement in the quality of the cheese.

Every year there are more farmers in other localities asking him to establish more factories, but Mr. McPherson considers he has quite as many as he can now attend to. He says he has much to learn yet, and at the same time he says that in Canada dairying is carried on in a better, more intelligent, scientific and practical manner than it is in any part of the world. Let the Danes, the English, Scotch or Irish pick up the gauntlet if they dare. We believe our practical dairymen can hold their own on this point, and on an average are as intelligent as the best of them. Perhaps two great causes of Mr. McPherson's success have been his confining himself to his business—that of a cheese manufacturer—and punctuality; for instance, the cheese of the first three months of every

season's make are sent to market just as soon as they are fit to ship, that is, three weeks after being made, without any regard to the fluctuation of the markets. Every week the shipments are made and sales effected, thus leaving the speculative part to others, in which, if farmers once begin, they are pretty sure to rue sooner or later. Mr. McPherson now makes about one-twelfth part of the whole of the cheese made in this Dominion. If any manufacturer in any part of the world makes half as much, we should like to hear of it.

Farmers' Clubs.

Middlesex Agricultural Council.

[This Council meets on the third Saturday of every month at 2 o'clock p.m., in the office of the FARMER'S ADVOCATE, 360 Richmond street. All communications should be addressed the Secretary, Mr. Henry Anderson, Wilton Grove, Middlesex Co., Ont].

The regular monthly meeting of this Council met in the office of the FARMER'S ADVOCATE on the 17th ult., President Leitch in the chair.

Mayor Hodgson desired to have a correction made in his reported remarks on horses at the previous meeting. He was made to say that "the mare, if not working, should be kept mostly in the stable for a month before service;" whereas the expression should be "before foaling"—instead of "before service."

After routine, the President read the following paper on

"THE COW VERSUS THE STEER."

Amongst the various industries the Canadian farmer has to follow, the rearing of animals and the manufacturing of their products must be one of his leading pursuits, amongst which dairying and steer raising for beef take a leading part in the economy of the farm.

As necessity compels the greater part of mankind to labor for their bread and butter, it would be well for those who earn their bread by the sweat of their brows to occasionally stop and reflect, in order to see if the course they are pursuing is the best to secure that end in the management of their farms.

As we frequently hear the dairyman and the steer grower each contending that his branch of the business is the more profitable, it would be well to compare these industries and see what the steer and the cow, under favorable conditions, are able to produce for their owners.

Now, we know that the occupier of 100 acres of land, with 70 or 80 acres cleared, and in a good state of cultivation, is able to keep ten cows, summer and winter, without diminishing the other crops of the farm in the least. Let us now devote these ten cows to the raising of calves for beef, and let them be fed for the first six months on 20 lbs. of new milk daily, which ought to produce a gain of 2 lbs. of growth per day, and this growth should be continued until the steer or heifer at 24 months old should weigh something like 1,460 lbs., which, at 5 cents per lb., would be for ten head, \$730. This would be the average value of cattle for the last five years; but the farmer raising steers would the second year have 20 head to graze in place of ten for the dairyman. Grazing ten steers six months at \$1 per month, would be \$60, to be deducted from the value of the steers in favor of the dairyman, which would leave the steers worth \$670 profit for two years growth. I am well aware that some parties are in the habit of purchasing steers at three years old and finishing them off, and making sometimes a handsome profit on them, but that is not the cost of the beef.

We will now take the ten cows and see what they will produce in two years for their owners. A cow milking 20 lbs. of milk a day for six months would yield 3,640 lbs.; for four

months more 12 lbs. per day, 1,452 lbs.; total milk for one year, 5,092 lbs. Double this and you will find 10,184 lbs. to be the cow's product for two years. Cheese factories have paid their patrons an average of 80 cents per 100 lbs. for the past five years, which would leave the value of the milk \$81.47; add value of whey, \$4.60; interest on money, \$5.60; two deacons' skins, \$1.30, making a total in two years the sum of \$93 to the patron, after paying the manufacturer the sum of \$22.50. Add this latter sum to the patron's money, and you will find the total product to be \$115 per cow. Multiply this by ten, the total earnings of your cows will be \$1,155, \$930 being the patron's share, which would leave the patron \$160 in favor of cows more than steers for his two years operations, besides benefiting the country to the amount of \$225 more for manufacturing the same. Besides, the winter milk could be used for butter making, which would enhance the value of the milk \$56 more than is given above. Calculating on the basis of summer milk, which would make the products of ten cows for two years amount to \$986. Subtracting \$670 from \$986, would leave \$226 in favor of the cows.

I have not credited the cows that raised the steers with what milk they would give in winter, which would not be more than would pay for wintering them. Besides, the farmer raising steers in this way would have in his stables 30 head to feed the second winter against the dairyman's ten cows, which more than swallows any profit he might derive from their milk.

The foregoing calculations were only made from the ordinary run of cow's milk that is sent to the cheese factories, and could easily be exceeded; but it shows to the intelligent farmer where his profit lies. I often hear the remark that we should diversify our industries, and that we should not depend on one product too much. True, but where is the economy or patriotism in feeding your hay or grain to a steer and realizing from it 6 cents per lb., while the same amount of feed would make a pound of butter worth in the market 20 cents per lb., while the milk would pay for the extra labor?

MR. LITTLE—So you would turn farming into specialties, would you?

MR. LEITCH—What I mean is that no farmer should be tinkering at everything, making a special study of nothing. It doesn't pay to keep a few half starved cows and make butter worth 8—10 cents a pound, whereas by knowing how, you can get 18—20 cents for your butter. There are a few smart men, like Mr. Simmons, who make money in steers, for they keep a large number of thoroughbreds, and buy up all the cheap store steers they can clap their eyes on besides. A farmer may make a specialty of as many branches as his capital and brains will permit.

FRANK SHORE—I have great faith in specialties. There is more profit in making a specialty of breeding and feeding a few good animals than making a specialty of half starving a large herd. If by making a specialty of stock raising for several years, the land is brought into a fertile condition, then more attention might be paid to grain growing. I believe the steer men are making the most money.

MR. LITTLE—I don't believe in specialties. I can turn off several steers each year at a profit, and keep several cows besides.

JOHN WHEATON—Farmers should raise their own cows; they can be raised more cheaply than bought.

RICHARD WHETTER—I raise whatever I get; if my cows give me bull calves, I raise them as steers, and when they give me heifer calves I raise them into cows. I can raise good enough steers on skim-milk, bran and oilcake. I re-

cently sold two 3-year-old steers which weighed 3,200 lbs., and two heifers which weighed 2,890 lbs.

FRANK SHORE—I sold two steers weighing 1,100 lbs. each for \$100; one was 18 months old and the other 19.

MR. SIMMONS—I make one cow raise two or three calves, letting them suck and run on the grass. They suck for five or six months and get nothing but milk and grass. There is money in raising steers in this way, without counting the manure.

PRESIDENT LEITCH—The average price in my locality for common 3-year-old steers is \$45 each. I keep 20 cows on 200 acres, and raise 600 bushels of wheat. Any farmer can raise his herd to 10 cows per 100 acres without diminishing the quantity of wheat, and by keeping this number he can make a specialty of dairying. I can raise better cows than I can buy. I have cows which give 50 lbs. of milk per day, although I have set down 20 lbs. as the average. By making a specialty of butter-making, you can get a good price for your butter, whereas by keeping only a few cows, making dairying a side issue, the butter produced becomes a disgrace to the market.

FEEDING RATIONS.

Several members gave the rations which they fed their cows. Mr. Little fed 2 quarts of a mixture of corn, oats and barley with 2 qts. of bran per head per day, which he gradually diminished as the grass increased. This ration was mixed with cut hay and straw, and fed in a moist condition. Mr. Whetter fed 40 lbs. of mangels, 2 qts. bran, and 2 qts. shorts per head per day, and fed the hay uncut. Mr. Leitch fed 4 to 5 qts. of a mixture of oats and peas, mixing two parts oats to one part peas and then grinding. He fed the hay uncut. Frank Shore fed 5 qts. of a mixture of bran, shorts and oats, with cut hay and straw, all mixed together and moistened.

DAIRYING.

The President called the meeting to order, stating that there was another subject on the programme which must not be overlooked. He referred to the prevailing practice of sending milk to the cheese factories. He said our manufacturers were abreast of the times in the art of cheese-making, and yet the quality of our cheese was not what it might be. The milk must be sent to the factories in better condition. Greater cleanliness should be observed; the cows should be kept in a strictly healthy condition, and the water should be clean and pure. There was a good deal of nonsensical talk about "animal odors." His experience was that all foul odors arose from bad feed, uncleanliness or bad treatment of some kind. When the proper conditions were observed, he never had any difficulty with the milk, and never failed to make good cheese. In tainted milk the odors could be driven off by cooling and airing it, either by stirring or pouring from one vessel into another. When turnips were fed, they should be given after milking. The milk utensils should be thoroughly scalded every day. Solid cheese could never be obtained from sour milk. The practice of adding salt to the milk to preserve it should be abandoned; for when the cheese-maker put in the usual quantity the cheese became too salt for market. Cows at this season should be liber-

ally fed, and the market value of grains could be doubled by feeding them to the cows, for half-starved cows require a considerable time, after being turned on the grass, to get into proper condition for giving milk.

ANALYZING MILK.

Letters were sent from the ADVOCATE office asking members to bring in samples of their milk for analysis by the lactoscope, and a good deal of interest was manifested in the process. Amongst other dairymen, Mr. Jas. W. Robertson, the Government inspector of cheese factories, was invited to be present and to bring samples of milk with him. He answered, regretting that he could not attend, but sent samples from six different breeds from the Model Farm.

W. A. MACDONALD explained the process of analysis, and stated that he had examined mostly all the instruments used for the analysis of milk, and found that for cheapness, quickness and accuracy all combined, the Feser lactoscope was the most useful for farmers and dairymen in this country. It was used in some cities for testing for adulterations in milk, and the complete set won the prize at the dairy exhibition in Prag. The quantity of fat and other solids could be determined in a very short space of time. He visited a number of herds which supplied the city with milk, and analyzed the milk from a number of cows; also the milk from three milk depots in the city. The following table showed the result of the various analyses:

TABLE SHOWING THE RESULT OF THE ANALYSES OF THE MILK FROM VARIOUS BREEDS AND GRADES:

BREEDING.	Time Since Calving	Age of cow.	Per-cent- age of Fat.	Name of Owner.
Devon	3 wks.		3%	Model Farm
Jersey	10 days.		5%	"
Galloway	5 mos.		5%	"
Shorthorn Grade	2 "		4 "	"
Guernsey	4 "		5 1/2 "	"
Quebec Grade	5 wks.		5 1/2 "	"
Shorthorn	4 mos.	6 years.	3%	G. Douglas
Shorthorn Grade	6 wks.	6 "	3%	"
Shorthorn	4 "	8 "	4 "	F. Shore.
Shorthorn (Imp.)	4 "	5 "	6 "	"
Shorthorn Grade	5 mos.	3 "	5 1/2 "	R. Whetter
Shorthorn	2 "	8 "	6 1/2 "	Mr. Little.
"	4 "	7 "	4 1/2 "	"
"	4 "	8 "	6 1/2 "	"
Native Cow	2 wks.	3 "	6 1/2 "	D. Leitch.
"	3 "	11 "	4 "	City Dairymen.
"		5 "	4 1/2 "	"
"		4 "	5 "	"
"		7 "	4 "	"
"		5 "	5 "	"
"	1 year.	6 "	5 "	"
"	1 month	6 "	3 1/2 "	"
Shorthorn Grade	9 mos.	6 "	4 1/2 "	"
Ayrshire Grade	4 "	5 "	4 1/2 "	"
Shorthorn Grade	2 wks.	5 "	3 1/2 "	"
Devon	12 mos.	6 "	5 1/2 "	"
City Dairy Depots			3 1/2 "	"

PRESIDENT LEITCH—What is the difference between butter and butter fat?

W. A. MACDONALD—The butter fat, as ascertained by the lactoscope, corresponds with the percentage by chemical analysis, and shows the actual quantity of fat in the milk, no water or solids other than fat being included, while butter contains from 12 to 15 percent of water and small percentages of albuminoids, milk-sugar, and mineral matter; but as an offset against these constituents there is a good deal of butter fat in the milk which does not find its way into the butter, so that, on an average, the difference between the butter and the butter fat is too unappreciable for practical purposes. From dry feed, however, there will usually be a little more butter fat than butter, while cows fed on suc-

culent foods will give a little more butter than butter fat. In a mixture of dry and succulent foods, there is usually very little difference, providing the process of butter-making is conducted on a good system.

The farmers who have brought their milk here for analysis feed higher and more wholesome rations than our city dairymen, and their milk is therefore of a better quality and flavor. It should be borne in mind that milk rich in butter fat is also rich in casein, and the percentage of fat may therefore be made the standard for cheese as well as butter. There may, however, sometimes be variations. For example, if a cow is well fed, and produces a large percentage of solids in her milk, any exertion or fatigue would use up quite a percentage of fat without materially changing the quantity of cheesy matter, so that, if milk were paid for according to its percentage of fat, the farmer who abuses his cows would do so at his own loss. It is not pretended that the lactoscope will determine the percentage of fat as accurately as chemical analysis; but the latter method is too slow and expensive for practical utility. A new system has been invented in Germany which very closely corresponds to chemical analysis, and 40 analyses can be made in 6 hours, whereas the chemist can only analyze two samples in the same time. This method should be adopted at our exhibitions, where the milk from a large number of cows should be analyzed and published.

ANOTHER \$100 FOR THE COUNCIL.

JOHN WELD, on behalf of the editor and proprietor of the ADVOCATE, who had just set sail for England, presented the treasurer with a cheque for \$100. He said he had much pleasure in doing so as he was gaining confidence in the stability of the Middlesex Agricultural Council, and believed they would spend the money in the best interests of agriculture in the future, as they had done in the past. He did not intend to dictate to them as to how the money should be spent, but desired to suggest that a portion be spent in the printing of constitution and by-laws for free distribution amongst farmers' clubs all over the Dominion. He had received a large number of letters asking for copies of rules and regulations, and it would be very convenient to have a supply for distribution amongst clubs who desired to affiliate themselves with the Middlesex Agricultural Council.

The question for discussion at the next meeting will be "Our Herd Books and their Relation to our Stockmen and Farmers." A paper on the subject will be read by Mr. Frank Shore. Communications on the subject addressed to the Secretary are respectfully solicited.

The Bohemian Oat Swindle is still making headway. It is reported to be raging in 200 counties in the United States. Prof. Dodge, of the Washington Department of Agriculture, who is inquiring into the matter, says: "The losses that have accrued are already immense; these returns do not give them, except in a few instances; it would require further time, and prove a difficult undertaking, yet it is claimed that in some counties they would reach \$10,000. Probably \$100,000 would not cover them in Ohio, and possibly the aggregate for all the States would reach several hundred thousand dollars."

The Farm.

Corn Culture.

Before you study how to cultivate your corn, you should learn its value as an article of food, and you will then know how many acres you should plant. Another phase of the question is that corn is a cleaning crop, and therefore ranks with roots as a method of destroying weeds. In practice it will not do to urge that corn requires a clean soil so long as part of your land has been neglected and allowed to run to weeds; for a corn crop is one of the most efficient methods of destroying them.

Practical farmers differ widely in their estimate of the feeding value of corn, and we must depend upon science for a solution of the problem. Corn is valued chiefly for the quantity of fat it contains, it being deficient both in nitrogen and in minerals, especially lime, a chief constituent of bone, so that when fed with foods rich in these constituents and deficient in fat, such as bran and peas, it will produce excellent results, but when fed by itself or with bulky foods, the results will be unsatisfactory.

Many farmers attach a good deal of importance to corn stalks and leaves, which are said to pay for the cost of raising the corn; but when it is considered that such food is a nuisance about the premises, and that the farmer has too many other kinds of bulky foods, their value is doubtful. So long as Canadian farmers can successfully grow other kinds of fodder crops, we would not advise them to go extensively into corn culture. It is not a valid argument to say that a large number of tons per acre can be raised, for the nutritive properties are proportionably less. However, corn possesses advantages as a soiling crop, if not required in too large quantities, for it is a rapid grower, stands drought well, and can be utilized later in the season than many other crops.

A light, warm soil is best for corn. If the land is naturally somewhat cold, either by want of drainage or by the natural heaviness of the soil, an application of horse manure will be specially beneficial. The best results in yield can be obtained by letting the plants grow singly, but as the main object usually is to clean the land, it is desirable to plant in rows, say 3½ feet apart each way, so that the crop can be cultivated to the best advantage. The old grand-pa practice of hilling up has been wisely abandoned by our best corn-growers. As soon as the corn makes its appearance above ground, plow the soil moderately deep, away from the plants, on each side of the row and in one direction. After 6 or 8 days, plow in the opposite direction, turning the soil away from the plants as in the first plowing. The hills will now be found in flat squares, and 3 to 5 plants may be left in each hill, more plants being left in a light than in a heavy soil, providing the former is well manured. These plowings do not interfere with the roots, for the roots have not yet much development. After the roots begin to penetrate into the furrows, the cultivator should be used, and the rows cultivated in both directions, thus rooting out the weeds between the rows and smothering those lying close to the plants. If the land is afterwards cultivated, it must be done very

shallow, so as not to disturb the roots, for the root pruning of corn has never produced favorable results.

This method of cultivation possesses two advantages: (1) it is most favorable to the destruction of weeds; (2) it affords warmth to the roots of the young plants, which is favorable to their development. Bear in mind that the taller the corn the shallower should the ground be cultivated.

Farm Drainage.

No. IX.

Lateral Drains.—While laying out the main drain it is important to glance at the land on both sides in order to see how the laterals should enter. Here the acutest judgment of the drainer is often exercised. In point of economy and efficiency it is desirable, when practicable, to run the laterals parallel to each other and directly down the slope into the main; but very few fields are so configured as to admit of the strict application of this rule. Some run the laterals at right angles with the main, others run them at an acute angle, but the direction is of little consequence providing the laterals run directly down grade and the entrance into the main be not at too large an angle. The angle at which the lateral enters the main must be considered in connection with relative velocities of the flow of the two streams. For example, if the water in the lateral flows more rapidly than that in the main, and the junction is made at right angles, it is evident that the flow of the resultant stream will be checked, whereas the aim should be to have the flow as regular and smooth as possible. The question now is, how can the junction be made in order that the two streams may glide as smoothly and gracefully into each other as possible? By doing so the durability and efficiency of the drainage will be materially increased. The object should be to cause the two streams to accelerate the flow of each other, rather than cause obstruction, and this end can be accomplished by causing the joining streams to have the same general direction. This object can be attained in two ways: (1) By running the laterals at a sharp or acute angle with the main, herring-bone fashion, and (2) by running the laterals at a large angle, but using curved tile at the junction. We prefer the curved tiles, especially when the lateral stream has considerable velocity, the flow thus being gradually checked before it can obstruct the flow in the main, and the two streams blend together more smoothly than when the entrance is made at an acute angle; but where the laterals can be made so as to enter straight into the main at an angle of not more than 30 degrees, the junction piece comes very useful; that is, a tile made with a lateral piece attached and fitted in at an angle of 45 degrees. By the use of the junction pieces, the lateral water enters underneath the main tile, and the angle need not be made so acute as in the ordinary method of forming the junction. When the angle is over 60 degrees, it is necessary to use the curve.

It is sometimes necessary to change the direction of a drain in order to evade the roots of trees, which are apt to enter the joints of the tile and choke up the drain. Roots are inclined to run in the direction of the drain, and the roots of some trees, such as the poplar, elm, and willow, are more destructive to drains than

those of other kinds. In general, it is advisable to cut down all such trees within 50 to 70 feet away from the drain, according to the nature of the subsoil.

Mapping out the Field.—So long as the drains are few in number and run in a direct or well-defined course, the farmer may be able to retain their location in his memory; but the practice is a slovenly one, and should be abandoned. We know farms that have greatly depreciated in value on being sold on account of the owner not being able to define the location of the drains. When levelling the land, it is an easy matter to preserve the field notes and other observations in a note book kept for the purpose, and such a practice should not be branded as "book farming." It is better to suffer the stigma of being called a "book-farmer" than to allow your valuable drains count for nothing when your land is sold.

In connection with the field notes, a map of the drained land is necessary, showing the contour of the surface, the obstructions, the high land, the low places, the angles of juncture, etc. The most comprehensive way is to draw the map on a large scale, say one inch to 50 feet, in order that various notes may be distinctly written on the map, such as the fall of each drain, the direction to certain points of the compass, etc. The lines representing the drains show the direction of the slope, but where the drains do not run directly down the grade, the direction of the grades should be represented by arrows pointing straight down the slopes, and if a part of the field remains undrained, it should be levelled, the courses of the proposed drains noted by dotted lines, and the rates of inclination marked. As fast as the drains are completed, these dotted lines may easily be changed into continuous ones. By these arrangements the planning can always be done in advance, and the parts most in need of drainage should be so marked as to demand the earliest attention.

Guarding the Outlet.—We have already spoken of the necessity of securing a free outlet in order that the flow may not be obstructed. We shall now see how the outlet should be protected. No amount of pains and expense in the construction of the drains will compensate for a defective outlet. If there is an obstruction at or below the outlet, the pressure of the drain water will overcome it, providing the top of the obstruction is not higher than the source of the drain, but it should be borne in mind that the land lying between the drain and the level of the source is not drained, and the tiles will be of no more use in draining the soil than a long iron pipe which has no joints. With regard to the protection of the outlet, the case is so ably and briefly summed up by Prof. R. C. Carpenter that we give his description in his own words, which are as follows:

"The outlet to under-drains should be protected by some construction that will prevent the earth from falling in front of the drain. The best construction is a retaining wall of masonry laid in hydraulic cement. There should also be a coarse grating in front of a tile drain to prevent vermin from getting in. Coons, muskrats, and rats have been known to run up tile drains as far as they could go, and finally get lodged, and form an obstruction to the flow of water. The outlets should be free; that is, above the surface of still water, as standing water in a drain is liable to cause a deposit of silt. Common porous tiles should never be used for an outlet, as they are des-

troyed by freezing when wet. For the 16 feet nearest the outlet, either glazed tile or a triangular or diamond-shaped box of wood should be used. In nearly every kiln there are a few tiles burned so badly as to be in part vitrified. Such tiles, if of good shape and full size, would answer for outlet tiles."

Various Items from Manitoba and the Northwest.

In view of the conflicting reports which are being spread abroad concerning Manitoba and the Northwest, we take every opportunity of interviewing parties who have had long experience in that country, and who are in a position to express independent opinions with reference to its agricultural resources, and the social condition of its inhabitants. The organs published in that country are bitterly political, and little reliance can be placed on their assertions. The farmers' organizations have been praised and blamed, some contending that they are subservient agitators and political machines, while others maintain that they have the best agricultural interests of the country at heart. The interest we take in the organization of farmers is well-known, but we have not yet upheld the actions of the Manitoba Farmers' Union, it being impossible for us to obtain independent and authenticated expressions of opinion. It is our earnest desire to state facts, leaving intending immigrants to form their own conclusions.

We have recently been favored by an interview with Mr. A. D. Kennelly, a representative of the McClary Manufacturing Co., of this city, who has spent four years in travelling throughout Manitoba and the Northwest, and is in possession of a good deal of valuable information with reference to the resources of the country and the condition of its inhabitants. We have taken the following jottings from his remarks:

There is considerable talk about the C. P. R. monopoly, but I think the fact of the company having control of the trade would be sufficient to raise an agitation against them even under favorable rates. The freight rates from London to Calgary (840 miles west of Winnipeg) are \$1.65 per cwt., while the rates from Winnipeg to the same point are \$1.75 per cwt., the latter figure being very high in comparison with western rates in general, but the company maintains that it cannot pay expenses if these rates were lowered. The elevator monopoly is another source of complaint, the business being controlled by two grain dealers and millers. The elevator rates are 3 cents per bushel, and the farmers wish to break the monopoly by erecting flat elevators of their own; but the C. P. R. Company will not recognize this project, contending that it is to the farmers' own interests that the wheat should be cleaned and graded at the elevators instead of being shipped elsewhere for the purpose. The company forcibly recognizes the necessity for maintaining the high standard of Manitoba wheat, which they think cannot be done on the flat-elevator plan proposed by the farmers. The farmers have put up elevators at Brandon and Manitou, but the wheat cannot be graded at these places. However, the C. P. R. Company has been obliging in other respects: they have made a reduction of about 20 per cent. in the export rates of frozen grain; they carry seed wheat of first-class quality into the country free of charge; and I have always found the officers very civil and obliging. The accommodation is good, and we have not been troubled by delays. The company have been severely criticised for locking up their lands near the railroad, and it has been said that by doing so they drove many

settlers and intending settlers across the border into the United States. But these lands are now open for settlement, and no further complaints can be made. The heavy duty on agricultural implements from the United States has been another source of grievance, as farmers have claimed that American implements are more suitable for prairie settlers than those manufactured in the Dominion.

With reference to the climate and the country itself, I can't see that the farmers have cause for complaint. I once met an Ontario farmer, residing west of Brandon, who raved furiously against the country, and could see nothing good in it. I asked him the extent of his business, and he said he had half a section (320 acres) of land, and started three years ago with a capital of \$1,200, and he could sell out to-day for \$4,000. I know another farmer who migrated from Lucknow, Ont., to Verden, a thriving town west of Brandon, about four years ago, and took up 1,200 acres of land, 400 of which are broken and under crop. Last year he harvested 3,000 bushels of No. 1 hard wheat, and sold several hundred bushels for seed at \$1 a bushel, and the balance was sold on the general market for 65c a bushel. He told me that he cleared more money the past year than he did during the last nine years which he had spent in Ontario. Such examples are not uncommon, and if a farmer does not succeed in Manitoba or the Northwest, he should blame himself and not the country.

That there have been many failures in the wheat crop by frosts cannot be denied, but many of these disasters should be laid more to the charge of the farmers, than to that of the climate; for Ontario farmers have been accustomed to do a large amount of plowing in the spring and sowing the wheat late. This practice should be abandoned in the Northwest, and I have observed that those farmers who plowed in the fall and sowed early in the spring were not troubled by the frosts. It has been urged that the land along the line of railway between Moose Jaw and Calgary was unproductive. For the purpose of testing this the C. P. R. have established experiment stations along the line, which I have visited several times, and I am now fully convinced that this region is exceedingly productive of grains and vegetables.

Alberta (a district extending from the Rockies to Medicine Hat, 250 miles, and from the southern boundary of Canada north almost to Battleford, about 350 miles) is the great stock raising region, and it is not so well adapted to agriculture as Assiniboia or Manitoba. Here corn grows luxuriantly and the land cannot be beaten for vegetables. Stock flourishes on the rolling prairies all the year round without shelter. About four-fifths of the land is tillable, and good water can be had by digging 12 to 30 feet deep; but timber is scarce, although there is an abundance of soft coal on the Saskatchewan and other parts, and anthracite coal is found in abundance near Calgary. Snow sometimes falls in Alberta, but never lies long enough to interfere with grazing, and I have seen dust flying in mid-winter. Assiniboia is a better agricultural district, but not so good for grazing. The land is heavier and deeper, and although there is no coal, there is more timber, and these districts are more subject to summer droughts than Manitoba, while Manitoba, lying lower, is more subject to frosts.

Prices are becoming more and more in sympathy with those of other countries. Dressed pine lumber, which sold four years ago for \$50 per M., now sells for \$30 and \$38, and plain pine lumber now sells at \$25 to \$30. Good board can be had in any town for \$3.50 to \$5 per week, but clothing, rent, and fuel are still higher than in Ontario, although the prices are rapidly declining. Common laborers get \$1.50 per day, and farm hands get \$30 to \$35 per month during the summer months, but in winter little work can be had. Farmers get 20c a lb. for butter, 75c a bushel for potatoes and 20c to 22c per dozen for eggs. Oats bring 25c to 35c, and the average production is 40 to 45 bushels per acre, and wheat averages 35 bushels per acre and the average price is about 60c. The land is easily tilled. Transportation

facilities are becoming greater, freight now going through from London to Winnipeg in eight days, while it used to take two or three weeks by the old route through the United States.

Notes on Insects Injurious to Farm and Garden.

The following notes have been issued from the Mass. Agr. Experiment Station, by Mr. S. T. Maynard, botanist of that institution.

CABBAGE FLEA.—The first insect of importance that appears is the small black flea or jumping beetle that attacks the cabbage, radish, turnip, etc. Dusting with Paris green mixed with one hundred times its weight of plaster has proved an effectual remedy. This must be done when the plants are wet and after every rain.

CUT WORM.—The cut worm, of which there are several species, including the army worm, work only during the night, and may be destroyed by the same remedy as the above. We would advise a trial of pyrethrum powder mixed with five times its bulk of plaster, as being more safe, although we have no positive proof that it will be effectual.

STRIPED SQUASH BUG.—The striped squash bug which has been so abundant for the past two seasons, is best kept in check by the use of plaster and Paris green. For the family garden the safest and most satisfactory way to overcome them is to make a bottomless box twelve inches square, and six or eight inches deep, and cover it with mosquito netting. One of these boxes placed over each hill until the plants have become tough and hard, is a sure protection.

THE POTATO BEETLE.—The potato beetle has evidently become a permanent resident among us. Paris green extended with plaster, flour or water, is the only cheap and easily applied remedy known at present, but great care must be exercised in its use and especially in the place where the package is kept, that it may not get upon the food of animals.

CABBAGE WORM.—The cabbage worm, the larva of the common white butterfly, may be easily destroyed in several ways. That of hand picking, if begun before the first brood has passed into its perfect state, is effectual. We have also found that pyrethrum powder mixed with five times its bulk of plaster and dusted into the centre of the leaves with sulphur bellows, is certain destruction to every one of them. The application of insecticides in liquids to the cabbage has not been satisfactory on account of the peculiar structure of the leaf surface, which allows the water to fall off in drops and not adhere to any part of it. Paris green is unsafe to use after the leaves have become over four inches in diameter.

CURRENT WORM.—The currant worm should be destroyed while small, with dust of hellebore or pyrethrum. The latter being perfectly harmless, is to be more highly recommended.

PLUM WEEVIL.—There are two certain methods of capturing the plum weevil, the first by jarring the tree early in the morning and catching them upon sheets stretched below upon a frame or upon the ground, and the second by placing chicken coops under the trees. The former method must be attended to regularly every morning for three weeks after the plums have set, and in the latter case, if the number of trees is large, a large flock of chickens will be required to make that remedy effectual.

CODLING MOTH.—No positive remedy against the ravages of this insect has as yet been found. It is claimed that Paris green sprayed over the tree in water is effectual, but should it prove so, it is far too dangerous a remedy to apply where grass or other crops are growing under them.

APPLE AND PEACH BORER.—For the destruction of these two insects no sure remedy has been found except the knife. It is probable that covering the trunk of the tree near the ground with the ink or tar used to catch the moths of the canker worm, or wrapping around the trunk bands of tarred paper, would assist in keeping them away.

ROSE SLUGS.—This insect is easily destroyed by spraying with water and pyrethrum at the rate of one tablespoonful of the latter to a pailful of the former.

Experiments with Potatoes Potato Rot—Profits and Losses on Fertilizers.

(A Lecture delivered by W. A. Macdonald before the Middlesex Agricultural Council.)

No. IV.

The potato rot now remains to be considered. In the various tables I have given the percentage rotten, and I shall now enquire into the causes which produced so much variation in these percentages, as well as the causes of the rot itself. There are the soil, the season, the varieties, the fertilizers, and the methods of planting to be taken into consideration.

Before the true cause of the rot was ascertained by microscopic observations, there existed a good deal of superstition concerning it, and amongst many assignable causes, the following take the lead: The cutting of the tubers for seed; propagating by the tubers instead of by the seed; changeable climate; poisoning by insects; lightning; Divine visitation, etc.

Although it is well known that the rot is caused by a minute parasitic fungus botanically known under the name of *Peronospora infestans*, yet many of the above named causes cannot be ignored. My experiments have shown that, as a rule, the older the variety the more it succumbed to the rot, which may be taken to mean that a variety becomes debilitated with age, and therefore becomes more susceptible to diseases, largely owing, no doubt, to continuous propagation by the tubers, without rejuvenating and invigorating through the seed. Weakness of constitution is also caused by high feeding, especially with manures which lack in certain constituents of plant food, and high fostering is also a source of debility. A lack of proper attention is equally disastrous. Such conditions are favorable to the development of disease and fungoid growths, although they are not the initial cause. The external conditions which favor the growth of the rot fungus are excessive heat and moisture.

Microscopists who have examined into the life history of the fungus, tell us that the minute parasitic fungus first appears on the leaves and then on the stems, presenting darkish brown spots. If the weather now continues warm and moist, the plant ripens its spores or seeds, which fall on the ground, while the plant itself, composed of thread-like tubes called "mycelium," work their way through the stems of the potato into the tubers. These thread-like tubes are of a silvery color at first, but when they extend their ramifications into the tuber, feeding on its nutrient juices, they ripen and turn black, like the smut fungus, to which it is closely related.

Some authorities say that the spores are tender and soon perish, while others hold that they aid in producing the succeeding crop of rot. They are so minute that they can be wafted in all directions by the wind, and they easily sink into the ground by the rain, where they may germinate and multiply in the tubers. It is known, however, that the mycelium is a perennial plant and is hardy enough to stand the winter, so that the future crop of rot may depend wholly upon it for its existence.

If these investigations are accurate, the remedies are obvious. Diseased tubers and tops should both be destroyed by burning; partly

diseased tubers should not be fed to stock, for the fungus is not destroyed by passing through the bowels of the animal; if fed at all, the potatoes should first be boiled. It would not be safe to compost the refuse. As moisture aids in the development of the fungus, the potatoes should be stored in a dry cellar; if the cellar is damp, an application of air-slaked lime will absorb the moisture from the potatoes, and the fungus may be destroyed by the ordinary smut remedy—say 4 oz. of sulphate of copper in a gallon of water. It is also recommended to assort the potatoes several times during the winter. It is not desirable to plant in the same field for two or three years after the rot has made its appearance, and adjoining fields, especially if lying in the direction of the prevailing winds, should not be planted with potatoes. Avoid planting in clay soils, where moisture is apt to be excessive.

These are the usual directions given for avoiding the potato rot, but I had an excellent opportunity of putting them to a practical test. Following the directions given by these microscope authorities, I harvested my potatoes early in order to check the disease before it found its way from the stems to the tubers; but some older and more experienced potato-growers than myself, who had passed through the Irish potato rot of 1847, advised me not to lift the crop so soon, declaring that the disease would not spread beyond its existing limits, and that there was no occasion for gathering up the diseased tubers and tops and destroying them. These contradictory authorities lead me to do some experimenting. I opened a small hole in the warm, moist ground with a hoe, placed a few sound potatoes in the bottom, and several diseased ones on the top. I then covered the tubers with soil, and left them in this condition for over a week, the weather being pretty warm. When I opened the hill, not a single sound tuber was affected in the least. I then inoculated some sound potatoes with the diseased matter of affected ones, placing some of the matter on the skin of the potato, some under the skin, and some I placed into the heart of the potato; and, although they were placed in a damp cellar, not one of these potatoes became affected. In the same damp cellar I placed over 40 bushels of potatoes in a heap, and having assorted them after four months, although about two bushels were found to be rotten, none of the tubers contiguous with the diseased ones were found to be affected. I applied no lime or other absorbent, and I did not use any poisons to destroy the germs of the fungus. For the purpose of carrying out further experiments during the coming season, I have spread diseased tubers and tops thickly over a portion of the ground in order to ascertain what effect they will have on the next crop; on this spot I shall plant 30 varieties of potatoes, and I know the percentage of each variety which rotted in the past season, the variation being from 5 to 90 percent rotten on the same soil and in the same field, with one variety that did not suffer from the rot.

It is popularly supposed that the rot is the cause of the blight, or the blight the cause of the rot. The Bronze King variety, which did not rot, was one of the worst to suffer from the blight, the leaves and stems having turned from green to dark brown inside of 24 hours.

This proves (1) that the rot did not cause the blight, and (2) that the blight did not cause the rot. All the rows that were manured with nitrogenous fertilizers remained green up to the time of digging—I should rather have said that the stems remained green, for many of the leaves were blighted—and the percentage of rotten tubers was equal to that on the other rows. The rows on which the superphosphate, the sulphate of potash, the ashes, and the un-analyzed brands were used, blighted suddenly and badly, both the leaves and the stems. These experiments are plain, practical facts, and they should induce all the authorities, practical and scientific, to unite and confess that they know nothing concerning potato rot and blight worth talking about. Has the Bronze King proved that a variety of potatoes can be produced whose tubers are proof against that fiendish destroyer, the *Peronospora infestans*, while the leaves and stems are extremely susceptible to his attacks?

Objections to the General Purpose Circular Barn.

Our prize essayist being, on the whole, favorable to the circular barn, we intended to award a second prize to the essayist who could show the greatest number of defects in the plan, but as the objectors dealt too much in minor details and too little in the principles of construction, we shall merely note the leading objections, and make a few comments thereon. The essayists took issue on the following points: A round barn is more expensive than a square. There is a great waste on account of the wedge-shaped stalls, and wide passages. A wheelbarrow is preferable to a hand car, as the manure can be dumped out of it, and both manure and food cannot be carried in the same car. It is inconvenient to haul the manure directly to the field as fast as made, for it interferes with the regular work of the team, and the lanes are often obstructed by snow, but it may be put under cover and hauled out at two or three intervals during the winter. The pigs should not be in the same building on account of the stench. A circular barn would not give as good shelter in the barnyard as a square one. The ventilator going up through the centre would interfere with the horse hay-fork. Circular eave-troughs are more expensive than straight ones. The place is too warm for sheep. The water from the roof would be insufficient.

With regard to the expense, the main question is, Can a certain quantity of stock be accommodated more easily and cheaply in a circular barn than one of any other shape? It is true that barns which any framer can build can be put up more cheaply than those of uncommon construction, but there is a corresponding saving in the quantity of material used. Unless the barn is very small, the wedge-shape of the stalls would be very insignificant, and there is no greater necessity for wide passages than in buildings of any other shape, except the two through passages for the purpose of admitting a wagon and at the same time plenty of air and light. When a hand-car is used, it should have two boxes, one for carrying food and the other for carrying manure, although specially made wheelbarrows would serve both purposes very well. The plan is specially adapted for treating the manure in

any manner suitable to the circumstances of the farmer, which cannot be said of any ordinary plan. It is not undesirable to have the pigs in the same building, for farmers would then learn how to keep down the stench, which is the most valuable part of the manure, and the suppression of foul odors is necessary for the health of the animals. Any amount of shelter can be provided by planting trees or building a high board fence wholly or partly around the building. If the ventilator is in the way of the horse-fork, it need not be built up through the centre. The plan, to a large extent, obviates the desirability for a horse-fork. Circular eave-troughs would be more expensive, foot for foot, than straight ones, but a much less number of feet would be required. The sheep can be kept near the temperature of the open field, if necessary, by placing their shed at a northerly or westerly exposure, leaving no trees or close fence for the protection of their open yard. The water from the roof would be less than from a square barn, because a smaller roof would be required to cover the same quantity of stock, which is an argument in favor of cheaper construction; but no farmer would ever think of building a large barn in order to get enough rain-water for his stock.

We cannot agree with our essayist in his plans for the water tanks. One of the great objects of our plan is that, by sinking the cistern into the ground, the water can be kept at nearly the same temperature all the year round, which is of greater importance than the saving of labor in pumping; but we agree with him that it would be better to convey the water to the stock through pipes than by pails. A water trough in the yard would be sufficient. A wind-mill could be used for pumping, especially if water could be pumped into the cistern from adjacent sources in cases of scarcity of rain water. For cows during the milking season pure cool water is very essential, and if a supply from adjacent creeks or springs can be pumped or drawn into the cistern before the dry season sets in, the water will be improved both in temperature and quality. We are pleased to find that our prize essayist favors the feeding of stock out of doors in favorable weather, for such is more congenial to their health and hardiness than too much confinement—especially when there is plenty of sunshine without excessive heat or biting winds. We do not agree with him that manure should always be fermented: fermentation makes it more active but less durable, and the care required in fermenting it without loss of fertilizing material is often greater than the gain. With wide passages, wide doors, and a capacious ventilator, more light can be secured than in a majority of ordinary stables.

It would occupy too much space for us to enter into comparisons between round and cornered barns, but we will set the reader on the track by which he can make his own estimates. Take Mr. Murray's barn, an illustration of which appeared in our January issue. Its size is 111 by 54 feet, or $111 \times 54 = 5994$ square feet. This would require 324 feet of wall, or, the wall being say 8 feet high and 18 inches thick, there would be $324 \times 1.5 \times 8 = 3888$ cubic feet of stone. Now compare this with a circular barn having the same number of square feet, and you will find that the diam-

eter will be nearly 87 feet; for $87 \times 87 \times 0.7854 = 5945$ (nearly). But this will only require $87 \times 3.1416 \times 8 \times 1.5 = 3280$ cubic feet (nearly) of stone, or a saving of 608 cubic feet. Stone masons now charge here 75 cents a cord for laying stone walls, so that

$$\frac{3888}{16\frac{1}{2}} \times 75 = \$176.25,$$

which would be the cost of building the wall under the rectilinear barn, and

$$\frac{3280}{16\frac{1}{2}} \times 75 = \$149.08,$$

which would be the cost of building the round wall, or a saving of \$27.17 in favor of the latter, besides a corresponding saving in lime, sand and stone, the 75 cents per cord representing the cost of the labor without the material. But this is not yet all: Granting that the spaces for doors and windows are the same, the size of the shed has yet to be subtracted from the round barn, and in addition to all this, the round will hold more stock and the conveniences will be much greater in every respect. There will also be a corresponding saving in the timber, lumber and other materials used.

A great deal has been said in favor of octagon barns, and certainly they are a great improvement on the four-cornered shapes, but why not go a step further in the way of saving money—that is, build a round barn? It is certain that round barns are more suitable for large farms than for small ones, but we now leave further calculations to be made by each farmer who intends to build a barn.

PRIZE ESSAY.

How Should the Farmer Treat his Hired Men, and how can he Employ them most Profitably?

BY S. A. LEIDMAN, BINBROOK, ONT.

Perhaps there is no question relating to agricultural pursuits on which farmers have a greater diversity of opinion than on the question now before us, and yet it is a question that is very seldom discussed, either through the press or by the fireside. Every man thinks—or perhaps he does very little thinking about it—that he can manage his hired men without the advice of anybody, and consequently every farmer has a separate way of treating his men. Some farmers treat their hands much the same as they do their teams. They feed them and work them, without even noticing them or speaking to them, except to give them their orders and see that they work about fifteen hours per day. Others, we are sorry to say, actually despise their hired men, and when meal time comes, place them in a corner to eat by themselves, or make them wait till the family have finished, and then eat the fragments that remain; but happily such men are few.

But how should they be treated? We will try to answer the question, and in the first place I would say to the farmer, let your hired men know that you are "boss," because if a man finds his boss lets him do just as he likes, he will soon act according to his own fancy, and do his work in his own way, perhaps not at all, in spite of the expostulations of his master. Still, while you deal firmly with him, do not be forever growling at him and snubbing him, for a man naturally recoils from such treatment and becomes defiant, obstinate and

morose. Do not make him work an unreasonable number of hours per day. Of course there are times when a crop of hay or grain is standing out and a storm is at hand, when it becomes necessary to work an hour or so longer; but such cases are exceptional, and for them we make an allowance. But when a man habitually works his men from daylight to dark, and perhaps long after dark, we do not wonder that his men flare up and leave him.

Another frequent cause of broils between farmers and their men is found in the chores that men are asked to do, such as feeding pigs, and milking after their day's work is over, and we hold that it is unjust for a farmer to ask his men to do much of such work after having worked hard all day, and if a farmer cannot afford to keep help enough to do such work, he had better not keep so much stock to attend to.

If there should be a spell of wet, stormy weather, give your man some inside work to do, or if you have no such work that he can do, let him have a day's rest. It will not hurt him. By no means send your man to work outside when the weather is unfit, for it is hurtful to your team, and it may give the man some lingering disease that will cling to him through life. Speak kindly to your men and treat them respectfully. It will pay you, for there is nothing that will go farther with them than a few kind words accompanied by respectful treatment. If he is to work a team, give him the charge of it, and he will take a pride in keeping it in good condition, especially if the team is a good one and some neighbor is trying to keep his team looking better than his.

If work should not be very pushing and he should wish to have a day for pleasure, let him take it, and he will return feeling fresh and willing to work diligently for a month afterwards. Perhaps he would like to have a horse to attend some tea-meeting or concert, for young people, whether men or women, enjoy these things, and rightly too. If so, let him have one occasionally, provided he uses it well, as you can readily see by a little observation next morning. Should he desire to have part of his wages before his time is out, do not refuse him, as he may need the money, and do not, in a dispute about a lost day or some trifling affair, try to retain any of his wages, for what is a small sum to you may mean a great deal to him.

Chat pleasantly to him about the current events and upon agricultural topics, but do not tell him much of your private business or of the business of your neighbors, for you do not know what might be the end of a few thoughtless words spoken to him. Make an agreement when hiring him that he must not be out late at nights—say after ten o'clock—except in a few exceptional and occasional cases, and you will find it to be beneficial to yourself and him. He will be better prepared for the morrow's work, and he can spend the evenings in reading and self-improvement. You should have a supply of good reading matter in the house, and allow him to profit by it. By giving him some such book as Whitcombe's "Manual of Agriculture" to read, he will not only be profited himself, but will perform his work more intelligently, and thus profit you.

Take him to church with you, for he has a soul as well as you have, and he will enjoy a sermon as much as you do—and "What will it profit a man if he gain the whole world and lose his own soul?"

If you wish to make your men profitable, we would advise you in the first place to engage none but a first-class hand, even if you have to pay him considerably higher wages than you would a "plug," for while there is nothing that pays the farmer better than a good hired man, there is nothing that pays him worse than a poor one. You can tell by the general make up of a man pretty nearly what kind of a worker he will be, and when you do stumble on a good one you had better capture him. If possible, engage him for a year. When you engage for six or seven months, it is just through the busy season, and there is no time for any improvements on the farm, and consequently the farmer who does so is always "behind with his work." On the contrary, when

hired by the year there are a great many days in the spring and fall when little else can be done except fencing, or ditching, or some kindred work, and the farmer who takes this plan is always "ahead of his work."

Well, having hired a trustworthy hand on the above conditions, give him charge of a team, and let him have full charge of it (provided he treats it well and keeps his team going all the time, if possible). Do not have him stop the team to do some small job around the barn. Do these yourself and let the team remain at work, for it is unremitting work that tells on a farm. When your man starts one piece of work, let him finish it before he starts to do anything else, for of all the slovenly sights seen on a farm it is to see several pieces of work started and left unfinished. I have seen on a farm two or three fields about one-third plowed and then left, a pig pen or sheep pen half built and left, an orchard half pruned and left, and it is needless to add that the owner of such a farm did not make much profit out of it.

Always have some inside work ready for a stormy day. You have a variety of such work. It may be cleaning up seed grain, getting the reaping machine in readiness for work, repairing a broken wheel-barrow, mending a rake, pitching manure out of a sheep pen, or any such work that will save much valuable time on a fine day when every minute counts. Keep your men going a reasonable number of hours every day, and they will be profitable.

Soiling Crops.

No farmer need depend upon luck for success in his dairy business. Every cow should get a chance to save her life, and she should not be condemned as unprofitable if she has been wintered on spare rations, and summered on short pasture. Under such treatment some of the best cows would be weeded out. It is not economy to do without soiling crops whether the pasture is abundant or not; the most economical method is to have a pasture, say one or two acres for each cow, and make up the deficiency by soiling. The cows should be turned into the stable during the heat of the day, especially if there are no shade trees in the pasture, and fed on some soiling crop.

No fixed rule will suit every farmer as to what soiling crops he should raise. Local conditions are the best guide. The prevalent error is in raising too much corn. A change in soiling crops is just as necessary as a change in grasses, or a change in winter rations, and the land will be benefited by the rotation besides. For the earliest soiling crop, rye should be sown in the fall. This may be sown after any of the grain crops are harvested; and no loss of land need occur, for a spring crop can again be sown after the rye is removed. This secures a soiling crop in April and early in May. Orchard grass and clover may now be out until early in July; but before this it is necessary to make calculations for the July and August droughts; and oats and peas mixed should be sown at different intervals between the latter part of April and the latter part of May. After these crops become exhausted, corn, sorghum, and Hungarian grass make excellent substitutes, and furnish food during the remainder of the season. If the season turns out favorable, so that very little of the soiling crops need be added to the pasture, these crops should be dried and stored for winter use.

The cardinal point to be remembered is, never let your cows go back in the yield of their milk, caused by scanty pastures or defects in your system of soiling,

Stock.

A Chatty Letter from the States.

[FROM OUR CHICAGO CORRESPONDENT.]

For the year thus far the receipts of live stock show a slight increase in cattle and a decrease in hogs and sheep.

Prevailing prices for live stock, compared with one year ago, show that cattle are selling as high for the best grades as \$5.75 @ \$6.35; while common to medium cattle are 25c. @ 50c. lower; 25c. decline in hogs, and an advance of 75c. @ \$1 in sheep.

The quality of the stock marketed thus far this year is really better than last, but the animals are nearly all of lighter weight, indicating the fact that feeders are continually turning their stock off at an earlier age.

There is a reasonably good demand for good to extra heavy draft horses for breeding. Prices range at about \$800 @ \$1,800.

All kinds of business in the country has been more or less demoralized by the railway strikes, and many business men fear that this kind of trouble has but fairly commenced. The general indications of a revival in business so strong a month or so ago seemed to cause the labor organizations to think it a fit time to make their demands. The result is that what promised to be a very encouraging revival of business confidence has at least been nipped in the bud.

The eight-hour labor system, already partially inaugurated, will necessitate a 20 percent advance in the price of manufactured products, as reduction from 10 to 8 hours' work, without a corresponding reduction in price, is equivalent to a 20 percent advance in wages. Hence if workers have more time they will not have any more money.

The advance in the price of sheep was very surprising, from the fact that it was so much larger than anybody looked for. April witnessed the sale of 90 to 130 lb. sheep at \$6.00 to \$6.50, just such as sold in the spring of 1885 at \$5.00 to \$5.25. The cause of the sudden advance was the exhaustion of the crop of good sheep in the corn growing districts. Sections in Wisconsin and Illinois, which usually send in 1,000 to 2,000 per week, have been entirely drained of mutton stock for two or three months.

It is estimated that about 137,000 Wyoming, Oregon and Washington sheep were corn-fed in Nebraska. They averaged 100 to 148 lbs., mostly about 120 lbs. These sheep are considered about the best that come to market. They are large framed, and when well fattened, as they nearly always are, make prime mutton.

The railways in the West refuse to give the sheepmen double-deck cars for their stock, but the latter are making a persistent fight and think they will win. If they do, Texas alone will send to the markets 1,000,000 sheep per year, where she now does not send 100,000.

American sheepmen are very fast learning the importance of making mutton, instead of putting their "eggs all in one basket" by depending entirely on the wool qualities of their sheep.

It is an easy matter to flood the country with sheep. The improved breeds of mutton sheep multiply very rapidly in breeding, and when mutton-raising becomes very popular, as it is likely to do since the recent boom set in, it is only reasonable to look for another over-supply

and consequently lower prices. Last year, when sheep were selling low and many shepherds declared that "wool was hardly worth the shearing," there was a wild stampede to get out of the sheep business. Now these same flock-like men are more likely to buy back at \$2.00 per head such sheep as they sold at 50c. to 75c. per head last year.

In large lots, good, healthy store sheep sold less than one year ago at 25c. to 75c. per head. They were just such sheep as sold at \$5.50 to \$6.25 after being fed corn all winter. It seems that men will never learn to hold fast to a good thing "through thick and through thin." Too many people want to sip the sweet without tasting any of the bitter.

The fine stock market is a little quiet, and is no doubt affected by the generally unsettled state of business. Prices for fine stock are low here, but they have not declined so heavily as in Great Britain.

The buyers of fine stock are more conservative than a few years ago, when stock improvement was a kind of craze in the West. They now demand something more than pedigree, and are generally harder to please than when so many greenhorns were buying fine stock for the first time.

The Saddle Horse.

Some superb saddle horses have ranged fully 16 hands high, but unless they are powerfully made in proportion, they look too weedy, and the broad-belt of day-light under them gives the impression that they are not adapted to bear the burden of a full-grown man's weight upon their backs; 15½ hands is a more desirable height for the model saddle horse. But he must be finished at the extremities, as if he was fashioned by the cunning hands of the ideal sculptor. His neck must be long and shapely, rising gracefully from the withers and arching superbly towards the crest, ending where his delicate and sprightly ears spring from the head. His eyes should be unusually full and brilliant, his jaw remarkably clean cut, his nostrils as generous as the palm of a man's hand, and the entire facile expression that of intelligence and noble breeding. The arch of the neck should be followed by a corresponding curve in depression at the saddle place, and this should be succeeded by rather a high crupper bone, which gives that lofty carriage of the tail that makes it appear like an unfurled banner. The limbs should be neat, yet broad in their chiseled flatness. The pasterns should be long and well inclined, for the ease and springiness of his movements depend upon the depression at the saddle place and the long, slanting pasterns. These break the jar of movement, like finely tempered springs, and give a grace and beauty and pleasing effect in solid or self colors that is much superior to piebald combinations.

Even when the physical proportions of the saddle-horse are thus perfect, he lacks everything if he is not animated by that proud, aristocratic spirit that broadly defines the difference between the cold-blooded cob and the high mettled race-horse.—[National Live-Stock Journal.]

The flockmaster who has once thoroughly introduced the use of hurdles in handling his sheep generally finds the innovation a valuable one.

Disadvantages of Stock Shows.

Although most all agricultural and live stock papers, both on this continent and in Europe, are organs of stock men and stock shows, not daring to warn their readers against the abuses which are constantly creeping in, for fear of offending their supporters, yet we occasionally find articles contributed by authorities who have no axes to grind, and can therefore speak their minds without risk of losing vote or influence. As our shows are based upon those in Britain, most all the advantages or disadvantages urged for or against the former will be more or less applicable to the latter.

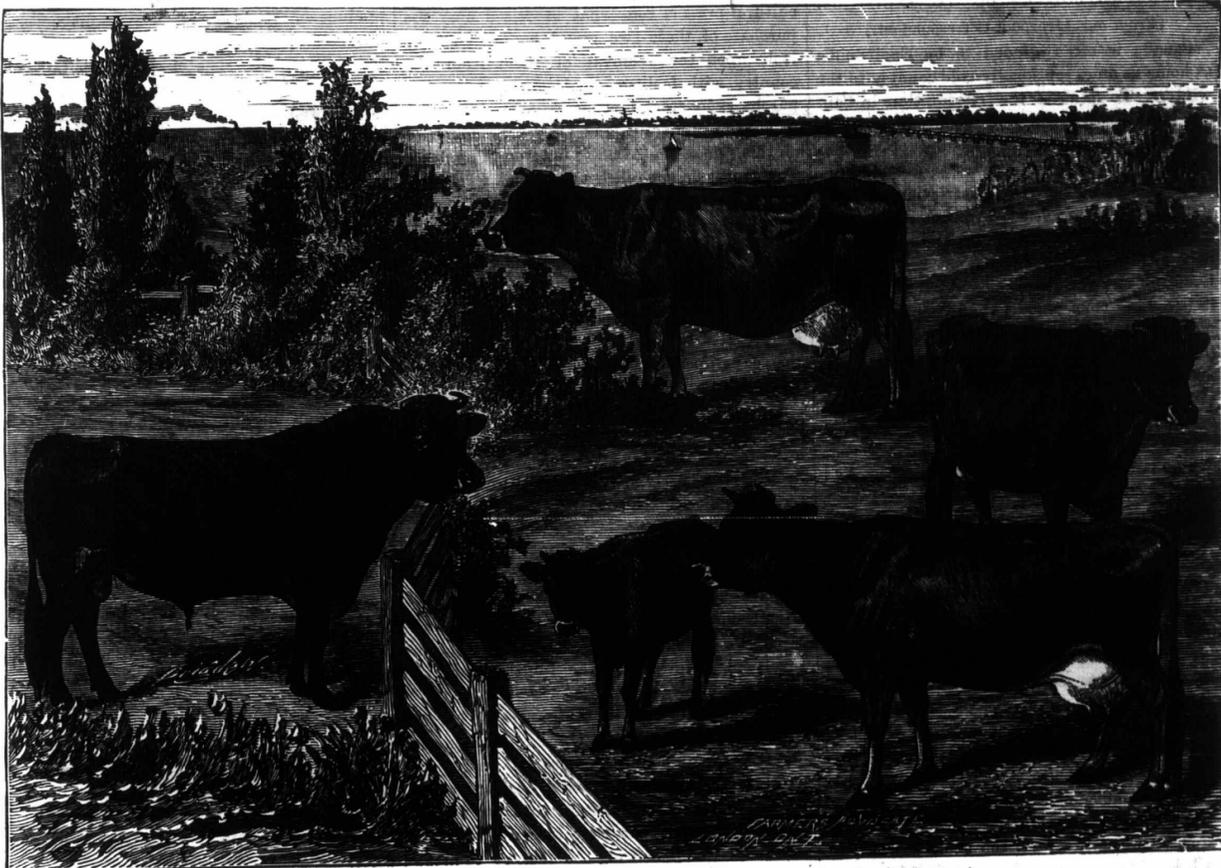
The *Scottish Agricultural Gazette* publishes a paper by Mr. Plowman, secretary of the Bath

that injury, instead of benefit, results from breeding-stock shows, owing to over-fattening being encouraged to a degree that incapacitates or deteriorates animals for breeding purposes.

With respect to the first assertion, if finality has been reached, Nature and man together have accomplished in the case of farm stock more than the most sanguine have ever dared to hope for in any other department of science or art. Even if perfection were reached, there is no guarantee that it would be maintained, and, under any circumstances, it would be questionable policy to dispense in the future with what have proved to be incentives to good results in the past.

The grievance that the wealthy or professional breeder has it very much his own way in the prize ring is true enough, in the case of the larger societies especially, but our leading societies at any rate could hardly offer any discouragement to this, as it would be equivalent

drawn, clearly defining where natural feeding ceases and over-feeding commences, it might then be desirable to have the matter pre-determined by either a disqualifying committee or inspectors, as in the case of unfair shearing; but the admitted doubt as to what constitutes over-feeding places it on a very different footing. Added to this, animals are not uniformly affected, and an amount of fat or flesh which would incapacitate one animal would not prejudicially affect another. Judges who are specially selected on account of their intimate knowledge of the class of stock which will be brought under their notice, ought to be the most competent persons to decide as to an animal's general condition, and their decisions would be much less likely to be questioned. Societies, however, should give every encouragement to judges to make it plainly manifest by their awards that excessive over-feeding is a distinct bar to success; this would speedily



STOCK FARM OF MESSRS. DAWES & CO., LACHINE, QUEBEC. (See first page.)

and West of England Society, read before the London Farmers' Club, in which the writer fairly criticises stock shows from all practical points of view. He does not deny the educational and social advantages derived from these shows, and he points out the benefits of competition in the attainment of excellence; but he deals at length with the leading objections that should be raised against existing systems of management. He expresses himself in the following language:

Among the chief objections urged against it are:—That it has had its day and served its purpose, and the limit of improvement having been reached in the breeding of stock, it is sheer waste of money to go on offering prizes; that, as the bulk of the prizes go to the wealthy or professional breeder, he, rather than the ordinary working farmer, is benefited by it; and

to levelling down instead of up, and would considerably diminish the value of shows as educational mediums. It may not always answer the purpose of the ordinary farmer to compete against a wealthy landowner, but he benefits in the long run, although at the time he may be shut out from the prize. In the local shows he is by no means conspicuous by his absence, and, emboldened by his success there, he not infrequently "flies at higher game" and develops into the professional exhibitor in the end.

We come now to the objection which is most frequently urged, and which has the most force of any, that breeding-stock shows encourage the over-feeding of animals to the deterioration of the procreative powers. That prizes are frequently awarded to over-fed animals can hardly be gainsaid. The instructions issued to judges, however, and the special regulations on the subject, testify that societies are not blind to the evil, but the difficulty is to deal with it satisfactorily. If a hard and fast line could be

educate exhibitors, and all regulations which provide for proof of breeding capacity should be strictly enforced before handing over the prize. Societies themselves would derive advantage from a diminution of too high feeding by the increase in the number of entries it would lead to, if the cost of preparation were lessened.

With regard to fat stock shows, there is a prevailing opinion that their present usefulness would be much increased if more information could be supplied as to the quality and cost of the meat produced, and the suitability of the prize animals for the table. One of the primary objects for which the Smithfield Club was established, as stated by its original promoters, was "by means of experiments in feeding, and by recording the results, to determine what breeds of animals, and what methods of feeding and treatment, on particular soils and under peculiar conditions of climate and locality, are calculated to give most food for man, from

given quantities of food for animals." In the early years of the club this principle was acted upon and experiments were made and results carefully recorded, but these were gradually discontinued owing to the difficulty in satisfactorily carrying them out. The present practice of having all animals weighed alive and the results made public was a step in the right direction, but the scales do not indicate what proportion belongs to the most valuable and what to the least useful portions, nor the quality of the whole. At the great fat stock shows of the United States provision is made for tracing the prize animal's career from its birth to the slaughter-house, and steps are taken to ascertain the cost of production and the amount and quality of the meat produced.

Our English Letter.

FRIGID CANADA—THE ENGLISH WINTER—SEVERE LOSSES OF STOCK—CANADIAN STOCK IMPORTATIONS—SCARCITY OF HORSES—TINNED BUTTER—MUTTON SUPPLIES—RAILROAD MONOPOLIES—SPURIOUS BUTTER—COLONIAL EXHIBITION.

[From our Liverpool Correspondent.]

Canada is often alluded to by Englishmen at home as an exceptionally cold country in the winter. To speak of the freezing time in Canada to an Englishman here has been enough to give him "the shivers." This idea of the climate of your country was undoubtedly strengthened by the vivid descriptions and the striking pictures of snow scenes and sledge driving which appeared in the illustrated papers during the sojourn of the Princess Louise in Canada. I dare venture to say that it is a long time since Canada experienced a more severe winter than the one we have just passed through here. It has taken off many aged men, and some of our best public characters are now sleeping their long sleep in their graves. There is an old saying in England that March comes in like a lion and goes out like a lamb. Of this year it should be said that March came in like a polar bear and went out like a lion. The month commenced with a snow storm so much prolonged that street traffic in the cities was stopped, tram-car drivers gave up their calling in despair, and railway trains became so deeply embedded in snow-drifts that, in some cases, it took several days to dig them out. Truly the delicate snow flakes laughed to scorn the efforts of the steam-horse and defied the genius of the engineers. March took its departure with a hurricane so powerful as to blow away the roof of a portion of the Liverpool exhibition, causing loss of life and much damage.

In the mountainous districts sheep and cattle fared very badly whilst the snow storm prevailed. The frozen earth lay buried for many days, and grass could not be seen either to please the eye or to feed the sheep. It is estimated that in north Wales alone no less than fifteen thousand sheep perished, and thousands of ponies, once considered to be hardy enough to weather the severest of winters, met with a similar fate. In the north of Scotland the loss to the farmers was very great. Flock-masters were in despair, and the lambing season was a failure. Graziers who had been keeping store cattle suffered severe losses through being forced to send their animals to market, for the want of fodder and grass made it impossible to keep them. In the higher districts of Selkirkshire farmers were in a sorrowful plight. Sheep were wholly dependent on hand feeding, and supplies of hay had, in some instances, to be carted a distance of forty miles. The farmers

in Yorkshire also sustained severe losses which, through the depression in agriculture, they were not prepared to bear. The loss of lambs in Kent and Sussex was excessive. In general lambs have done badly in those counties, the farmers having lost from 20 to 90 per cent. It is almost needless to say that in the towns the severe winter added considerably to the distress already prevailing through want of employment, and to keep the people from desperation, private charity has been taxed to the highest degree.

Messrs. Geary Bros., of Bothwell, Ont., have purchased the whole of the celebrated Aberdeen-Angus breed of cattle belonging to Mr. Hannay, of Gavenwood. It is also reported that they have purchased, at its full value, the fine old herd of the same breed, the property of Mr. Taylor, Glenbarry, Rothiemay. The agricultural press is somewhat exercised over the purchase of these two grand herds, and they look upon the removal of them from the country with feelings of alarm. Lately such purchases by stock breeders from the Dominion have been numerous, and they are spoken of on this side of the Atlantic in terms of anxiety. The people do not relish the idea of foreigners coming over here with their long purses to clear out our pedigree stock. This breed, which has so rapidly come into favor among your people, bids fair to become extinct in its native land. Messrs. Geary are exporting a few stallions as an experiment. "Those who know" all about everything here declare that the experiment will scarcely be successful. Time will prove this.

Mr. Hodgson, the worthy Mayor of your town of London has, I understand, given an order for two coaching stallions which are to be sent out shortly. With regard to this matter it may be remarked that owing to the great scarcity of horses here for artillery and cavalry purposes, the British Imperial authorities are being urged to try experimental shipments from the Dominion. Sir Charles Tupper, the High Commissioner for Canada in London, and Mr. Dyke, the Canadian Government Agent in Liverpool, have advised the Imperial authorities to take that course.

The great decrease in the export of horses from the Dominion to the United States must be a matter of serious moment to your producers. English and colonial dealers, when invited to visit Canada, state that the horses are so scattered that they cannot lose their valuable time in scouring the country to make proper selections. That there are invaluable horses for carriage, cavalry, artillery, omnibus and van purposes in the Dominion is well known by the leading dealers throughout Europe, and it is to be regretted that the periodical sales organized by the late Mr. Grand, of Toronto, which were so successfully advertised by Mr. Dyke, of Liverpool, years ago, were not continued. If periodical horse fairs were held in Toronto, London and other centres in the spring and fall of the year, the difficulties I have mentioned would most certainly be overcome.

When glancing through the *Manitoban*, I noticed that Mr. W. Wagner, M. P. P. for Ossowa, Manitoba, has started the manufacture of tinned butter, on the principle adopted by Bush, of Copenhagen. With your butter trade in a depressed condition, it behoves every one

interested to devise some plan for remedying the evil. The tinned butter trade of the Scandinavian Kingdoms has, during the past few years, assumed enormous proportions. To a certain extent this branch of trade is being followed up by Irish dairymen. It is a trade in which the Dominion could successfully compete, and I understand that the report of the Hon. John Carling, Minister of Agriculture, for this year, and which will be obtainable on application to the Department of Agriculture by the time this reaches you, gives a vast amount of information on this very important subject.

As I anticipated in my last, the Australian supply of dead mutton has reached its maximum, and this, coupled with the fact that there has been a steady increase in the prices for home-bred sheep, shows that there is still hope for the Canadian sheep rearers, provided they produce an article of first-class quality.

Considerable agitation has been aroused in the farming districts of Great Britain, and pressure has been brought to bear upon the country representatives in the Imperial Parliament, in regard to the differential rates of freight charged for agricultural produce sent to the various centres. By way of illustrating the unfair treatment of which the English farmer complains, it may be stated that the carriage for United States cattle slaughtered at Birkenhead and sent to London is about 25s. per ton, whilst if the same number of English cattle were slaughtered in Cheshire and shipped by the same train for the same distance, a freight of 50s. per ton would be charged. Garden produce, eggs, poultry, etc., are shipped on through bills of lading from any part of Belgium to Manchester and other districts for the same, if not a less rate, than is charged from the west and south-west counties of England. So strong has the agitation become that Mr. Mundella, the President of the Board of Trade, has introduced a Bill into the House of Commons dealing with the present system of arranging railway and canal rates of carriage. Managing directors of the various railway companies have called mass meetings of shareholders in London to protest against any interference with their interests. I shall give you some idea of the extent of those interests when I state that the value of the outlay on English railways is fixed at the enormous sum of five thousand million dollars. The ruinous condition to which British agriculture has been brought by these differential rates and free imports, has thoroughly roused the country, and, notwithstanding the tremendous influence of the railway companies, there are good reasons for believing that Mr. Mundella's Bill will receive the sanction of Parliament.

Our free trading friends have argued that the more live stock and dead meat we import the cheaper will meat be sold to the consumer. Experience does not bear out that conclusion. Cheapness has turned out to be coincident with a serious falling off in the supplies, both of live animals and dead meat, from foreign countries and the colonies. In the first two months of 1884, we imported 122,302 sheep and lambs, but in the first two months of this year we only imported 73,404. Two reasons may be given for the decrease. In the first place, through the prolonged depression in trade and the want of employment, the people have become too poor to buy flesh meat in the quanti-

ties which prevailed a few years ago. In the second place, low prizes have destroyed the attractiveness of the English markets, so far as foreigners and the colonists are concerned. However, as already observed, through the severe winter and the decreased imports, the prices of mutton are gradually on the increase.

An agitation is going on to prevent the sale of spurious butter, which has been largely imported of late years. A Bill has been introduced into the House of Commons dealing with the subject. If passed it will not prevent the spurious article being sold as butter, but it will prohibit the use of the term "butterine," leaving the makers to employ any other name they may choose. It also provides that every package containing the article shall bear its name, whatever that may be, branded in large letters. It will require all butterine factories in the United Kingdom to be registered, and returns made of the quantities manufactured. Mr. James Howard, of agricultural fame, suggests that butterine should be colored by some innocuous pigment, so as to effectually distinguish it, and so provide a safeguard for the public, which appears to be necessary.

As I write (April 10) there is strong evidence that winter is disinclined to take its departure. The snow is falling fast, the ground is covered with it, and one might say that Onseley's description of winter is to be seen in fact in these days that are understood to herald spring weather—

The snow is on the mountain,
The frost is on the vale,
The ice hangs o'er the fountain,
The storm rides on the gale.

The Queen will open the India and Colonial Exhibition in London, on the 4th of May. A week afterwards Her Majesty, accompanied by the Prince of Wales and Prince Henry of Battenburg, will journey to Liverpool to open the Shipperies Exhibition. The Queen, who has not visited the city since 1851, will be the guest of the corporation, and will remain for two days. Great preparations for decorations and illuminations are in progress, and on the 11th of May, Liverpool will be the great attraction for the people of the great manufacturing centres of the north of England.

Safe Feeding for Cows.

A medium condition between fat and lean is the most desirable in which to keep cows, whether breeding or milking, says Prof. Arnold in N. Y. Tribune. In such a condition they are safer from attacks of parturial fever not only, but from every other disease, and in such a condition a cow will turn more of her food into milk than when fat, or growing fat, and more than when she is so thin that the demands for nourishment will stimulate assimilation instead of producing milk. In a herd kept so high that parturial fever is common, my advice would be to let the doctors keep their drugs and take off 25 per cent of the rations, and see to it that the constituents of the food given are properly balanced in respect to nourishing and heat producing qualities. Strong feed, like pea meal, cottonseed and linseed meal, are too rich to be fed very liberally for some weeks previous to parturition, nor is it safe to indulge much in such heating food as corn meal.

Hay and straw, with the waste of flouring mills and roots, are more suitable, and these only

in quantities necessary for support without having the animals gain or lose in condition. It is as important to avoid food too poor as that which is too rich. To maintain the highest degree of health, always a point of great importance in all breeding animals as well as in cows, it is not advisable to indulge much in such food as dead ripe straw, hay which had the goodness washed out of it by rain while curing, brewers' grains or glucose meal, and the like, which have had all their soluble mineral constituents soaked out of them by long steeping, or food of any kind in a state of fermentation or which has been fermented. Sound food in moderation, with convenient access to good water, with reasonable care, will save from loss of cattle and doctor's bills.

Shying.

This trick or vice is generally the effect of nervous timidity, resulting from an excitable temperament. It is aggravated by improper handling, says the Farmers' Gazette. To punish a horse for shying introduces a new cause of fear. The horse will be more alarmed and show more tokens of fear at the prospect of a whipping than at the imaginary object of danger in the road. Hence one bad habit is confirmed by the introduction of another. It is impossible to whip terror out of a horse or pound courage into one. Kindness and gentle persuasion are the best weapons to correct the pernicious habit of shying. The less fear exhibited by the driver, and the less notice taken of the shying by using harsh means, the sooner it will be given up. A careful, experienced horseman can generally detect an object likely to cause a nervous horse to shy, and by word or touch will encourage him to pass it unnoticed. When this fails, give him time to look at the object of his fear; pat him and coax him up to it, then take him past it two or three times, till he takes no notice of it.

When defective sight is the cause of this bad habit it is incurable, and if the eyesight is failing, the horse for ordinary driving and riding will be perfectly useless. A mare we knew that had gone quietly in harness for two or three years, suddenly took to jumping the white stone crossings of an ordinary macadamised street as if they were water brooks. In three months she was stone blind.

Mr. C. S. Read says he "found pedigree females less fruitful and worse milkers than good selected sorts of the same breed." This opinion is endorsed by the experience of dairy farmers in the west of England; also by milking trials at dairy shows where unpedigreed Shorthorns carried all before them. So says the Agricultural Gazette.

The U. S. Congress has passed a stringent law compelling all manufacturers and dealers in imitation butter to put up notices of such manufacture or sale, and heavy penalties are imposed upon the violators of the law. The business is placed under the inspection of the Inland Revenue Department.

A live stock authority in the Scottish Agricultural Gazette says: "Fairly bred cattle are better milkers than the purer bred cattle, and in too many cases high pedigree has been considered of more importance than their qualification as producers of milk."

The Dairy.

The Special Purpose Cow.

Mr. O. C. Gregg, writing to Hoard's Dairyman in favor of breeding cows specially for dairy uses, sums up his argument as follows:

1. Dairy cows are wanting at every point that makes a cow valuable for beef. This is a statement made upon their anatomy or structure. They are sans round, sans sirloin, sans everything where the valuable feed is found. It does not answer me to say that I have a cow that will make ten pounds of butter per week, and will make when fat so many pounds of meat for the butcher; for such cows are so rare that they are almost phenomenal, and again in the nature of the case they would if, better or butter bred, make more butter and less beef, so that the claim of gain in beef is a confessed loss of butter.

2. Continued feeding and handling for milk tends to destroy by inaction the aptitude to lay on flesh in advanced life. This is true by the law of habits.

3. If butter is worth making at all, it is not only worth making well, but the cow should be fed and bred for all that is in her, as the burden of dairy, not feed expense, is upon her.

4. The dairy market to-day offers paying prices for fine quality in the produce. Does it not seem like folly to discount quality of butter in ignoring the butter breeds by seeking for additional cow beef in these days of ranch cattle and beef depression.

5. The dairy market indicates to-day that we are on the eve of cheaper butter. Cheap bread has come and cheaper butter is coming. How can we make cheaper butter and life (live)? We must face the market. There is one way in which we can make honest butter cheaper and that is by making more butter per cow. We must have more ten and twelve pound cows and less seven pounds cows and blanks. We must breed cows as men are breeding horses, viz., "to get there." The rapid advance in dairy breeding is an open door out of our present difficulty. Bear in mind, however, that "he who enters here," must "leave all hope" of beef "behind." This quotation as applied, is over the door of the dairy heaven here below. I quote the good book to our beef burdened friends. "Whersfore laying aside every weight" (of beef) "let us run with patience this race" (of dairy breeding) now "before us."

6. The argument often urged that we should diversify in this matter of dairy work by having a little butter, some cow beef and a few steers, is lame, for the following reasons: Mere diversity pays nothing. If I have so much less butter because of more beef that I have less dollars, then diversity has cost me something. It is a luxury and not an economy. Such diversifiers are "seeking after the inevitable," and carried to its legitimate results would so attach dairy expense to a beef cow that they would never be able to "pay cash." Again, substitute the growing and training of fine cows for steers, and you have a natural and paying diversity.

7. My experience confirms all that I have written, and I will now add a few lines of summed up experience.

An old dairy cow is a fraud to fatten.

A steer from a good dairy cow by a good dairy bull is nearly a fraud.

A Jersey steer from good Jersey butter stock is, in my experience so far, an absolute fraud.

On the other hand, this deep milking stock is my paying dairy stock. I have spent much time in searching after the "paying compound," but now give it up. When I search again I will also hunt for white blackbirds.

What are we to do about our Butter?

BY M. MOYER, GEORGETOWN, ONT.

If there is such a thing as talking people to death, then there is also such a thing as teaching them to death. Since the good work of looking after our butter interests has commenced, all sorts of teachers have cropped up on every side, with all sorts of ideas, until the farmers are so confused that, instead of moving onward, they are standing still trying to find out which way to move. I must here again repeat what I often said before, I wish we had more practical men who were willing to put their money into the business, and risk their time and efforts to earn their bread and butter. I detest the idea of men attempting to lead us in this business without any experience or without risking a dollar in the business. If it means with a man that he will either make or lose money, he will act altogether differently than if his salary goes on regardless of his actions. I have been advising the farmers to handle their milk in a way that I felt satisfied would give them, and also myself, the best results. If I buy the cream, I want it in the best possible condition to make the best butter, and the farmers want the best system to secure this, and the most of it. The reputation of my butter and the high prices I have been able to pay for the cream, shows how successfully we accomplish this end. Believing also, as I stated in my letter in the last number of the *ADVOCATE*, that the quality of the butter made in private dairies has much to do with the value of our country's butter, I have also been giving instructions in managing private dairies. The results are also obvious and satisfactory. For instance, I have been telling the people that with the shallow pan system, the cream is injured by the influences of the air; that they must ripen the cream; that they must use a thermometer, and churn at a temperature varying from 58° to 62°, and that they must pack in tin-lined or good white ash tubs, etc. I have, however, to take a back seat when Prof. Brown eclipses me with such statements as these: The shallow pan makes as much butter as any way, only you have to let it stand longer, and that the proper temperature to raise cream is 55 degrees. He says nothing about the quality, or the sour milk for the calves. He does not believe in ripening the cream, because he has never seen anybody yet that could tell him how sour the cream required to be. It is all nonsense, he thinks, to talk about temperature for churning the cream, for that is all in the *size of the globe*, and they pack their butter in pine tubs, etc. At one of the meetings of the Farmer's Institutes, held through the winter, the same Prof. said that they were not peddling patent medicines, but were giving the people genuine knowledge. Now with such a Babel before us, we may well ask, "What are we to do?" Let

us, however, not despair. All great enterprises are accomplished slowly, and by overcoming a great many difficulties and obstacles.

As one who has his heart and money in the business, and one who rolls up his sleeves and makes butter, I venture again to give a few hints which may be of some value to butter makers. Feed your cows well, and don't let them drink dirty, stagnant water. Don't chase them with dogs, or in any way treat them cruelly. Provide for corn or something else to feed when the pasture gets short. Don't allow your cows to fall off in milk on account of poor pasture. You cannot get them up again to the same level. Be very cleanly in milking. Nothing is more disgusting than to see a man or woman milk a cow with dirty hands and the milk washing the dirt into the pail. Don't use shallow pans, and keep the milk out of the cellar. Set the milk immediately after it comes from the cows on the deep setting principle, completely under water, to exclude the air. Cool it gradually, but to as low a temperature as possible. Skim after 10 or 12 hours. Cream rises when the milk changes in temperature, and just as well at 70° as at 55°, and if you get it down to 40° by the use of ice your results will still be better. Some milk will cream much easier than others, and the cream will rise in passing from say 90° to 60°. If you find that your water is not cold enough to do the work properly, and you have no ice, you may heat your milk to about 110°, and then set it and get it as cold as possible. You will see that the space the milk passes through from 110° to 60° is as much as to pass from 90° to 40°, and the result will, I think, in all cases be about the same. Keep your cream under water till you have enough to churn, and then let it ripen in a temperature of about 60°. By ripening, I do not mean, as Prof. Brown thinks, that it requires a certain degree of sourness. To get acid is not the object of ripening, but to get a uniformity or evenness in all the parts of the cream. For instance, if you have one can of cream 36 hours old and another 24 hours, to get the best results, they require to be mixed and allowed to become uniform before the cream will churn to the best advantage, and yet the 24-hour cream by itself might have been quite fit to churn. The thermometer cannot be dispensed with, and although your judgment should cause you to vary several degrees, it will be safer always to churn at 60° than to trust entirely to your judgment. I am not particular about the kind of churn. If you have the cream right, any churn will do. Stop the churn as soon as the butter is sufficiently granulated so that you can draw off the butter milk. Wash the butter in the churn while it is in granulated form. Salt with prepared dairy salt, and use from $\frac{3}{4}$ oz. to 1 oz. to the lb., according to the tastes of your customers, or for immediate use, or for shipping.

A Miss Smithard, lecturing before the Royal Agricultural Society of England, said Normandy butter had driven all but the very finest English out of the English markets, owing to its excellent keeping properties. It came unsalted by sea, then land carriage, and after passing through several hands in the regular course of trade it was sold by the retail dealer pure and fresh as when sent out from its foreign makers.

Seven Points in Milk Setting.

1. To make the finest flavored and longest-keeping butter, the cream must undergo a ripening process by exposure to the oxygen of the air while it is rising, says Prof. Arnold, in the N. Y. Tribune. The ripening is very tardy when the temperature is low.
2. After cream becomes sour, the more ripening the more it depreciates. The sooner it is then skimmed and churned the better, but it should not be churned while too new. The best time for skimming and churning is just before acidity becomes apparent.
3. Cream makes better butter to rise in cold air than to rise in cold water, but it will rise sooner in cold water, and the milk will keep sweet longer.
4. The deeper milk is set the less airing the cream gets while rising.
5. The depth of setting should vary with the temperature; the lower it is the deeper milk may be set; the higher, the shallower it should be. Milk should never be set shallow in a low temperature, nor deep in a high one. Setting deep in cold water economizes time, labor and space.
6. While milk is standing for cream to rise, the purity of the cream and consequently the fine flavor and keeping of the butter will be injured if the surface of the cream is exposed freely to air much warmer than the cream.
7. When cream is colder than the surrounding air, it takes up moisture and impurities from the air. When the air is colder than the cream, it takes up moisture and whatever escapes from the cream. In the former case the cream purifies the surrounding air; in the latter case, the air helps to purify the cream. The selection of a creamer should hinge on what is most desired—highest quality, or greatest convenience and economy in time, space and labor.

Cream for Creameries.

Canon Bagot, who is taking active steps to improve the creamery business in Ireland, lays down the following rules, as reported in *Agricultural Gazette*:

Cows are not to be fed upon turnips, or any food that will impart an unpleasant flavor to butter; nor is any milk to be set for cream drawn from cows bulging, out of health, receiving medicine, or from newly-calved cows, until the milk boils without curdling.

It is advisable to wash or brush cows' udders before milking, so that no loose hairs or dirt can get into the milk; milkers' hands should also be perfectly clean; and milk must be strained immediately after milking before setting for cream.

Cream must be skimmed before it or the milk turns the least sour, consequently the time of setting will vary according to the weather. In setting milk it ought to be done as soon as possible after milking, because cream rises most rapidly in a falling temperature. In hot weather milk should be set very shallow, and in very cold weather, very deep—say from two inches to fourteen, according to the weather. Care should be taken to keep the room in which milk is set free from all bad smells, and also not to have too much light. It is as well to divide the air-currents by pla-

cing perforated zinc over the windows; this will not prevent plenty of fresh air coming in.

Each skimming is to be kept separate, and only mixed immediately before it is sent to the factory. No cream is to be sent to the factory that is more than forty-eight hours skimmed—that is, two days' skimming (four) comes to be churned the morning of the third day.

The Effect of Food on Milk.

Prof. Caldwell, of Cornell University, New York, at the late meeting of the New York Dairymen's Association, defined milk to be the result of two operations—the breaking down of the tissues of the milk glands and the diffusion of matter from the blood. He maintained that the blood will receive no more water than it needs from the use of succulent food, or from water drunk by the animal, all above that need being carried off by the kidneys. Succulent food increases the flow of milk but does not materially increase the proportion of water in it. Food does make a change in the dry substance of the milk. A ration rich in albuminoids will make a richer milk. The relative proportions of fat and of casein are changed in a marked manner by a change in the ration. Oil-cake added to the feed has been known to raise the butter product from six and one-eighth pounds to eight and one-eighth pounds per week. An extra yield of butter will naturally follow the use of richer feed, if the cow has been well selected; but a similar result may not follow in the case of an ordinary cow. Certain kinds of food will produce changes in the composition of milk not indicated by their chemical analysis. Palm-nut meal is known to increase the amount of butter, although the chemist cannot exactly show why it is so.

In relation to the effect produced on milk by substances that pass into it directly from the blood, well established by experiment and well known to dairymen, it was held that when drugs are given to a cow, their effect is seen in the milk in an exceedingly short time. For this reason, Prof. Caldwell holds that it might be well to pay some attention to the use of aromatic grasses as food, such as sweet clover and sweet vernal grass. But in relation to alcohol administered to a cow, it was held that it can never be detected in the milk, and this is regarded as a point in favor of fermented ensilage. Mouldy grain has caused the death of many cattle, and it has now been traced to the presence of alkaloids in the grain.

In relation to butter tests Dr. E. L. Sturtevant, Director of the New York Experiment Station, at Geneva, well-known for his scientific researches relating to milk, propounds the following:

"Did it ever occur to experimenters that butter in the form as weighed in these tests cannot be correctly sampled for water? Yet such seems to be the fact. Or that apparently, dry butter can easily shrink in weight one-third by a few hours' exposure? Yet this can occur. Before these official tests can receive scientific sanction we must know the richness of the milk used, as determined by analysis; the amount of fat in the skimmed milk and in the butter-milk; the quantity of water in the churned butter when weighed from the record; the shrinkage which takes place from exposure under ordinary conditions of keeping, etc. We thus shall be in a position to know something of the influence of the cow and her food, as contrasted with the influence exerted by the intelligence of the tester."

Garden and Orchard.

Papers for Amateur Fruit Growers.

SEASONABLE HINTS FOR MAY.

[By] L. Woolverton, Grimsby, Ont].

The *Gooseberry and Currant* bushes will need careful attention this month, if an abundant supply of fruit is an object.

The fruit is borne upon the new wood, and therefore a vigorous growth must be encouraged by good cultivation, and a liberal manuring with wood ashes. The slipshod method of growing currants and gooseberries in neglected corners, choked with grass, must be abandoned if satisfactory results are to be obtained. Surely any plant worthy of a place upon the land it occupies is also worthy of good cultivation.

A vigorous growth having been obtained, it will pay to nip the young shoots at the length of a few inches, thus causing them to throw out side branches. Sickly branches should be cut out and burned whenever noticed, because they denote the presence of the Currant Borer (*Egeria tipuliformis*.) This is a whitish fleshy grub, about half an inch long, which bores a hole nearly the whole length of the stem, and in June develops into a moth, which in its turn lays eggs for the production of a new brood of destroyers.

The *Currant Worm* is a great nuisance, and when abundant, will stand a very liberal dose of poison. The usual remedy is powdered hellebore, an ounce to a pailful of water, sprinkled upon the bushes with a watering can; but I have found it fully more efficacious, when the worms are very numerous, to dust the bushes with the powder when they are wet with dew, or after first sprinkling them with water. An old sieve, not too coarse, will be found most useful for this operation. With these, and other necessary attentions, which will be spoken of in their proper seasons, there is no reason why any gardener should fail in having an abundant crop of these most valuable fruits.

The *Strawberry Patch* will pay generously for every hour of attention given it. Probably no crop is so susceptible of improvement through proper management. One is astonished sometimes at the enormous crops a garden bed is said to produce, and occasionally almost inclined to doubt the veracity of the owner; but the secret is just this, that little garden has had as much attention as some growers give a whole acre. Don't begrudge labor, then, if you would succeed with strawberries. Ten thousand quarts of Crescents to an acre! Whew! Impossible! No, not impossible, but most improbable, if cultivated as many growers cultivate. Indeed, one or two thousand quarts is the more common average.

Before this time all mulching material should have been raked off the vines, and used for the double purpose of keeping the soil moist about the plants, and of killing the weeds, but if any push up through the mulch, they should be hand pulled, and themselves also used for the purpose above mentioned. This plan of keeping the ground well covered with straw or other material until after the fruit is gathered, will be better than cultivation, if sufficient quantity is available; but if not, the ground

must be kept well stirred, or the crop will dry up before the picking season is half over. In any case some clean straw ought to be put around the vines just before the fruit begins to ripen, to keep it from being covered with sand with every shower of rain.

Surface manuring every spring, or better, every fall, will be most serviceable, for the rootlets of the strawberry plants are quite near the top of the ground, and they have voracious appetites.

Baskets for marketing should be purchased this month. Mr. Slipshod usually delays buying his crates and baskets until he sees his fruit reddening, and then turns red in the face himself with chagrin when he finds that he must wait a few days longer before his order can be filled, by which time the price of the fruit has considerably declined.

The best crate is the basket crate, made of thin elm, similar to the peach basket. It holds twenty-four quart baskets, and is provided with a handle and cover. It costs about twelve cents, an expense almost saved in the express charges, when compared with the old fashioned heavy wooden crate, which so often strayed away or came back utterly unfit for further usefulness.

Of course the basket crate does not come back, but is sold with the fruit. This apparent waste is a great advantage, because it necessitates the use of clean new packages for each shipment; and thus the fruit is presented for sale in the most attractive manner possible.

It is not yet too late to make a new plantation of strawberries, though the earlier this is done the better. The ground must be well drained, well manured, and worked up into the very best condition; and then, by using a garden line and dibble, the plants may be rapidly set. The rows should be three feet apart, and the plants one foot apart in the rows, thus allowing room for a horse and cultivator one way. The day is past for having little square plots of ground fenced in on all sides, and called "the garden," where all the work is done by hand, and where even the little one-horse plow cannot be used, but only the spade. No farmer has time to garden that way now-a-days. The strawberry plants should be set in long rows, and horse labor utilized as much as possible.

Nut Trees for the Roadside.

Mr. A. S. Fuller, who is good authority, writes to Orchard and Garden, scouting the idea that nut-bearing trees may not be successfully transplanted. He prefers nursery-grown to wild trees, although he would not hesitate to risk the latter if the former could not be obtained readily and cheaply. In this connection he relates the following experience:

Twenty years ago I set out a row of shade trees along the road in front of my farm, selecting for the purpose various choice kinds that I believed would thrive and be ornamental—intrinsic value or future use of these trees was not taken into consideration.

Among the number were two chestnut trees, now with stems more than a foot in diameter and heads at least fifty feet across. They are not only noble and handsome trees, but every morning and evening for several weeks during the autumn the children, as they pass to and from school, stop under the trees and fill their

pockets and buckets with nuts; and this makes me wish the entire row of trees were of nut-bearing kinds; for I have not forgotten that I was once a boy myself, and enjoyed and appreciated such "pickings" far more highly than I would now the most elaborate and costly dinner that a Prof. Blot could possibly produce.

The Kerosene and Soap Emulsion.

Prof. Cook, of the Michigan Agricultural College, writes as follows in regard to the mixture of kerosene oil and soapsuds as a safeguard against plant lice and other destructive insects: "Among the orchard pests of the United States none hold a more prominent place than the plant and bark lice. The rapid increase of the former and the great numbers of the latter make these pests almost innumerable, and that, too, at the very dawn of the season, when the trees and plants are most susceptible to injury. Every farmer knows how slow the young animal—lamb, colt, or calf—is to recover from an early setback in its growth. Young plants, like our corn, are subject to the same law, too. The young first growth in foliage and wood, if blighted, shows in the lessened vigor of plant or tree the season through. The bark lice attack our many shade trees so that they need attention as closely as the orchard. The big-headed borer (*Chrysobothris femorata*) and old apple-tree borer (*Saperda candida*) are also common enemies of the apple trees all through our country, and often destroy whole orchards. The big-headed borer is especially to be feared in young orchards. These insects seem drawn toward trees with enfeebled growth, and so trees just from the nursery or after a severe winter are more frequent victims. Thus the orchardists all through our country may well be on the lookout the present season.

"Fortunately, the same remedy may be applied to all these pests, and thus the apple grower may kill three birds with one stone. This remedy is the kerosene and soap mixture. To make it, first make a strong suds by mixing and heating soap and water to the boiling point. Then stir in while still hot a pint of kerosene to a gallon of the suds. I have used a quart of soft soap to the gallon of water. Hard soap or whale oil soap are equally good. The precise quantity of soap is not material, though I have found it very desirable to have strong suds. I have never found this mixture to injure any kind of foliage, but as foliage varies in power to resist injury, it is always well to exercise caution, and dilute by adding more water in case any injury is done. This mixture should be forced on to the apple trees in a fine spray about three weeks after the blossoms fall. This is about the time the young bark or scale lice are leaving the scale and are most vulnerable. With all the bark lice the application should be made just as the young lice hatch to be most effective. With many species that attack our shade trees this is not till late in June. The eggs of the beetles which develop into borers are laid during June and July in Michigan; South it would be a little earlier, thus the application the first of June would be in season for these insects. I always rub the trunks and main branches with the liquid, and have for the first two or three years after setting the trees made the application twice, once the 1st of June and again the 1st of July.

"In a recent article in one of our leading papers, it is stated that this mixture will not kill the plant lice, unless so strong as to injure the trees. I must beg this writer's pardon, as I have repeatedly used the mixture as described above with entire success and without the least injury to the trees.

"To make the application use may be made of the Fountain pump, or any force pump with a fine nose for a nozzle. The Cyclone nozzle is excellent, as it creates a very fine spray, and thus economizes the liquid. On small plants the Woodason spray bellows is most excellent for the same reason."

This same preparation has been found to be an excellent preservative of melons, squash, and cucumbers against the various insects which infest these plants.

Poultry.

Diseases of Fowls.

It is not pleasant to think of failures and losses and worries of the past. I would go far to see the individual keeping a flock of fifty fowls who has never lost one from disease. It is very easy to keep two or three times that number, if they are in perfect health. It will be seen from the statements made in my previous letters that my profit in some years was very small. Many mistakes were made. All was not fair weather by any means, and, in that time, I became all too familiar with roup in almost all forms, indigestion, cholera, etc. There is no place in which the adage "an ounce of prevention is worth a pound of cure" is more applicable than in the case of poultry. Pains should be taken each day to keep them in health—free from lice, which weaken and reduce the system; free from drafts, by which they catch cold; overcrowding on roosts, thus making the air impure, etc. A really sick bird is a sorry sight, and, unless it be a valuable one, the best remedy is a severe one—decapitation; but a sure one, also, for not one bird, but a whole flock, is to be considered. As most of the diseases are contagious in every case, an ailing fowl should be taken from the flock and put in a separate coop at once; but, if one is ailing, there is a cause, which must be found and remedied, if possible, or more trouble will of course follow. The moulting season is a trying time, as are also the fall and early spring months, when we have sudden changes of weather, often cold winds and rain, for several successive days. So if, as is often the case with Leghorns especially, the fowls are not only late in moulting, but if the feathers nearly all come off at once, leaving the body almost bare, it will be almost impossible to avoid their taking cold. They may seem all right; nothing unusual is noticed, but do not be too sure. Go after they are quiet on their perches and listen. A cough is heard occasionally (I know no better term to use), or some may breathe hoarsely and laboriously, showing that some have taken cold, and, as in human beings, a cold neglected may end in death.

I have often cured fowls so affected by giving to each one a small teaspoonful of composition or capsicum mixed with lard. The remedy may seem severe, but it is a good one. It is also a good thing to put a few drops of aconite in the drinking water for all the flock as a preventive.

Do not consider time lost in watching a flock. Some great trouble may be saved by timely care. I like to see a fowl quick in picking up food, for when one is slow in feeding, occasionally taking a grain and then moping about, something is wrong. One can soon become expert in detecting other symptoms of disease, as ruffled plumage, lustreless eyes, pale comb and wattles, droppings sulphurous, green or watery. It is best in giving medicine first to be quite sure what the disease is before giving the remedies. But in my experience I give a dose of powdered charcoal and sulphur mixed with castor oil or lard, to be safe at all times, and if given at the first symptoms of indigestion will usually effect a cure. If left a week, the bird may be past help.

Undigested food, dry or fluid, is injurious to the crop, stomach and bowels, the contents of

the crop becoming full and watery, or hard and cakey, and if not seasonably attended to the bird will surely die. If full and watery, the only remedy I know, but one not always effectual, is abstinence from drink for several days, feeding light, cooked food. If the crop is hard and cakey—"crop-bound"—the remedy is a simple operation, but it must be carefully performed. Make an opening in the upper part of the crop. First, with a sharp knife, cut the outer skin; then, a little at one side, so as not to have one incision directly over the other, cut the crop itself, and carefully pick out with a smooth flat stick all the contents, even rinsing the crop with tepid water, as it is usually very sour and offensive. Then, with a fine needle and white silk, sew up the outer incision, being careful not to draw the thread too tightly. Afterward feed light food and not much water. Do not fear to do it all, thinking it a difficult thing. The first incision is a great relief, and very soon the bird will eat, whereas, before, it had refused food. We have opened the crop of a chick three months old with success—indeed, have never lost one if seasonably so treated. The cause sometimes is indulgence in too much food, which sours and ferments in the crop. Sometimes it is packed with dry grass, and sometimes by dry, bad food, damaged grain, etc. Never feed mouldy grain or mouldy feed of any kind. It is inhuman and far from economical. A tonic and disinfectant known as the "Douglass mixture" is used by many poultry-keepers. It is made by adding one-half pound copperas and one-half ounce sulphuric acid to one gallon of water. One tablespoonful of this mixture to one gallon of drinking water, given about twice a week regularly, when fowls are in confinement, goes far to keep them in health.—[Mary Moody, in Philadelphia Press.

Give no food to young chicks for the first twenty-four hours. Then feed hard-boiled egg, crumbled fine. After the third day feed oatmeal, bread crumbs soaked in milk, and egg once a day until they are a week old. After the first week give a variety, including meat and green food. One part corn meal, one part middlings, and two parts ground oats, mixed with fresh or sour milk, and seasoned to taste; should be cooked in the shape of bread, and crumbled up for them.

The instinct of a fowl leads it to scratch even in feeding on a heap of whole grain. This causes it to stop long enough to swallow. We give fowls too much at a time, and this causes them to stuff themselves so as to injure their crops if fed dampened meal. A little whole grain scattered among straw will make poultry scratch for what they get and conduce to their healthfulness.

A single rat in the neighborhood of a coop of chicks will gradually carry them all off. As they are very shy, the best plan to adopt is to close the coop in such a manner as to compel the rat to pass across a steel trap over which a piece of muslin is laid. As the muslin will deceive the rat, the probability is that he will spring the trap and be caught.

At a recent sale of Holstein cattle at Troy, Ohio, a herd, including a lot of calves, were sold at an average price of \$226.

The Apiary.

Fertilization of Red Clover by Bees.

I notice a correspondent of your paper says that honey bees do not fertilize red clover blossoms, says a correspondent of the Scientific American. They are often very busy working on red clover, especially the Cyprians and Italians, and why do they not fertilize it? They may get honey too far from the base of the tube, while the bumble bee's tongue reaches to the base. If the scarcity of bumble bees accounts for the lack of seed on the first crop of clover, why not cultivate and domesticate the bumble bee, and winter them so as to have enough of them to fertilize the first crop? It would certainly be advantageous to the hay, also seed the ground by shattering.

We need not cultivate bumble bees if we could find some other insect that would answer the purpose, and one that would combine some other points of usefulness would be preferable, but clover seed in first crop is a prize worth some labor to secure, is it not?

[A valued correspondent, who is an experienced agriculturist, to whom the foregoing was submitted, gives the following reply: Italian bees and some other varieties of honey bees gather some honey from red clover blossoms, when the secretion of honey is profuse, but no race of bees has yet been introduced or produced having a tongue of sufficient length to exhaust the honey secretion from red clover blossoms. The honey gathered from red clover is of superior quality and very fine color.]

The fact that not more than one-fifth of the first crop of red clover blossoms contains seed seems to prove that honey bees do not fertilize that variety of flora.

This failure probably results from the insufficient length of the ligula in honey bees to properly deposit the fecundating pollen.

May it not, in a measure, be due to some singularity of the form of the pistils, which may only be entered by the longer and stronger ligula of the bumble bee?

It would also appear that the fertilization of red clover blossoms is chiefly, if not wholly, performed by bumble bees.

Darwin, in his "Origin of Species," alluding to this fact, says: "We may infer as highly probable that were the whole genus of humble bees to become extinct or very rare in England, the hearts-ease and red clover—which they fertilize by carrying pollen from flower to flower—would become very rare or wholly disappear."

The cultivation of red clover was not successful in Australia until after the importation of bumble bees to that country.

In suggesting the cultivation and domestication of the bumble bee, in order that a sufficient number may be present in time to fertilize the first crop of red clover, the correspondent introduces a subject full of interest and stings, particularly stings. He also apparently overlooks the fact that the bumble bee belongs to the solitary species, and, as is the case with the wasp, ordinarily only the queen survives the winter.

The partial domestication of the bumble bee, even to the extent of furnishing warm winter quarters and the stimulation of early breeding, would be attended with such difficulty that economy would suggest that the matter be left entirely to nature.]

Correspondence.

NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason, that course seems desirable. If an answer is specially requested by mail, a stamp must be enclosed. Unless of general interest, no questions will be answered through the ADVOCATE, as our space is very limited. 3. Do not expect anonymous communications to be noticed. 4. Matter for publication should be marked "Printers' MS." on the cover, the ends being open, in which case the postage will only be 1c per 4 ounces. 5. Non-subscribers should not expect their communications to be noticed. 6. No questions will be answered except those pertaining purely to agriculture or agricultural matters.

Correspondents wanting reliable information relating to diseases of stock must not only give the symptoms as fully as possible, but also how the animal has been fed and otherwise treated or managed. In case of suspicion of hereditary diseases, it is necessary also to state whether or not the ancestors of the affected animal have had the disease or any predisposition to it.

In asking questions relating to manures, it is necessary to describe the nature of the soil on which the intended manures are to be applied; also the nature of the crop.

We do not hold ourselves responsible for the views of correspondents.

The Best Horse for the Canadian Farmer to Breed.—This is a subject of vast importance to the farmers of Canada. The horse that will be most profitable for the farmer to breed is one best fitted for the varied work he has to perform. This work, with the majority of farmers, consists of drawing the plow, harrow, harvesting machines, loads to mill and market, as well as light driving. He must therefore have weight, endurance and speed. He should stand fifteen or sixteen hands high, and weigh from eleven to fourteen hundred pounds. He should have a natural, easy walk of four miles an hour. He must have good style and action; head not too fine, broad between the eyes; neck of medium length, tapering towards the head, slightly arched, starting square from the shoulders, which should be of medium slope between the square shoulders of the heavy draft horse and the trotter. He should be well balanced; rather heavier in fore part, caused by depth, not by breadth; clean legs, without long hairs; line and flank well rounded. My reasons are: Such a horse has all the frame and machinery, and will perform as much work on a smooth farm or the road as a heavy-fleshed one in three-fourths the time. Over hills and through deep snows he can take a load where the heavy horse cannot go at all. An objection made by those unacquainted with such an animal (and by those only) is that he is hard to keep. His owner finds this to be true for the simple reason that some one else is sure to want him. He will outwear another horse for the same reason that an easy running spring wagon will outwear one without springs.—BENJ. J. CRAWFORD, Andover, N. B.

Mange in Cows.—1. I have a high grade Jersey cow that is troubled with some kind of skin disease which causes her to scratch very much and rub the skin off, and sores come on her, especially on her back. What treatment would you advise? The cow is kept in a good barn (not too warm), and is not allowed out doors except on very fine days. She eats well and is in good order. 2. What treatment would be best for a swamp, to make into permanent pasture, and what kind of grass seeds is best for it? Am living near the sea shore, where sea weed is the principal manure used.—SUBSCRIBER, Yarmouth, N. S.

[1. Your cow is most likely troubled with Mange, possibly with Eczema. The former is a parasite in the skin, and the latter arises from high feeding. Get a solution of carbolic acid of the strength of one to thirty, and rub it thoroughly into the skin; but it must not be rubbed all over the body at once, as it will be apt to cause poisoning in the system. Rub a small patch of the skin each day, say one or two square feet, making only one application on each patch. This is the most effective remedy for Mange. If you can drain your swamp thoroughly, a variety of grasses and clovers may be sown—see prize essay in our March issue; but as climate as well as soil has to be considered, you should make tests for yourself. But if your land is liable to be overflooded, the best grass is the Water Meadow Grass (*Poa aquatica*). In selecting permanent pasture mixtures, much depends upon the subsoil, for the deep-rooting clovers will not flourish in a stiff, damp subsoil.]

Milling Qualities of Democrat Wheat.—We think you are justly entitled to the thanks of the millers of this section of Ontario for your good judgment and enterprise in bringing to the notice of our farmers the good qualities of a fall wheat known as "Democrat." We find it yields a larger percentage of saleable flour than any other white winter wheat now grown in Western Ontario. The flour made from this wheat combines both strength and color, and possesses all the good qualities of the old and much valued Treadwell, but which has run out. We cannot too strongly recommend the Democrat as being the best wheat both for the farmer and miller, and we think you are entitled to a pension for your efforts in the past to bring the best grades of wheat into this Province.—HUNT BROS., Proprietors City Mills, London, Ont.

Coarse Manure for Sandy Soil—Green Manuring—Bots.—1. What do you consider the best method of managing and applying coarse, strawy barnyard manure on sandy soil with gravel subsoil (no particular crop considered)? 2. Would wheat, oats or buckwheat be best to sow clover seed with in case grasshoppers were going to be bad? 3. What crop next to clover do you consider best for pasturing and plowing down, or green manuring, on such soil? 4. I have a mare that shows symptoms of being troubled with bots, viz., frequent rolling in stable, staring coat, and now and then an attack of pain keeping her restless some hours until relieved by a bran mash. Could you give me a safe and effectual remedy?—H. K., Bloomsburg, Ont.

[1. Coarse manure should never be applied to sandy soil; it should first be fermented. 2. We would prefer oats. 3. Clover is so far superior to anything else that we don't feel justified in making any other recommendations. It takes large quantities of nutriment both from the air and the subsoil, and deposits it on the surface. With a gravel subsoil, however, there may be some excuse for growing buckwheat or any other crop that produces a rank top growth with shallower roots. 4. Bots are natural to all horses. Your mare is troubled with indigestion. Give her a purgative, followed by a tonic, such as gentian, and feed easily digested food.]

Overfeeding for Prizes.—I send you the following clipping from the "Northern Whig" of Belfast, Ireland, which agrees with different articles of yours on the subject of over-fat prize cattle.—"A series of shows of fat cattle is an invariable accompaniment of Christmas. Then one may hardly recognize in a huge mountain of beef the patient ox which was last seen browsing among its own pastures. The transformation that has been effected is great. A fattening process has been undergone in order that the festivities consequent on the rejoicings and mutual expression of goodwill at this season of the year may be fittingly celebrated. Like the gorging of the Strasbourg geese for the purpose of enabling the epicure to enjoy his *pate de foie gras*, we suspect the fattening of cattle for Christmas is not unattended with pain to the dumb animals, and Lord Harris in a recent communication certainly proves that it does not pay the exhibitor. At the Canterbury Cattle Show Lord Harris exhibited a bullock which was awarded the second prize. The fattening operation was conducted on business principles, and he clearly shows that it is no profitable investment to fatten cattle to the abnormal size required for prize winning. The animal in question was purchased for £28 7s. The gradual increase in the weight of the animal is stated—although during the month of May its progress remained stationary, and in July the increase was disappointing. The entire cost of fattening amounted to £29 5s 6d, against which was to be placed the value of manure and prize, which came to £9 18s. After prize-taking the bullock was sold for £25, showing a clear loss by the transaction of £12 14s 6d. Of course Lord Harris in this statement takes no account of the breeder, whose prices, he says, are fictitiously kept up by these prize offering shows. The instance, however, which he cites and supports by reliable figures, apart altogether from the sufferings which the fattening process entails on the animals, is well worthy the attention of those who send their stock for exhibition at fat cattle Christmas shows."—W. S. S., Beulah, Man.

Red Russet Apple—Jessica Grape.—1. Please let me know in the next issue of the ADVOCATE if an apple called Red Russet contains merit, and is worth grafting. It is said to have originated in New Hampshire. I bought one tree last spring from a nursery near St. Catharines, with a view of grafting from it this spring, but would like to know more about it before I graft. 2. Be kind enough to tell me something about the Jessica grape—if it is hardy enough to do well in the Annapolis valley, Nova Scotia, and if it compares favorably with the Niagara.—G. E. C., Middleton, N. S.

[1. The Red Russet is a hardy apple and possesses excellent qualities. It is little known amongst our farmers, but fruit growers who are acquainted with it speak highly of it. 2. The Jessica grape is too new yet to speak positively about it. However, it is one of the best flavored varieties, better flavored than the Niagara, and it compares with the Delaware as to hardness.]

I have one particular pig pen, and whenever any pigs are put therein they invariably become lousy. What is the cause and remedy?—J. D., Sparta, Ont.

[That particular pen is infested with lice, and the best way to get rid of them is to keep the hogs out of the pen for a few weeks. To facilitate the destruction of the lice, you should clean out the pen and put a solution of carbolic acid in the cracks. A good whitewashing would also be advantageous.]

The Dominion Shorthorn Herd Book.—Will you kindly give me some information about the Dominion Herd Book?—J. A. S., Ida, Ont.

[The Dominion Shorthorn Herd Book is an amalgamation of the Canada Shorthorn Herd Book and the British American Shorthorn Herd Book, the executive committee consisting of 16 members of the latter association and 5 members of the Agriculture and Arts Association. Henry Wade, Toronto, Sec'y, will furnish you with all the particulars you want.]

The Experimental Union.—Under your article, "The Agricultural and Experimental Union," I find my own name mentioned. Permit me the insertion of a few explanatory words. Although in the past the ADVOCATE appears to have had mistaken views regarding the objects and aims of the Union, etc., notably that we pledge ourselves to uphold everything done by the Ontario Government and the Ontario Agricultural College, and the reports of the Union in the past have not been of a nature doing justice to the views and aims we as members had in spite of all this, and the justice I may have had on my side to feel righteously indignant and the fear that in the future matters would perhaps not be remedied, I must own that I made a hasty step when I asked the question, "Would we be justified in asking the representative of the ADVOCATE to leave the meeting?" and it was a mistake I willingly admit. I am also now pleased that my question was answered by a storm of "No, no, no," above which I certainly heard no outburst of applause. In conclusion, I would say the ADVOCATE must after our last meeting surely see that we are not pledged to support the action of either the Government or the management of the O. A. C., but that we are pledged to do all in our power to advance the utility of that institution. We would now, I think, one and all gladly join hands with the ADVOCATE, bury all past mistakes and differences that may exist on either side, and in genuine fellowship aid the ADVOCATE and ask the ADVOCATE to aid us in promoting the interests of the College, of the community and of our country.—R. F. HOLTERMANN, Brantford, Ont.

[If Mr. H. has authority to speak on behalf of the Union, we take pleasure in informing him that we shall take the greatest pleasure in aiding him to advance any scheme he may have to propose in the interests of the independent farmers of Canada. We have not accused the Union of having any "pledge" more than is natural for any organization supported by public funds.]

Incubators.—Will you please inform me through your valuable paper as to the best kind of incubator for hatching all kinds of fowl early; also some idea as to mode of running them, and the cost?—W. P. B., Brampton.

[We have heard the incubator manufactured by Mr. T. C. Dawn, Park Hill, spoken very highly of. His advertisement appeared in the Jan., Feb., and March numbers; full directions for running it can be obtained by sending to the manufacturer.]

Raising vs. Buying Cattle—Rule for Ascertaining the Weights of Cattle.—1. Would it be better for me to raise my own cattle or to buy and fatten them? I can keep about 20 head. I have a lot of land unfit for grain, but pretty good for pasture. 2. Give a rule for ascertaining the weight of cattle.—J. W., Hinch, Ont.

[If you understand how to breed cattle better than to buy them, by all means raise them yourself. In purchasing cattle you must be able to tell nearly their exact weight by the eye, and not depend upon measurements; and must also know how to judge a store steer that will put on flesh rapidly. There are so many local circumstances to be considered that it would be impossible for us to advise you. You should raise some steers and buy others, and by keeping accounts you will soon find out which method is the more profitable. 2. The best way to learn the weight of cattle is to attend shows where they are weighed, and if you have a good eye, you will soon pick up the business. However, the live weight may be approximately ascertained by the following rule: If the animal's girth is between 5 and 7 feet, allow 23 lbs. to the superficial foot. For a girth of 7 to 9 feet, allow 31 lbs. per superficial foot. Measure the girth in inches back of the shoulder, and the length in inches from the square of the buttock to a point even with the shoulder blade. Multiply the length by the girth and divide the product by 144, which gives the superficial feet; then apply the rules above given.]

Lumps on the Arm.—Would you kindly let me know, through the columns of your valuable paper, what to do for a 2-year-old horse which I have with a lump on his right arm, not quite as big as a hen's egg. It is about a year since I noticed it. It is a little larger than when I first noticed it. I did not see him get hurt; he might have got kicked by one of the other horses. It is under the skin. Would it be safe to cut it out? You will please let me know what to do with it. It can be moved with the hand.—A. M. L., Bradabane, P. E. I.

[If the lump is near an articulation or on the point of the elbow, use tincture of iodine applied with a brush, every third or fourth day, after clipping off the hair. If in any other part of the arm, it can be safely removed with a knife, treating afterwards as a common wound.]

"Tail Soak"—Boring Horns.—As I have a cow that is very sick and not likely to recover, I would like if you would answer a few questions through your valuable paper. Is there such a thing as "tail soak"? Is it right to bore the horns and put in a mixture of pepper, vinegar and salt to produce heat? If such diseases exist as mentioned above, please tell the cause?—R. C. M., Renfrew, Ont.

[There is no such disease as "tailsoak." It is of no benefit to bore the horns and inject a mixture of any kind. When the tail or horns are affected, it is generally due to some constitutional affection, weakening the action of heart and lessening the quantity of blood sent to the parts, thus bringing about the altered condition.]

Paralysis.—I have a cow thirteen years old which has lost the use of her legs. She chews her cud and eats well, and hitches around the floor. She should come in in a week or two, if she lives. There are a great many cows dying around here. If you could prescribe a remedy it would be considered a great favor. This is the 4th crippled day. She has been fed on straw and wild hay and grain. She is in fair condition. By answering this you will greatly oblige an old subscriber. The remedies that I have written for have saved me many times the subscription.—S. S., Seeley's Bay.

[Your cow is paralyzed. Try an application of mustard along the spine, and give internally nuxvomica, 1 drachm, in half a pint of ale twice a day. She will likely improve after calving.]

Lampas.—Would you be kind enough to notice in your journal what is the best and simplest method of treating the lampas in young horses? We have no farrier in our neighborhood.—T. C. C., Sackville, N. B.

[Your best treatment for lampas is simply to lance the parts with a sharp-pointed lancet, and give a fever medicine, as nitrate of potash, 1 drachm, in his feed each night for a few nights.]

Permanent Pastures.—I have read in your valuable paper a good deal about permanent pastures. Now, I want a little information, as we don't know much about the subject in this locality. I have a twelve-acre field, half of it was in roots last season, the other half in barley. What I would like to know is, can I seed down the root ground with spring wheat and be successful or not, or would any other spring grain be preferred? How would I sow the seed, with the drill or by hand? Also, supposing that I did not put any spring grain in, when would be the best time to sow the grasses, and how late in the season would it do to sow them?—W. W., Mitchell.

[If your soil is rich and clean, you may sow say one-fourth to one-third of the usual quantity of oats or barley with the grass seeds, but this foster crop is not necessary, except when you sow late, and in some seasons it is better to sow the grass seed alone. The main object in sowing a foster crop is to protect the young grass shoots from the scorching heat of the sun, but if you sow early, especially if the weather remains cool and moist, you may safely sow the seed mixture alone, and you will likely be more successful with your pasture than when you sow with a foster crop. Not being able to predict the weather, your safest plan is to sow as early as the land can be brought in a suitable condition, bearing in mind that the longer you delay, the thicker you should sow the oats or barley. Wheat is not used as a foster crop, for its blades are not shady enough, and it takes too much nutriment from the grass plants.]

Please answer the following questions: 1. Who has a right to build and keep up fences between farm and village lots sold off said farm years ago? 2. What banks in Ontario are Government banks? 3. Please publish again that stump burning receipt I saw about last spring. If you think it a good thing, as I can't find it.—C. L. S., Varma, Ont.

[1. Each party is responsible for half of the fence, and is bound to keep it in repair. If the whole fence is out of repair and damage of any kind would result from its not being repaired and one party repairs the whole fence, the other is liable to pay half. 2. There are no Government banks in Ontario. 3. We have refused to continue the stump advertisement, as it has proved a failure.]

MANITOBA AFFAIRS.

A New Farmers' Organization—Railway Matters—Farmers' Grievances.

FROM OUR WINNIPEG CORRESPONDENT.

The winter has been considerably milder than usual; consequently our limited fuel resources have been more sparingly drawn upon. I am informed that in the fuel supply of the district court house and jail here, there has been a saving of about 150 cords, owing to the mildness of the winter, these buildings being heated by steam, and tamarack wood the fuel used. This may serve to show the economical value of a mild winter to this country.

The spirit of agitation has again come over the people. A Farmers' Alliance has been formed at Brandon of Manitoba farmers, and they have been "resoluting" for the redress of grievances, which are sufficiently well known to need enumeration. This institution, if we may believe the party newspapers here, is an off-shoot of a now defunct "Farmers' Union." At the annual meeting of the Farmers' Union, Mr. Purvis resigned the Secretaryship, or, in other words, was dismissed, and Mr. Thompson, of Emerson, appointed in his place. It was then decided that no commercial business be transacted this year. This was rendered necessary in order that some complications which arose out of last year's transactions might be cleared up. The business management, it seems, had not been an entire success, owing to some indiscretions of the late secretary, which involved the Union in some debt and law suits. It is surprising the amount of abuse that has been poured upon the Farmers' Union. Both Tory and Reform newspapers have held it up as a huge swindle, and the late secretary as a man to be feared. If it is impossible for an institution to exist without the support of newspapers, certainly the Farmers' Union cannot exist. The Union may have committed mistakes in its business management, but as to the great crimes that the press has heralded forth to the world it has committed, any sensible, independent man will not say it is guilty of. It has been the theme of as much editorial matter as the great rebellion, and poor Purvis has been treated as the Riel of it. Any exactions of the C. P. R. could not have called forth more violent invectives. The Tory journal has seen nothing but evil in the Union since its organization, because, I presume, the Norquay Government came under its consideration. The great Grit journal, on the other hand, has all along supported the Union until the December Convention, when it undertook to give the Union a little gratuitous advice, and the Union told it to mind its own business. Since then the two journals have joined hands to "suppress" the Union. There is certainly a little doubt as to whether it will survive. Should their financial difficulties be arranged satisfactorily, we shall no doubt hear more of it anon.

A large mass meeting of the citizens of Winnipeg was recently held here to discuss the disallowance of Manitoba railway charters by the Dominion Government. Strong resolutions were passed urging the Dominion Government not to disallow the charter for the Manitoba Central railway, a line to run from Winnipeg to connect with the American lines, thereby affording competition to the C.P.R. Considerable enthusiasm was manifested. Influential citizens of both parties spoke strongly in support of the resolutions, and if this railway is disallowed the people here will raise a tempest that the Government would in vain try to calm.

The Household.

Keep the Cellar Clean.

A great deal of sickness families suffer could be easily traced to the cellar. The cellar not unusually opens into the kitchen; the kitchen is heated and the cellar is not. Following the natural laws, the cold air of the cellar will rush to take the place of the warmer and, therefore, lighter air of the kitchen. This would be well enough if the cellar air was pure, but often it is not; partly decayed vegetables may be there, or rotten wood, etc. The present time is opportune for a thorough cleansing of the cellar. A day should be taken to throw out and carry away all dirt, rotten wood, decaying vegetables and other accumulations that have gathered there. Brush down the cobwebs, and with a bucket of lime give the walls and ceiling a good coat of whitewash. If a whitewash brush is not at hand, take an old broom that the good wife has worn out, and spread the whitewash on thick and strong. It will sweeten up the bedrooms, and it may save the family from the afflictions of fevers, diphtheria and doctors.—*American Artisan.*

Household Hints.

To make eggs froth quickly when beating them, add a small pinch of salt; and it will freshen them, too.

Mix your stove-blackening with soap-suds; the polish comes quickly and the dust of the blackening is avoided.

Egg shells crushed into small bits and shaken well in decanters three parts filled with cold water, will not only clean them thoroughly, but will make the glass look like new.

By rubbing with a flannel dipped in the best whitening, the brown discoloration may be taken off cups in which custards have been baked.

When putting away the silver tea or coffee pot which is not in use every day, lay a stick across the top under cover. This will allow fresh air to get in, and prevent mustiness of the contents familiar to boarding-house sufferers.

If you are going to save money by doing your own whitewashing, this spring, it is just as well for you to know how to go about it. Some who try it go on for a while until the whole house is ornamented up with lime out of place, and at last send for "the men." There is no reason, however, why, with a proper idea of what is to be done, and how to do it, you should not be able to use the brush to good purpose. First, "catch your hare." Procure fresh burnt lime, not that partly air-slacked. The large lumps are best. The fine portions and small lumps will not make a wash that will stick well. For this reason, lime that has been burned for several months is not as good as that just from the kiln. Put a pound or two into a vessel, and pour on boiling water slowly until it is all slacked and is about as thick as cream; then add cold rain water until it will flow well from the brush. Stir often when using it. A few drops of bluing added will give it a more lively colour. One or two table-spoonfuls of clean salt, and one-fourth pound of clean sugar to a gallon of the wash, will make it more adhesive. If the walls have been whitewashed, let them be swept thoroughly, and if colored with smoke, wash them clean

with soap-suds. A brush with long, thick hair will hold fluid best when applying it over head. If a person has the wash of the right consistence, and a good brush, he can whitewash a large parlor without allowing a drop to fall. When it appears streaked after drying, it is too thick, and needs diluting with cold water. Apply the wash back and forth in one direction, and then go cross-wise, using a paint-brush at the corners, and a thin piece of board to keep the brush from the wood-work or the border of the paper. Coloring matter may be mingled with the wash to give it any desired tint. To make a light peach-blow color, mingle a small quantity of Venetian-red. For a sky-blue, add any kind of dry blue paint, stirring it well while mixing. To make a wash of a light straw color, mingle a few ounces of yellow ochre or chrome yellow. The coloring matter should be quite fine to prevent its settling to the bottom of the vessel.

Ammonia.

Ammonia is cheaper than soap, and cleans everything it touches. A few drops in a kettle that is hard to clean makes grease and stickiness fade away and robs the work of all its terrors. Let it stand ten minutes before attempting to scrape off, and every corner will be clean. It cleans the sink and penetrates into the drain pipe. Spots, finger marks on paint, disappear under its magical influence, and it is equally effective on floor and oil cloth, though it must be used with care on the latter, or it will injure the polish, and keeps clean longer than anything else. If the silver be only slightly tarnished, put two table-spoonfuls of ammonia in a quart of hot water, brush the tarnished article with it, and dry with a chamois. If badly discolored they need a little whitening previous to the washing. An old nail brush goes into the cracks to polish and brighten. For fine muslin and delicate lace it is invaluable, as it cleans, without rubbing, the finest fabrics. Put a few drops into your sponge bath in hot weather, and you will be astonished at the result, as it imparts coolness to the skin. Use it to clean hair brushes, and to wash any hair or feathers to be used for beds or pillows. When employed in anything that is not especially soiled, use the waste water afterward for the house plants that are taken down from their natural position and immersed in a tub of water. Ammonia is a fertilizer, and helps to keep healthy the plants it nourishes. In every way, in fact, ammonia is the housekeeper's friend.—*Baptist Weekly.*

Hanging Wall Paper.

There are many housekeepers who have one or more rooms which they would like to re-paper in spring, but are kept from doing as much of this kind of work as they would like on account of the expense of getting a professional paper-hanger to put the paper on. Any one who takes the pains to notice, can soon learn to put on paper as well as the best paper-hanger. In the first place, you can often find among the cheap papers one or more lots that look just as well, and are of as good quality as the more expensive ones. When you have got your paper home, trim off the edge on the right side, as it is better for an inexperienced hand to commence at the left side of a door or window, and go toward the left. When you are ready to begin, make your

paste with boiling water, and let it boil about as long as common starch, and it should be no thicker than starch after it is cold. Let it cool, and strain it through a common salt sack, to take out the lumps. Then take a piece of washing soda as large as a walnut with the hull off, dissolve it in water, and put it in the paste, and you need not use any glue or anything else whatever. Let an assistant hold the paper up to the wall so that it will match with the piece already on, and cut it off the right length, always half an inch short, as it will stretch that much. Lay the paper wrong side up on a large table, let your help hold one end while you put on the paste quickly and evenly with a white-wash brush. Be sure to get every part covered. Take hold of the upper end while your assistant takes the lower end, fasten it at the top, then sweep it down with a soft broom or brush, pick all windy places with a pin, and pat gently with a soft cloth. If it should become fast at the bottom too soon for the rest, pull it out carefully from the wall and replace it again. Paper put on with washing soda in the paste will not crack and come loose on greasy walls, as it often does without it. Try this plan, and your rooms will look nice and new with but little expense.

Home Wrinkles.

Tin ware washed in soda water will look like new.

To keep postage stamps from sticking together, rub over the head; the natural oil on the hair oils them.

Salt extracts the juices from meat in cooking. Steaks ought not therefore to be salted until they have been broiled.

In darning woolen socks, make the first layer out of stout thread, and the cross threads of woolen yarn. It makes a firm, smooth darn, which wears well.

Try one of the smallest coal oil lamps. It looks like a toy, but for a hand lamp it will make as much light as a good tallow candle, and will not drop sparks.

Finger marks may be removed from varnished furniture by the use of a little sweet oil upon a soft rag. Patient rubbing with chloroform will remove paint from black silk or any other material.

A mustard plaster that will draw but not blister: mix the mustard with the white of an egg, or melted lard, spread on a thin cloth, and cover with a piece of gauze or thin muslin. This can be worn for days without fear of taking cold.

Save old napkins and table-cloths, cut out the good parts and put them away in a bag, appropriately labeled, to be ready for use in case of sickness. Also, keep another bag with pieces of flannel, and another with old cotton cloth, for the same purpose.

Always say a kind word if you can, if only that it may come in, perhaps, with singular opportuneness, entering some mournful man's darkened room like a fire-fly whose happy circumvolutions he cannot but watch, forgetting his many troubles.

An ordinary bee can draw twenty times the weight of its body; and a large horned beetle, which was carefully weighed and allowed to work unmolested beneath a bell-glass, drew forty-two and two-tenths times its own weight. Think what labor some of the larger animals would or could perform if they could move loads according to their size as do some of the lower orders of animal life.

Minnie May's Department.

MY DEAR NIECES,—We can say but little upon the hackneyed subject of "spring cleaning," about which advice and information are very plentiful at this time of the year. "Tear up one room at a time," "take things leisurely," is excellent advice on paper, but to a practical housekeeper is of little good. There can be no more fixed rules for house-cleaning than for house-work. No two women can work under exactly similar conditions. To "tear up one room at a time" will answer if you have neither papering, painting or whitewashing to do, as paper hangers, etc., cannot come at a woman's nod, and all such work must be done when the men are in the house. If a woman is hired to assist in cleaning, for economy's sake the mistress feels that she cannot have the job prolonged all summer, so hurries it along. At the very best it brings hard work, lame backs and shoulders, and pounded fingers. I will only give you a few hints that may be useful as you proceed.

Have all my friends, I wonder, tested the magic properties of borax? If not, you have a great help and comfort in store. It saves great labor in washing paint, and is said to drive away ants and roaches, if sprinkled on the pantry shelves. Two tablespoons of pulverised borax dissolved in a quart of water, to which water enough is added to cover a pair of blankets, will cleanse them beautifully. Pack away your blankets not in use with camphor or bitter-apple. Borax will extract dirt from articles of delicate texture without rubbing, as lace curtains, etc., it being only necessary to put the articles to soak in a solution of borax over night, then rinse them in the morning.

The destruction of moths is one of the greatest vexations a careful housekeeper has to contend with. From the time the windows come to be left open the trouble begins, and every housekeeper must be on the watch. If you have heavy carpets that do not require taking up every year, just take out the tacks and fold the carpet back, wash the floor with strong suds with a tablespoonful of borax dissolved in. Dash with insect powder, or lay tobacco leaves along the edge and retack. Freshen your carpets by rubbing with ox-gall; break one or two galls into a pail of lukewarm water, and rub the carpet hard with the cloth thoroughly wet with the gall water; do a small piece at a time, having ready a dry, coarse cloth, and rub the carpet dry. A thick flannel cloth wrung very tightly out of borax water, not *wet*, but *damp*, is good to wipe off the carpets.

Smears in polished wood are easily removed by rubbing with a soft cork. Bronze ornaments should be cleaned with soap and water and brush. Polish steel with emery powder. Some say that stains in marble should be covered with a paste of whitening and sweet oil for twenty-four hours. Brighten zinc by rubbing with a cloth saturated with kerosene, then wash with hot soapsuds.

To clean straw matting, it should be washed with a large coarse cloth dipped in salt and water, then wipe dry; the salt prevents it turning yellow.

Rosewood being in so much request for furniture, we give a recipe for an imitative stain,

applicable to pine and other plain woods, consisting of a transparent rose pink liquid. Mix, first, four pounds of potash in one gallon of hot water, adding same weight of sandal wood. When the color of the wood is extracted add two and one-half pounds of gum shellac dissolved over a quick fire. Apply a groundwork of logwood stains to the wood and then the mixture.

A good way to get rid of the rats and mice in the cellar is to prepare lime for whitewashing and put into the quantity of lime-water sufficient for covering a cellar, a large piece of copperas—as large as two fists; dissolve well, and whitewash with it. No rats or mice will return to the cellar, and all is sweet and healthful, destroying any malarial influence. Repeat this every year. Wash not only the walls, but also all partitions and wood work.

Mirrors and glass of pictures are best cleaned with methylated spirit, and then polished with chamois skin.

MINNIE MAY.

Work Basket.

PILLOW-SHAM HOLDER.—Take a broom handle three feet long, cover it with red cloth, then with flowered lace, and sew on a piece of wide lace to hang down. Take two yards of red ribbon with a rosette at each end of it and tack it on the ends of the roll; hang in a bedroom, and when retiring at night lay the shams over it. It is ornamental as well as useful.

PERSIAN RUGS MADE AT HOME.—To make a rug plenty of perseverance is needful, for it is a large contract to make one of ordinary size; but it is very pretty work, and can be done with ease by even those ladies whose eyesight is failing. Purchase from some carpet dealer a supply of scraps of tapestry, and Brussels carpeting; pieces that are too small to be worked up into hassocks are quite large enough for this purpose. Cut these into strips of any length their size allows, but let them be of uniform width, say three inches. Ravel these all out, rejecting the linen, and collecting in a box the little crimped worsted threads. Then provide yourself with a pair of the largest sized steel knitting-needles and a ball of the coarsest crochet cotton, either white or colored. Set on ten stitches, and after knitting a row or two to make a firm beginning, go on as if you were making a garter, but with every other stitch lay a thread of the crimped wool across the needles. After knitting the stitch take the wool which shows upon the wrong side, and turn it toward the right side, knitting a stitch above to secure it. Then put in another thread of wool and repeat the process. The back of the strips should have something the appearance of that of a body [Brussels carpet, while the front should be like a sort of thick, long napped plush. The colors may be used without selection, making a sort of *chene* effect; or carpets may be chosen for raveling, which show only shades of scarlet or blue; or brown carpets may be used for the centre of the rug, and a border of scarlet or blue sewed on all around. After doing a little of this work, many ideas as to arrangements of colors will suggest themselves, and a little practice will enable the knitter to produce some very pleasing results. When the strips are all finished they must be sewed together at the back. It is only for convenience that they are knitted in strips—the rug, as a whole, would be cumbersome and un-

wieldy to handle. Brussels or velvet carpet hearth-rugs are made with a strip of this knitting for the border, giving a very pretty finish.

TABLE SCARF.—A simple but very handsome scarf for a small table is made by taking three strips of broad ribbon; have the centre strip of a contrasting color; for instance, if the two outer pieces are of the sombre or shaded ribbons so much in use a year or two ago, let the centre be of cardinal; turn the ends back to make them pointed, and put a tassel on each point; baste the ribbon to a lining of silesia, old silk, or even canton flannel, and where the edges join work fancy stitches. A great variety of scarfs could be made in this form, and be ornamented by putting sprays of flowers in embroidery or painting on each point, or a vine or a scroll could be worked with good effect on the centre stripes.

A young girl's room may be furnished daintily and in exquisite taste at a small expense. The chief outlay will be for a bedstead. This cannot be constructed out of pine boards and a bit of muslin, though many other things may be; but a handsome painted bedstead of blue and white is the first requirement for this room. The floor may be covered with plain white matting, or of blue and white plaid, with a soft rug at the side of the bed; a dressing case of white wood, covered with blue silesia, with white muslin, can be made next, and a white wood washstand is also needed. This, like the dressing-table, should have the under part entirely concealed by breadths of the silesia and muslin. These should be gathered slightly at the top, so that they will fall in graceful folds. The curtains should be of the muslin, draped, and the bedspread and pillow covers of the muslin over silesia also. The bedspread should, of course, lie smoothly over the bed, and be tucked in at the end and sides, unlike the lace ones, which hang over. The muslin of the pillow-covers may be shirred at the top and the bottom, if you like the full look the shirring gives; they need, in this case, no edges, and in fact when put over the silesia plainly, do not trim them with lace, unless you add this adornment to the curtains, but finish with a plain hem. With the various trifling ornaments a young girl gathers about her, the room will receive anything it may need in color to brighten it. A room so prettily furnished may be a real help to a girl; it will not be easy for her to cultivate disorderly habits there, for the effect she has worked to create would be entirely marred.

A strip of colored plush is often twisted round one side of a picture resting on an easel in a room. Any fancy piece of effective material is also arranged in the same way. Small mirrors are decorated thus.

Answers to Enquirers.

M. E. V.—1. To clean the men's clothing, mix two parts alcohol and one part ammonia; rub vigorously with sponge or woollen cloth. 2. It depends somewhat on who may ask you to sing; if it is by a married lady who is a particular friend of the hostess, you might comply, but certainly not if asked by a young man or young lady. In fact, such matters should be left to the hostess to arrange.

SUBSCRIBER.—1. Wedding cards are some times paid for by the bridegroom, but the

bride's family should bear all other expenses of the wedding. 2. "Dear friend," or "Dear Miss Blank" would be quite proper, for the "Dear" at the beginning of a letter is merely a courtesy, and need not indicate any warmer feeling than friendship.

MAY.—1. If you are speaking to an intimate friend of her parents, you can say "your father and mother," but it is usually better taste to say "Mr." and "Mrs." 2. Stir the starch while hot with a wax candle, and you will thus produce a great degree of gloss on the collar when ironed. 3. It is not necessary to thank your entertainer for the pleasant evening, although a slight remark of the kind is very pleasing. In the case of the evening's entertainment being given specially for you, it is obligatory on you to thank your hostess on leaving.

DAISY N.—"Bread fritters" are very nice made as follows: Cut bread in small slices and cut round. Make a batter with 1 egg, 1 pint of milk and $\frac{1}{2}$ pound of flour. Spread some jam on a few of the slices of bread, and lay as many slices over them, like sandwiches. Dip all into the batter, then fry in boiling butter or fresh lard. When of a light brown color, pile them on a dish and sprinkle slightly with white sugar. They should be very hot when served.

K. A. G.—Galileo was a native of Pisa, born in 1564; was the first constructor of a telescope available for scientific purposes. He discovered the satellites of Jupiter, the mountains of the moon, the spots and rotation of the sun, also the laws of weight, and the use of the pendulum, and maintained that the earth moved round the sun.

Queries.

BETSY would like a recipe for making soft soap without boiling, and also wants to know if hard soap can be made without boiling; if so, how? Can any of our readers tell her?

Recipes.

BOILED MILK ROLLS.—Put two quarts of flour in a pan; then take 1 qt. of new milk and boil with a tablespoonful of lard and two of white sugar. When nearly cool make a hole in the flour and pour in the milk, adding a teaspoonful of fresh yeast. Let it rise an hour, then work well and add flour enough for a stiff dough. When well risen, work into rolls, turnovers or any shape desired, and bake quickly.

QUICK DESSERT.—Cut cold gingerbread or stale cake in pieces, lay in saucers and serve with scalded cream sweetened, or pudding sauce.

TIN-WEDDING CAKE.—Rub 1 cup of butter and 3 of sugar to a cream; add 1 cup of milk, 4 of flour, 5 eggs, 1 teaspoon cream tartar, $\frac{1}{2}$ teaspoon of soda, $\frac{1}{4}$ lb. of citron. This makes two loaves.

DELICIOUS MUTTON CHOPS.—Wipe and clean the chops and season with salt and pepper. Lay one chop in a sheet of buttered letter paper and fold the edges closely together, and broil in a wire baster until the paper is charred to a crisp, without allowing it to blaze. When done break off the paper. In this manner the chop is free of the smoked and burnt look, and is especially delicate.

MOULD OF JELLY AND BLANC MANGE.—Fill the flower of the mould with blanc mange, leave it to harden, then pour in an inch thick of calves foot or lemon jelly, leave it to harden, then blanc mange, and so on till the mould is filled.

PIE CRUST GLAZE.—To prevent the juice soaking into the crust and making it soggy, wet the crust with a beaten egg just before you put in the pie mixture. If the top of the pie is wet with the egg it gives it a beautiful brown.

PRESSED BEEF.—Boil a shank of beef till tender, chop it not very fine, boil down the liquor until three pints are left; three quarts of chopped meat, three pints of liquor, three teaspoonfuls salt, three teaspoonfuls pepper, one-half nutmeg; pour the liquor over hot; set away till cold and then slice in thin, even slices.

APPLE SAUCE WITH MEAT, is prepared in this way. Cook the apples until they are very tender, then stir them thoroughly so that there will be no lumps at all; add (the sugar and a little gelatine dissolved in warm water, a tablespoonful in a pint of sauce; pour the sauce into bowls, and when cold it will be stiff like jelly, and can be turned out on a plate. Cranberry-sauce can be treated in the same way.

PRIZE ESSAY.

Family Government.

WRITTEN BY MISS JESSIE ROBERTSON,
STRABANE, ONT.

Family government—what is it? Without attempting a metaphysical definition of what it is, we would say it is to the family what government is to the nation, and upon it the future usefulness, success and prosperity of a family, or the lack of these, largely depend.

We think parents should insist upon and receive obedience from the tenderest years—as soon as a child knows what wrong is it can be taught to do right. Obedience to a parent's wish is better learned earlier than later in life. When we speak of parents demanding this obedience from their children, we do not mean that it can be exacted only by threats and punishment. Some children, of course, are more wayward than others, but at least nine out of ten children, if properly taught from their earliest years, will obey their parents from other motives than fear. In this matter of early training we think many parents err. How often the remark is heard, "Oh, I don't mind him now; when he gets older I shall correct him." If parents would sow seeds of future worry and discomfort, let them continue such a course with a child. When children reach the age of two or three years a mother can do more by guiding than forbidding. To illustrate: We know a mother who, when her little one meddles with something it is in danger of spoiling, tells the child to move a chair, bring papa's slippers, lay away a knife, or some such simple little matter. The child's attention is thus drawn from its former occupation, and that without screaming or kicking. If the mother would indiscreetly shriek, "Come now, stop that!" the probable result would be a family fray, ending in either a whipping, or a corner behind the pantry door for the offender.

As children grow older and go to school, books and toys may be made a means of training. In the home, at school, on the streets, everywhere, idleness is ever the nurse of trouble and sin; therefore let children be kept busy. Let them, of course, have plenty of

out-door exercise, but discriminate wisely between invigorating play and useless idleness. As in earlier years, insist upon prompt obedience. That parent who says "No" to a child, and then, because of its tears and sobs and ill-temper, allows the "No" to become "Yes" deserves to suffer the penalty which such indecision justly entails. This is the parent of whom it is said, "She can do nothing with her children—they can neither be coaxed nor driven." Children properly taught know that a parent's "No" means "No," and that further entreaty is useless; therefore, when the parents of such children wish to go away, leaving their children at home, there is no need of the abominable deceit we have often seen practised by parents—must we say it?—by women called *mothers*, who send their children out of the way while they steal out a back door to avoid the tempest of tears and anger which inevitably comes when the deceit is discovered by the child. In little matters, however, it is better to lead rather than thwart; request rather than command, and in every matter children should be encouraged to confide fully and freely in their parents. The latter we know is a difficult matter, but much rests with the parents. We know one mother who, when the children's bed-time comes, retires with them a few minutes to speak of the day's events. It is a commendable idea, but many mothers in the country who perform the combined duties of cook, dairy-maid, house-maid, and seamstress, as well as general manager of the household, find it impossible to take the time. We would suggest, however, as a partial remedy for this lack of time, fewer ruffles on the little garments and plainer food for growing boys and girls. A few minutes each day taken with the children when young is surely rewarded a hundred fold—nay, a hundred times an hundred fold—when a family grows up, an honor to the community and a comfort to parents as the journey of life to them nears the western horizon.

We come now to speak, lastly, of the most important stage of family government, viz., that government which must be exercised with most judicious care when the children have attained to that period of life which immediately precedes manhood and womanhood. Their temporal and eternal welfare is based in a great measure on the physical, mental, moral and spiritual influences thrown around them at this critical age. We mention the physical because many boys and girls are shamefully negligent of that pearl of price—good health. It is such an important factor in the proper discharge of duty that we deem it worthy of special mention. Parents should teach children that it is positively sinful to abuse the casket, the delicate construction and divine workmanship of which is both "fearful and wonderful." Plain diet, simple amusements, and a moderate amount of physical exercise, will, in all ordinary cases, result in a fair degree of good health. But even more important than the physical well-being is the formation of character, which, including mental, moral and spiritual development, renders this period of life an anxious one indeed to those parents who feel as they should the heavy responsibilities devolving upon them in the training of a family. Physical, mental, moral, spiritual—what intensity of purpose, what patient sowing

of good seed, what deep thought must there be ere each growth of the tender plant receives even an approximation of due attention. The difficulty of training is increased in this stage by the fact that the children—for they are even "the children" to father and mother—are much keener of observation now, and a parent's inconsistency may result in the undoing of all previous training.

Much has been said and written against that disposition which is kind and generous away from home, but which, when at home, is neither. We think it is justly condemned, but no more to be commended is that spirit which many parents, involuntarily on their part, it may be, foster in their children of being generous towards each other and toward their parents, but extremely selfish to the outer circle. We have more than once seen the invited guest of a family allowed to suffer inconvenience and discomfort, where a little self-denial on the part of the children insisted upon by the parents would have greatly changed matters and inculcated a spirit of unselfishness, the beauty of which would never fade. And yet, such parents would be indignant were they told that their children were selfish. Let parental government and training ever tend to thoughtfulness for the comfort and well being of others.

The last stage of family government, though difficult in many respects, has an advantage over the others from the fact that at this time children can be reasoned with as well as advised—their common sense and knowledge of right and wrong can be appealed to. We have in our mind a most exemplary family in whose training, advice and reasoning, with complete parental control, were the only elements. Scolding, threatening and lecturing were entirely dispensed with, and the children, now grown men and women, treat their parents with that love and respect which is too unfrequently met with in this fast young country of ours. One has beautifully said:

"The hand that rocks the cradle
Is the hand that rules the world."

And when we consider how much a well-regulated home contributes to the public weal, and the direct bearing the government of the family has on the government of the nation, it should enhance to an intense degree the practical importance of good "family government."

RAILWAY REPRISALS.—General Traveller (offering pouch)—"Take a pipe of honeydew, sir? You'll find it good, I think." Topsawyer (loftily)—"Thanks, no; I only smoke cigars." (After a pause.) "By the way, won't you have a cigar?" G. T. (drily)—"Thanks, no; I only smoke tobacco."

Capturing a Shark.

The accompanying cut shows you how the sailors sometimes manage to catch a shark when crossing the sea, and the following is the story told by Jack, one of the crew: "One bright morning a shark was observed following in our wake, and we sailors, who are very superstitious, felt that if we did not catch him he would catch some of us, as we think that if a shark follows a vessel and is not caught, it is a sign that some one on board will die and thus give him a meal. We got out our line, and

Watering House-Plants.

How well some succeed, and how utterly some fail, in keeping house-plants! One says: "I water my plants every day, and they don't thrive." Probably that is the very reason. Plants other than aquatics are apt to be over-watered. The soil should be thoroughly soaked, and then not watered again until it becomes somewhat dry, whether it be after one or three days. Plants with numerous roots and of vigorous growth need it much oftener. The leaves must be kept clean and free from dust, which may be done by showering; or, in case of smooth-leaved varieties, they may be dusted off with a soft cloth or duster. It is useless to suppose that house-plants will do well in any soil. Why should they not demand as good as outdoor plants, or better? The dry air of our rooms is detrimental to good growth in plants. It may be partially overcome by setting the plants on a table covered with an inch or two of sand, which may be kept a little damp, and the moisture arising therefrom will prevent the plants from getting too dry.

Housework at Home.

When there are a number of girls at home it is an excellent plan to allow each one in turn to assume the responsibility of house-keeping for a certain time. It doesn't hurt girls to be made to take a measure of responsibility concerning household tasks; far otherwise, it does them immense good. Let them in succession have a week at a time, charge of the chamber work, the mending, the cooking, the buying even for the family, all of course under proper supervision, and their faculties of reason, perception, judgment, discrimination, and continuity will be more developed in one month of training than in six months of common schooling.

It is cruelty to children to permit them to grow up in ignorance of that which

it most concerns them to know. Let them also learn to buy for the family; it is something to know how to spend money judiciously. It is a pity that girls and boys are not taught more than they are about the prices, values, and qualities of articles, both of diet and dress, in ordinary family use.

We have received from Lee & Sheppard, publishers, Boston, a charming little book of poetry and handsome illustrations, entitled "The Message of the Blue-bird Told to Me to Tell to Others," by Irene E. Jerome, an Easter gift for which we extend our thanks,



CAPTURING A SHARK.

baited it with a piece of fat pork, and it was no sooner dropped into the water than Mr. Shark made a grab at it, turning over on his back to catch it, but he caught more than he anticipated, for there was a hook within the meat, by means of which he was soon landed on board the vessel."

GROUNDS FOR OBJECTION.—"Me buy the property, sorr? Me be a landlord and be shot in the back? Shure there's to be no more landlords!—we're all goin' to be tinnants!"—[Punch.

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES,—The letter budget is not quite so large this month, there being only about two hundred competitors for the corrected letter prizes, instead of five hundred, as there were last month. But I do not wonder at it, for I know how busy you all are in the spring, assisting in making your homes look tidy and attractive; and hundreds of little jobs seem to come up before our eyes, between the garden and the house and the studies, etc., etc. But how lovely it does seem to have the fine weather again with us. However, there is time for all things, and I have no doubt my letter drawer will be crowded next month with many nice letters, telling me all that you have been doing, and with so many good puzzles that it will be quite a task for me to choose the best ones.

The fortunate prize winners in the competition offered last month are as follows:—In the 1st class, Miss Ada Armand, Pakenham, Ont.; in the 2nd class, Miss Hettie Sheppard, Belhaven, Ont.; and in the 3rd class, William Carney, Sault Ste. Marie, Ont., whose letter we here give:—

To all or any trustees to whom this recommendation may be presented:

I, the undersigned, Chairman of the Board of Trustees for school section No. 1, in the Township of —, hereby certify that the bearer, A. B., has taught the public school in our section for the term of four months, and has given entire satisfaction both to pupils and trustees. During the brief period of our acquaintance with him his character has been that of a true gentleman. The school has been very orderly and well-behaved under his management, and his manner of conducting it all that could be desired. While under his tuition, the scholars have made as rapid progress as under any of his predecessors, and I can safely recommend any School Board requiring a trustworthy and efficient teacher to engage the services of the bearer, as he is a thorough master of his profession.

I'm sure you will all agree that the letter put in this kind of a form reads a great deal easier and in every way nicer than the original copy. In all our letters and writings we should endeavor always to express ourselves in a natural, easy and correct manner, without any superfluity.

UNCLE TOM.

Cote St. Michel, P. Q., April 13th, 1886.
DEAR SIR,—Permit me to acknowledge the receipt of the bracelet given as a prize for writing in competition No. 1. I feel very much pleased with it, and return you my sincere thanks for the same.

I am, dear sir,

Very respectfully yours,

M. P. SCOTT.

Uncle Tom, the FARMER'S ADVOCATE.

Thornbury, April 16th, 1886.

DEAR SIR,—I have the pleasure of thanking you for my prize, a silver pair of ear-rings. I think they are lovely, and I am sincerely grateful to you for awarding me a prize which I did not expect. This is my first attempt at anything of the kind, and I think it was a good beginning. My best wishes are with you for the future prosperity of the ADVOCATE, which my parents have taken since before I was born.

Yours respectfully,

ELLA McDONALD.

Uncle Tom, the FARMER'S ADVOCATE.

DEAR UNCLE TOM,—I was much surprised and elated to have won your valuable prize in

class 3rd. It is a handsome knife, and of extra quality. I thank you very much for it.

Yours truly,
JAMES E. FOSTER,
Clarksburg, Ont.

Puzzles.

1—CROSS.

- 1—Suspicious. ***
- 2—A shoemaker's tool. ***
- 3—Sick. ***
- 4—Loose in morals. *****
- 5—Acting by choice. *****
- 6—A young person. *****
- 7—Frequently. ***
- 8—A color. ***
- 9—To urge. ***
- 10—A forest tree. ***
- 11—Sorrow. ***
- 12—A number. ***

My centrals down name a celebrated author.
FAIR BROTHER.

2—NUMERICAL ENIGMA.

My whole, composed of 19 letters, is "our motto."

My 13, 1, 8, 17, 5, is a merry frolic.

My 15, 3, 10, 6, 18, is to ask earnestly.

My 4, 9, 2, 12, is to sow.

My 19, 14, 11, 16, 7, is a blockhead.

FAIR BROTHER.

3—NUMERICAL ENIGMA.

My 13, 8, 9, 4, means gravel.

My 7, 5, 1, 3, 5, 6, is to roll in mire.

My 1, 9, 12, 13, is a kind of fish.

My 7, 6, 11, 10, 2, is to express in writing.

My whole is a sadly neglected art,

'Tis a pity that such should be so;

For formerly it was very much prized

By our ancestors long ago.

ADA ARMAND.

4—ILLUSTRATED REBUS.



5—ANAGRAM.

Het nep fo eth trauho dna tatsmsan,
Eth bleno dna siwe fo rou dlan,
Eth doswr nad eth hlsic adn laetep
Hslla eb dehl yb teh tillet worbn ahdn.

ADA ARMAND.

6—CHANGED HEADINGS.

To remodel=To contrive.
To pretend=To rule.
To penetrate=Wicked.
A basket=To vex.
To increase=The forehead. ADA ARMAND.

7—CROSS-WORD ENIGMA.

In house, not in land.
In ribband, not in band.
In mouse, not in rat.
In lean, not in fat.
In roll, not in play.
In glue, not in clay.
In fall, not in win.
In noise, not in din.
Total's the subject of much debate
Both with the humble and the great.
ADA ARMAND.

8—DROP VOWEL PUZZLE.

Th-r-s n-l-ck-f-k-ndn-ss
n-th-s wrld-f-rs
-nly-n-r-bl-ndn-ss
W-g-th-r-th-rns-f-r-fl-w-rs.
LIZZIE C. WATT.

Answers to April Puzzles.

1—Keep your head clear and fingers nimble all the year.

2—Tar-tar.

3—

O
BUN
SERVE
ENVOY
ROOMY
VALUE
AMUSE
TUNIC
INTER
OCEAN
NIECE
ASTRIDE
LANDSCAPE

4—The sea hath its pearls,
The heaven hath its stars,
But my heart hath its maiden,
My heart hath its love.

5—Gave, save, sale, sole, sold.
Cold, wold, word, ward, warm.
Work, cork, cook, colt, clot, cloy, clay, play.

6—Though troubles perplex you,
Dishearten and vex you,
Retarding your progress in sombre array;
To shrink back with terror is surely an error,
For where there's a will there's a way.

7—Penmanship.

8—MIRA
IDOL
ROOM
ALMA

9—Pansy, tulip.

Names of those who have Sent Correct Answers to April Puzzles.

Gurden Brown, Henry Reeve, Mary Ann McDonald, Jennie Scott, Nellie Jarvis, Patrick L. Shortall, Julia Brown, Charles E. Smith, Laura Z. True, Hettie Sheppard, Minnie E. Brown, Geo. Albert Best, Eleanor Farlinger, Minnie B. Ricketson, Wm. Webster, Robert J. Risk, Mary Morrison, Will Thirlwall, Willie B. Bell, Maggie Whiteford, Ada Armand, Lillie Stovin, W. H. Harvey, Mary Burnett, Becca Lowry, Lizzie C. Watt, Emma Deanne, James F. Stewart, Robert Wilson, Edward A. Fairbrother, Frank L. Milner.

May Day.

BY MRS C. W. SCOTT.

Welcome; thrice welcome, thou glad May Day,
We'll be off to the woods with hearts light and gay.
We know there are flowers a-blossoming there,
Which God in His bounty has planted with care.

Yes! now we behold them, so modest and neat:
We'll gather them carefully, here at our feet.
How sweet their perfume, their beauty how rare,
Not one of art's products can with them compare.

Come, one and all, and join in our lay;
Let us rejoice on this glad festival day.
With birds we will carol a song full of cheer,
And welcome our May of this happy new year.

Give and Take.

Don't ever go hunting for pleasures;
They cannot be found thus, I know,
Nor yet fall a-digging for treasures,
Unless with the spade and the hoe!

The bee has to work for the honey;
The drone has no right to the food;
And he who has not earned his money
Will get from his money no good.

The ant builds her house by her labor;
The squirrel looks out for his mast;
And he who depends on his neighbor
Will never have friends, first or last.

In short, 'tis no better than thieving,
Though thief is a hard name to call;
Good things to be always receiving,
And never to give back at all.

"Men often jump at conclusions," says the proverb. So do dogs. We saw a dog jump at the conclusion of a cat, which was sticking through the opening of a partly closed door, and it made more disturbance than a church scandal.—[Oshkosh Advance,

Locking Up "The Tower."

Excess of ceremony was the old expedient for making power venerable. In these more practical days it oftener makes power ridiculous.

A good deal of form and etiquette, however, are doubtless necessary in official places; at all events there is likely to be a good deal, especially under imperial governments—and the poor fellows who hold the places, and whose duties are chiefly traditional, must do *something* to earn their salary. It is no very great affair for a smart man or boy to lock the doors of a building, but the Government of England makes a very solemn and deliberate job of it. Large bodies move slowly.

Few persons are aware of the strictness with which the Tower of London is guarded from foes without and from treachery within. The ceremony of shutting it up every night continues to be as solemn and as rigidly precautionary as if the French invasion were actually afoot.

Immediately after "tattoo" all strangers are expelled, and the gates once closed, nothing short of such imperative necessity as fire or sudden illness can procure their being re-opened till the appointed hour the next morning.

The ceremony of locking up is very ancient, curious and stately. A few minutes before the clock strikes the hour of eleven,—on Tuesdays and Fridays twelve,—the head warden (yeoman porter), clothed in a long red cloak, bearing in his hand a huge bunch of keys, and attended by a brother-warden carrying a gigantic lantern, appears in front of the main guardhouse, and calls out, in a loud voice,—

"Escort keys!"

At these words the sergeant of the guard, with five or six men, turns out, and follows him to the "Spur," an outer gate, each sentry challenging, as they pass the post,—

"Who goes there?"

"Keys."

"Whose keys?"

"Queen Victoria's keys."

"Advance, Queen Victoria's keys, and all's well."

The yeoman porter then exclaims,—

"God bless Queen Victoria!"

The main guard devoutly respond,—

"Amen!"

The officer on duty gives the word,—

"Present arms!"

The firelocks rattle; the officer kisses the hilt of his sword; the escort fall in among their companions, and the yeoman porter marches majestically across the parade alone, to deposit the keys in the lieutenant's lodgings.

The ceremony over, not only is all egress and ingress totally precluded, but even within the walls no one can stir without being furnished with the countersign; and any one who, unhappily forgetful, ventures from his quarters unprovided with this talisman, is sure to be made the prey of the first sentinel whose post he crosses.

All of which is pleasantly absurd, and reminds us of the stately manner in which the crown was carried about when the White Tower was on fire.

A Miracle.

"Jenny, do you know what a miracle is?"

"Yes'm. Ma says if you don't marry our new parson it will be a miracle."—*Life*.

Jewels Stolen.

A million little diamonds
Twinkled on the trees;
And all the little maidens said:
"A jewel, if you please!"
But while they had their hands outstretched,
To catch the diamonds gay,
A million little sunbeams came,
And stole them all away.— [St Nicholas.]

A Similar Case.

Jack, I hear you have gone and done it.
Yes, I know; most fellows will;
Went and tried it once myself, sir,
Though you see I am single still.
And you met her—did you tell me
Down at Brighton last July?
And resolved to ask the question
At the soiree? So did I.

I suppose you left the ball-room
With its music and its light;
For they say love's flame is brightest
In the darkness of the night.
Well, you walked along together,
Overhead the starlit sky;
And I'll bet—old man, confess it—
You were frightened. So was I.

So you strolled along the terrace.
Saw the summer moonlight pour
All its radiance on the waters
As they rippled on the shore;
Till at length you gathered courage,
When you saw that none were nigh—
Did you draw her close and tell her
That you loved her? So did I.

Well, I needn't ask you further,
And I'm sure I wish you joy;
Think I'll wander down and see you
When you're married, eh, my boy?
When the honeymoon is over,
And you're settled down we'll try—
What? The deuce you say? Rejected?
You rejected? So was I.

Reprimanded in Church.

It was years ago, writes Ned Buntline in the *Detroit Free Press*. I had no gray hairs in my top-knot, no wrinkles in my face, few griefs in my bosom. I had business in Quincy, Ill., and had to stay over Thanksgiving Day there. I was invited by a fair friend who belonged to the choir of a popular church to go with her to hear the Thanksgiving sermon.

It was the old-fashioned kind, long, theological and dry. I sat where I could look out on a vacant lot beside the church. In that lot alone, wandered one poor goose—apparently seeking in vain some way to get out. I saw it and a thought struck me. I wrote a paraphrastic verse on the blank leaf of my fair friend's singing book. These were the words;

'Twas the last goose of autumn,
Left standing alone;
All its feathered companions
Were slaughtered and gone—
Not a goose of its kindred,
Not a gander was nigh
To list to its sorrow,
Or yield sigh for sigh!

I handed the book over to the lady and pointed to the unhappy goose in that back yard. She tittered and handed the book to the next member in the choir.

The verse was read, the goose looked at and so it went all through that large choir.

And all this time the preacher was watching me while he went on with his sermon. When he saw that the choir was in full blast of glee he broke out:

"It is bad enough for the members of the choir to bring strangers into their circle, but when such strangers are so irreverent as to write notes in the singing books to excite laughter, it is more than a man of God can stand in silence!"

I felt worse than the goose, you bet, and never since then have I tried to make fun in a choir.

Pearls of Thought.

A face that cannot smile is never good.
We like to give in the sunlight and to receive
In the dark.

Prosperity unmasks the vices; adversity reveals the virtues.

Experience is the name men give to their follies or their sorrow.

The waves of happiness, like those of light, are colorless when unbroken.

Eternity is long enough to make up for the ills of our brief troubled life here.

If you would not have affliction visit you twice, listen at once to what it teaches.

A man in any station can do his duty, and doing it can earn his own respect.

Do not cast your burdens upon others. Rest them between yourself and heaven!

If you assume the garb of a fool, are you very sure that you have not a natural right to it.

There is nothing more necessary than to know how to bear the tedious moments of life.

Retribution stands with uplifted ax, and culture, rank and robes of sanctity cannot stay its blow.

If our whole time was spent in amusing ourselves we should find it more wearisome than the hardest day's work.

Never speak evil of another while you are under the influence of envy and malevolence, but wait till your spirits are cooled down, that you may better judge whether to utter or suppress the matter.

There is, perhaps, no quality which has a more pervading influence in giving color to the whole character than the strictest truthfulness, for it is the foundation-stone of honesty and an all-pervading integrity.

Matrimonial Philosophy.

She—Charles, dear, why don't you come and sit by me and talk to me as you used to? You are not a bit nice any more.

He—My dear, do you see that fellow running to catch that street-car? He is all out of breath, eager and excited; and yet when he catches the car, he will sit down perfectly contented and not have a word to say.—*Rambler*.

A little girl was promised by her grandmother her gold watch when she should die. The child appreciated the delicacy of the situation, but after some hints her grandmother was prevailed upon to show her the watch. "I wonder," said the little one to her mother, as they were leaving the grandmother's house, "if I shall get the watch in time to wear it at the funeral."

Ex-Secretary Evarts tells a good story at his own expense about a small donkey which he sent up to his country-seat some years ago for the use of his children, of whom some were then quite young. One of his little daughters, going out with her nurse to admire the animal in its paddock, was sorely distressed when the donkey lifted up its voice and brayed dolefully. "Poor thing! Poor thing!" exclaimed the sympathetic child; but, suddenly brightening up, she turned to her nurse and said: "Oh! I am so glad! Papa will be here on Saturday, and then it won't feel so lonesome."

Commercial.

PRICES AT FARMERS' WAGONS, TORONTO.
April 30, 1886.

Wheat, fall, per bushel.....	\$0 82	0 84
Wheat, spring, do.....	0 75	0 82
Wheat, goose, do.....	0 74	0 75
Barley, do.....	0 60	0 60
Oats, do.....	0 40	0 41
Peas, do.....	0 60	0 60
Dressed hogs, per 100 lbs.....	6 00	6 50
Beef, forequarters.....	3 50	5 00
Beef, hindquarters.....	6 00	8 00
Mutton, carcass.....	7 00	8 25
Hay, timothy.....	13 00	16 00
Hay, clover.....	11 00	12 00

PRICES AT ST. LAWRENCE MARKET, TORONTO.
Apl. 30, 1886.

Chickens, per pair.....	\$0 65	0 90
Ducks do.....	0 65	0 90
Butter, pound rolls.....	25	27
Butter, large rolls.....	18	24
Butter, inferior.....	12	14
Lard.....	10	00
Bacon.....	9	11
Turkeys.....	75	1 50
Geese.....	70	85
Cheese.....	10	12
Eggs, fresh, per dozen.....	13	14
Potatoes, per bag (new).....	70	75
Apples per bbl.....	1 00	2 00
Cabbage, per doz.....	80	1 00
Turnips, per bag.....	35	40
Carrots, per bag.....	40	45
Beets, per peck.....	15	00
Parsnips, per peck.....	15	20
Onions, per bag.....	1 75	2 00

LIVE STOCK MARKETS.

Buffalo, April 27th, 1886.

CATTLE.

Receipts, 6,885, against 5,235 the previous week. The cattle market opened up on Monday with 110 carloads on sale. The demand was only moderate, and prices declined 25 cents below the rates of the Monday previous. Good 1,400 to 1,500 lb steers brought \$5.40 to \$5.60, and one load of fancy quality, \$5.80; good 1,300 to 1,400 lb do, \$5 to \$5.35; good 1,200 to 1,300 lb do, \$4.90 to \$5.20; good 1,100 to 1,200 lb do, \$4.20 to \$4.60, and mixed butchers' weighing from 900 to 1,000 lbs, \$4 to \$4.25. Good stockers and feeders were in improved demand. The supply was fair and about all were sold within the range of \$3.65 to \$4.15. The market ruled steady on Tuesday, but declined 10 cents per hundred on Wednesday, closing weak at the following

QUOTATIONS:

Extra Beeves—Graded steers weighing 1,450 lbs and upwards.....	\$5 25	@5 60
Choice Beeves—Fine, fat, well-formed steers, weighing 1,300 to 1,400 lbs.....	5 00	@5 35
Good Beeves—Well-fattened steers weighing 1,200 to 1,350 lbs.....	4 75	@5 25
Medium Grades—Steers in fine flesh, weighing 1,050 to 1,250 lbs.....	4 25	@4 90
Light Butchers—Steers averaging 850 to 1,100 lbs, of fair to good quality.....	4 00	@4 50
Butchers' Stock—Inferior to common steers and heifers, for city slaughter, weighing 900 to 1,100 lbs.....	3 50	@4 00
Michigan stock cattle, common to choice.....	3 25	@3 75
Michigan feeders, fair to choice.....	4 00	@4 15

SHEEP.

Receipts, 21,400, against 31,500 the previous week. The offerings of sheep on Monday consisted of 50 carloads, the quality not being very good. Reports from the east were unfavorable, and caused a weak and dull market. The market continued dull throughout Tuesday and Wednesday, and at the close quite a number were unsold. Common sheep sold at \$3 to \$4; fair to good sheep, \$4.50 to \$5.50; good to choice, \$5.50 to \$6; and extra, \$6 to \$6.40. Lambs, weak; fair to good, \$5 to \$6; good to choice, \$6 to \$7; and extra, \$7 to \$7.50. Common thin sheep and lambs dull and weak at any price.

HOGS.

Receipts, 43,125, against 40,690 the previous week. The hog market opened up steady on Monday at the closing prices of Saturday, with 45 carloads on sale, but weakened toward the close. Prices declined 5 cents on Tuesday and another 5 cents on Wednesday, closing with good to choice Yorkers selling at \$4.35 to \$4.40; fair do, \$4.25 to \$4.30; selected medium weights, \$4.35 to \$4.40; coarse mixed heavy ends, \$3.80 to \$4.

In central Nebraska alone the loss by hog cholera this year will reach fully \$2,000,000. All the science that live stock breeding has called to its aid has failed utterly to check the terrible scourge. The effect upon farmers is very discouraging.

Wool Markets.

NEW YORK.—The wool markets, says *Bradstreet's*, continue inactive, and prices are in buyers' favor. In some quarters the present range of values is reported to be 1c per pound lower than a week ago, but it would probably be nearer the mark to say that there is no quotable change, though large buyers in search of a line of wool can get it at handsome concessions. There is no general expectation of a better state of things pending the arrival of the new clip. Holders for the most part profess to believe that no decline of any consequence can probably occur, but it is noteworthy that a good many shrewd manufacturers think that wool will be cheaper in the course of the summer than it is to-day. Buyers, at all events, are operating with the utmost caution, taking little or nothing in excess of present wants. The possibility of tariff legislation has not become pronounced enough to affect values to any extent, but the uneasiness of the operative classes and the current importations of foreign stock exert, undoubtedly, a depressing influence. This is true after making every allowance for the interested expressions of wool dealers, whose chief aim at present is to get this year's clip at the lowest possible prices. Current quotations are as follows:—Ohio and Pennsylvania X, 30 @ 31c; Ohio and Pennsylvania XX, 32 @ 33c; Ohio and Pennsylvania XX and above, 33 @ 34c; Michigan X, 29 @ 30c; fine Ohio delaine, 33 @ 34c; No. 1 combing, 35 @ 37c; Texas spring, 12 mos., 19 @ 23c; Super A., 29 @ 34c.

BOSTON.—The market, according to the *Commercial Bulletin*, continues in the same unsatisfactory position. Prices have apparently fallen to the lowest possible point. At least no further reduction is to be noted. There has been some little inquiry during the week, and the market has been visited by a number of buyers who usually purchase Australian, but although there has been considerable inquiry for foreign fine wools, purchases have been limited. Ohio and Pennsylvania fleeces is very quiet at previous quotations. Good X fleece will command 31c, but poorer lots are shaded from that figure. Reports from Ohio represent the state as very quiet, but farmers seem determined to obtain more for their wool than last year. There is a general acceptance of the prediction that 30c will be the opening figure for the best lots of wool, and that purchasing will progress slowly in consequence. Michigan fleeces is quiet. The demand for staple, combing and delaine wool is very light, but quotations are nominally unchanged. There is a ridiculous story going the rounds to the effect that good Ohio delaine can be bought for 30c. It is absurd that any credence should be put in such an idle tale. The market price on Ohio delaine is 33c @ 34c, and cassimere men would certainly be willing to pay as much for it as X or XX, both of which are higher than the price quoted. There are a few new features in Texas wool. Little or no wool has been carried over. There is a large delegation of Boston buyers in Texas, and the first consignment from San Antonio has already been shipped. We hear of a sale of a short stapled clip of 30,000 pounds to St. Louis parties at 18c. Eastern buyers are rather conservative. The clip in California is not expected to fall below that of last year.

The land suitable for cereals but used for grazing when wool growing was a more profitable industry, has already been appropriated for that purpose, and the mild weather has led to little or no loss of sheep on that score. Territory wool, in Chicago, has ruled active during the week owing to liberal purchases by St. Louis parties at prices which for the present market are certainly high. Wool shrinking 72 percent brought 15c, and 18c was paid for heavier wool than has been purchased here for 17½c. The first invoice of new Wyoming wool has been shipped and samples are on exhibition. It forms, however, no criterion by which to judge the new clip, as it was shorn from "mutton sheep." The following are quotations for leading grades of wool in Boston:—Ohio XX and above, 34c; Ohio XX, 33@34c; Ohio X, 31@32c; Ohio No. 1, 35c; Michigan X, 29 @ 30c; Michigan No. 1, 34c; fine Ohio delaine, 34c; Michigan delaine, 33c; Unmerchanted Michigan, 28c; Unmerchanted Ohio, 24c; No. 1 combing, washed, 35 @ 36c; Kentucky ½-blood, combing, 24 @ 28c; Kentucky ¼-blood, combing, 23 @ 27c; Georgia, unwashed, 23 @ 26c; California northern spring free, 23 @ 25c; Southern do. do., 15 @ 18c; do. burry and defective, 12c; free fall, 15 @ 21c; fall low, 12 @ 15c; Wyoming fine, 19c; do. medium, 22c; Eastern Oregon, 19 @ 23c; Kansas choice fine, 19c; do. medium, 21c; do. fair fine, 18c; do. do. medium, 20c; Montana choice fine, 21 @ 23c; do. fine medium, 24 @ 25c; do. off grades, 17 @ 19c; California pulled, 32 @ 35c; Maine supers, 36 @ 38c; Eastern A supers, 35 @ 36c; Western A supers, 28 @ 33c; extra pulled, 27 @ 29c; combing do. medium, 34 @ 35c; Montevideo, 25 @ 26c; Australian cross-bred, 35 @ 37c; Australian combing, 36 @ 39c; Australian clothing, 30 @ 36c.

See Notices, page 154.

A VALUABLE PREMIUM.

We are always anxious to introduce to our subscribers any valuable kind of Grain or Vegetables, and were the first in Canada to introduce the Early Rose Potato, for which we paid \$3.00 per lb.

We now call your attention to the BRONZE KING, see illustration and description on page 100. This is a most promising variety, and our subscribers should not fail to procure some. We have secured a small quantity to give as Premiums.

For each NEW subscriber's name, accompanied with \$1.00, we will send you one pound of this valuable Potato.

NEW ADVERTISEMENTS.

ADVERTISING RATES.

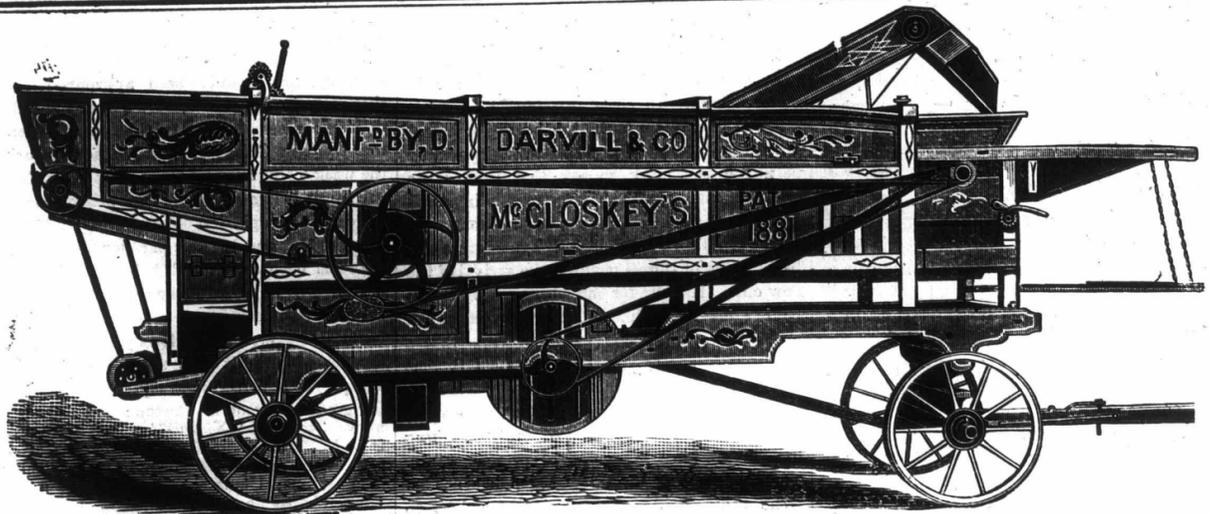
The regular rate for ordinary advertisements is 25c. per line, nonpariel, or \$3 per inch. No advertisement inserted for less than \$1. Special contracts for definite time and space made on application.

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The FARMER'S ADVOCATE is the unrivalled advertising medium to reach the farmers of Canada, exceeding in circulation the combined issues of all the other agricultural publications in the Dominion. Send for an advertising circular and an estimate.



FOR DESTROYING TICKS AND VERMIN ON Sheep, Cattle and Horses, Leicestershire Tick and Vermin Destroyer is well worth the price, yes, double the price. It was first used in England with wonderful success, and has now been introduced into Canada, and is sold at 30 and 60 cents a box: one small box is sufficient to treat 20 sheep. It effectually destroys Ticks, Lice, Worms or Grub, to which sheep, horses or cattle are subject, and enables the animal to thrive. It is used as a wash Sold by Druggists. **G. C. BRIGGS & SONS,** Agents, Hamilton, Ontario.



D. DARVILL & CO., LONDON, ONT.,

MANUFACTURERS OF THE

Celebrated McCloskey Threshing Machine

Acknowledged to be the simplest, easiest running, and best machine now in use. Mr. John McCloskey, the patentee, superintending personally the building of all machines. Purchasers can depend on getting a first-class machine with all improvements for 1886. We would caution parties who wish to get a genuine machine of being deceived by agents of other firms. All machines warranted. Reference can be given from all parties who have purchased the McCloskey Machine made in London. Write us for circulars and testimonials. 245-a

THE LIGHTNING SHOT GUN

WEIGHT 7 1/2 to 9 lbs. LENGTH BARREL 28 to 30 inches EXACT REPRESENTATION
BORES 12 to 16
POSITIVELY THE VERY BEST SHOTS GUN IN THE WORLD FOR ALL RANGES
MOST ACCURATE, EASIEST LOADED, QUICKEST FIRED, LIGHTEST RECOIL
MOST SIMPLE IN CONSTRUCTION FOR RELIABLE & RAPID EXECUTION
Send for full description and price. Reliable Agents Wanted to show gun and take orders. One Gun free in every county. 245-a

16 Shots in 30 Seconds

Latest Invention in Fire-Arms
BORDEN & CO., Sole Agents
240 Broadway, New York

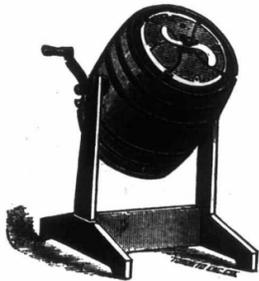
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Stump and Stone Extractor,



SIX YEARS' TRIAL, AND OVER 1,200 IN USE, has proved this machine the best. Sent on trial to any responsible parties. Price, &c., free. Address: S. S. KIMBALL, P.O. Box 945; Office, 577 Craig St., MONTREAL, P. Q.
P. S.—Also, Champion Fire and Burglar Proof Safes, Hay Presses, Cultivators, &c. 245

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Revolving Barrel Churn.

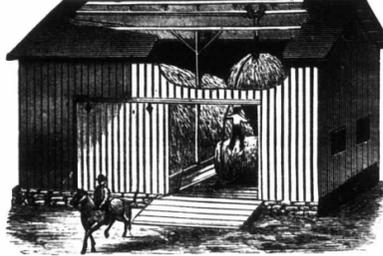
was awarded the Silver Medal at the Dominion Exhibition at Ottawa, 1884; and First Prize over all competitors at the Industrial Exhibition in Toronto, 1884 and 1885.

AGENTS WANTED IN EVERY TOWN IN THE DOMINION

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HAY ELEVATORS and CARRIERS AND HORSE HAY FORKS.

These implements are now well known throughout the Dominion, thousands are in successful operation and giving the best satisfaction. We have our agents in nearly every township, men who are well known and whom you can trust. Don't buy until you have seen them.

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YOUNG MEN and WOMEN are thoroughly prepared for positions as Book-keepers, Short-hand-writers, Calligraph and Telegraph Operators. Students have been in attendance from nine Provinces and States within the past year. Our graduates are meeting with marked success in the commercial centres of Canada and the United States. Rates moderate; accommodation excellent; the progress of each student independent of that of all others, and graduates assisted in obtaining positions. 240-y
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FARMS FOR SALE

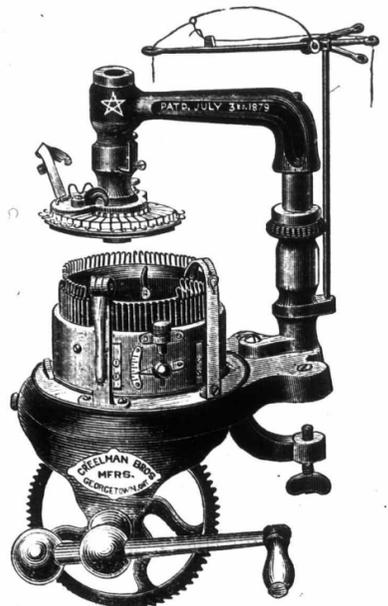
In Western Ontario a number of choice Farms. Full description list sent on application. Correspondence invited, full information given, and on personal application at my office, plans of the townships shown, enabling strangers to see the position of properties and their proximity to towns, railway stations, &c. Farms with acreage to suit every one. Send to

CHARLES E. BRYDGES,

Real Estate Agent.

Land office, Molsons Bank Buildings, Market Square, London, Ont., for list of farms for sale. 236-y

THE WORLD'S STAR KNITTING MACHINE



Takes the lead as a Family Machine! Does the work with ease and rapidity! It is the only Knitting Machine which will knit farmer's home made yarn. Our Instruction Book will teach you all. So simple the blind use them. Send for Price List and Testimonials.

CREELMAN BROS.,
GEORGETOWN, ONT.

245-y-eot

THE FIRE-PROOF CHAMPION

Best Threshing Engine for All Purposes.

AS A PLAIN ENGINE:

AS A TRACTION ENGINE:

AS A STRAW-BURNER:

SEPARATORS SUPPLIED, at Manufacturers' Prices, WITH COMPLETE OUTFITS. Endless Threshing Belt is given free.

SEND FOR CIRCULAR SHOWING

1886 Improvements.

Only Successful
**SPARK
ARRESTER.**

ABSOLUTELY SAFE
FROM FIRE!

Every Spark Thrown
Into Water!

COMPLETE
SATISFACTION



1250

-SOLD IN-

Eight Seasons.

THE FAVORITE EVERYWHERE!

FOUR SIZES OF THIS STYLE BUILT. 6, 12, 16 AND 20 HORSE POWER.

THIS CUT

REPRESENTS

Our New Pattern

12, 16, 20,

25 and 30

HORSE POWER

Stationary

CHAMPION

Engines.

CHAMPION PORTABLE SAW MILLS

Specially Adapted for Small Timber and Plantation Work.

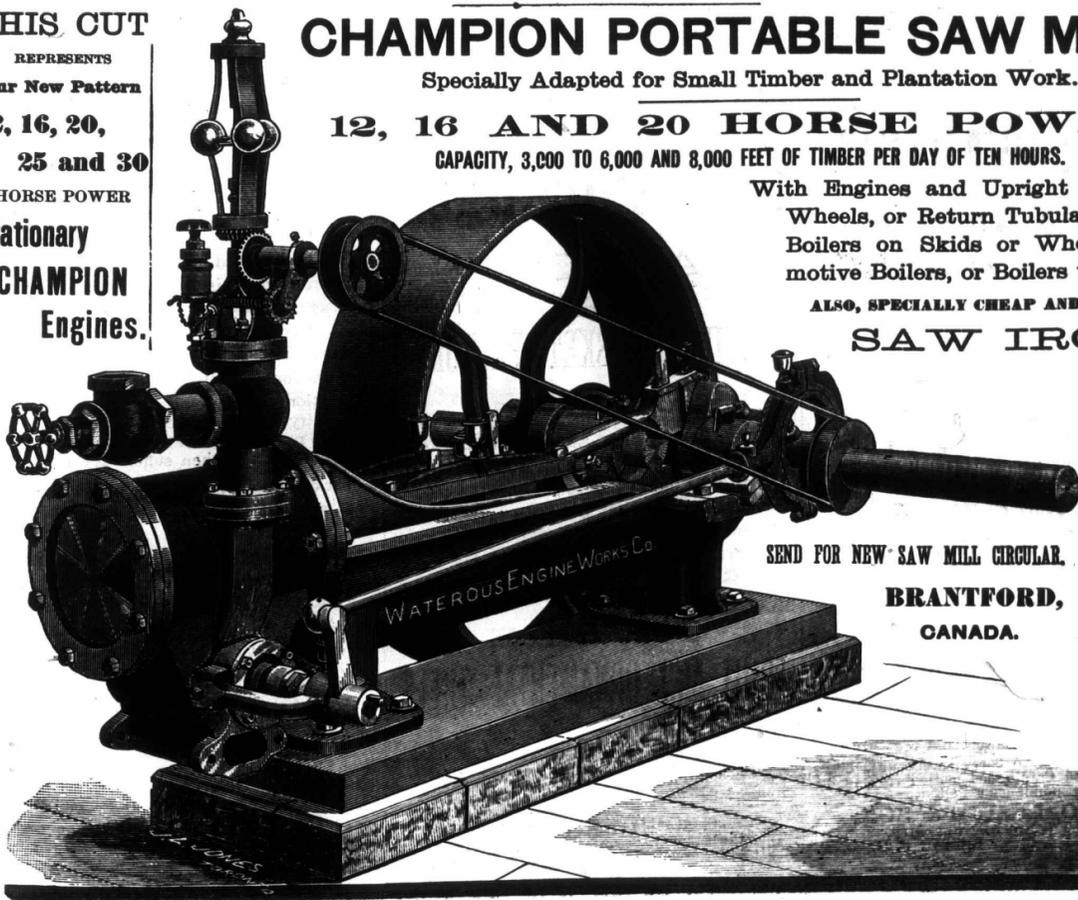
12, 16 AND 20 HORSE POWER.

CAPACITY, 3,000 TO 6,000 AND 8,000 FEET OF TIMBER PER DAY OF TEN HOURS.

With Engines and Upright Boilers on
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Boilers on Skids or Wheels, Loco-
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ALSO, SPECIALLY CHEAP AND GOOD

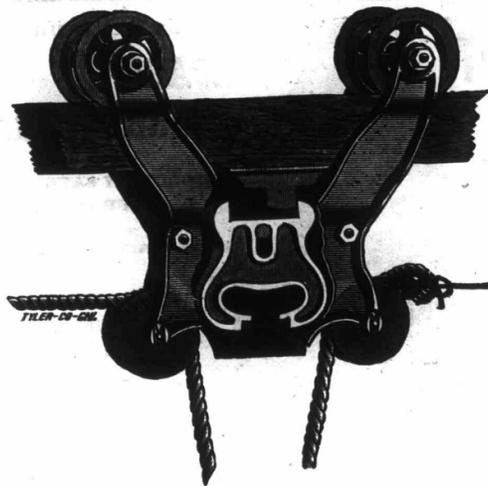
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SEND FOR NEW SAW MILL CIRCULAR.

**BRANTFORD,
CANADA.**

Branch Works—Winnipeg, Manitoba.
EASTERN OFFICE:
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We wish to invite attention to the fact that we now manufacture the most complete line of Haying Tools in Canada.

THE ACCOMPANYING IS A CUT OF THE
ELY REVERSIBLE CARRIER

—WHICH IS THE—

Best Reversible Hay Carrier Made.

It is arranged to run in either direction without change of parts. It runs on a track made of 4x4 timber, supported by rod hangers from the rafters, thus forming a swing track, and is the only Reversible Carrier that will not pass the lug except when desired to run it in the opposite direction.

The Grappling Apparatus is simple, durable and strong, and its operation positive. Send for descriptive catalogue of our full line of Haying Tools, also Windmills, Feed Grinders, Ironwood Pumps, &c., before purchasing elsewhere.

ONTARIO PUMP COMPANY, LIMITED,
243y-245b TORONTO, ONTARIO.

Notices.

Secure some of the Bronze King potatoes. One pound will be sent to your address for sending in one NEW paid subscriber.

Our subscribers would do well always to refer to our advertising columns to see if the articles they desire to purchase are advertised. The most reliable manufacturers and stockmen's advertisements are constantly appearing in the *ADVOCATE*. Every month we decline some advertisements, knowing them to be not as represented. We hear the Reaper and Mower Knife Sharpener, manufactured by P. Straith, of Clinton, spoken highly of.

We recently called upon the pushing firm of J. O. Wisner, Son & Co., Brantford, Ont., and found them wrestling with a great many more drill orders than they could well fill, despite the fact of building more than in any previous season. They are about commencing the manufacture of the 500 hay tedders they expect to sell this season, and speak with great confidence of the merits of the Wisner Hay Tedder, combined with its low price. They invite any farmer wishing to purchase to test its good qualities.

We have pleasure in directing attention to the advertisement of Burrow, Stewart & Milne, of Hamilton, which appears in our paper. The scales made by this firm are now in use throughout the Dominion, from Halifax, N. S., to Victoria, B. C., and have attained a very high reputation. This firm are very extensive scale manufacturers. They have scales adapted for all purposes, hay scales, cattle scales, dairy scales, family scales, butchers' and grocers' scales, warehouse scales, hopper scales, platform scales, etc.; also mill and warehouse trucks. They have agents in nearly every town and village of any importance in Canada. Burrow, Stewart & Milne make not only scales, but a very full line of the choicest styles of coal and wood cooking and heating stoves. They also manufacture all kinds of malleable iron castings, saddlery and carriage hardware, currycombs, etc., etc.

The Secretary of the National Butter, Cheese and Egg Association alleges that \$500,000 has been raised among the bogus butter men to prevent legislation for the regulation of the manufacture and sale of butter substitutes, and broadly intimates that it has something to do with the delay of such legislation.

The following expression of Jos. H. Reall concerning the imitation butter business can hardly be regarded as complimentary to the counterfeiters: It is the greatest and most outrageous swindle ever practiced upon any people. It is a crime against the state unparalleled in the annals of history. The war of Revolution was fought for less cause, when the whole population of the country numbered less than the dairy farmers directly affected by this swindle now, while ten times the population of the whole country then suffers as consumers.

The digestibility of cheese depends a good deal, according to Klenze, on its physical properties. All fat cheeses are dissolved or digested with great rapidity, because the molecules of casein are separated only by the fat, and so the insolvent juice can attack a large surface of the cheese at one time. Whether the cheese be hard or soft does not appear to matter, and there is no connection between the digestibility and the percentage of water present in the cheese. The degree of ripeness and the amount of fat have however considerable influence, for both these conditions render the cheese more friable, and so allow of intimate contact of the juice. Cheddar took the shortest time to digest (four hours), whilst unripe Swiss cheese required ten hours for solution.

See Stock Notes, page 158.

THE GREAT LABOR SAVER!
WISNER'S HAY TEDDER

—MANUFACTURED BY—

J. O. WISNER, SON & CO., BRANTFORD, ONT., CANADA.

A Marvel of
CHEAPNESS,
SIMPLICITY,
DURABILITY,
—AND—
EFFECTIVE WORKING.

500 Being Made
for 1886.



WISNER'S HAY TEDDER.

Guaranteed to Work
Satisfactorily.

Will do more and better
work than TEN men
with forks.

500 Being Made
for 1886.

Orders are already coming in, and the wisest course is to place your order at once and avoid disappointment. Hay cured with a Tedder is worth from two to four dollars per ton more than that gathered without. It will pay for itself in one wet or showery season. Do not fear to try it, for we guarantee its working and want it thoroughly tested. It will work in all kinds of grass, and on any land.
245-a&x **J. O. WISNER, SON & CO., Brantford, Ont.**

SPRING PLANTING!
Toronto Nurseries.

200 ACRES.

We again offer for sale a first-class, well-assorted stock of
Fruit Trees, Small Fruit Plants,
Hardy Grape Vines, &c.,
Ornamental Trees, Flowering Shrubs,
Roses, Climbing Plants, &c.,
all the best old and new varieties.

SPECIALTIES:
PLUM TREES ON HARDY CANADIAN STOCK,

INCLUDING
Moore's Arctic, Goderich & Evans',
Fay's Prolific Currant,
Industry Gooseberry,
Niagara, Empire State, **GRAPES**
and other new
Marlboro', Nemaha and other new Raspberries,
Jewell and other new Strawberries,
Clematis, including the perfectly hardy
Yellow "Graviolus,"
Prunus Pissardi, Variegated Dogwood,
Street Trees of large size.

EVERGREENS, especially Norway Spruce,
9 inches to 4 feet high.

We pack our stock to carry safely anywhere. Descriptive priced Catalogues mailed free to all applicants. Correspondence solicited.

GEO. LESLIE & SON,
TORONTO NURSERIES,
LESLIE P. O., ONT.

243-c

—FOR—
Fruit Packages
—AND—
BASKETS

Of every description and of the best quality, send to THE

OAKVILLE BASKET FACTORY!

Strawberry and Raspberry Baskets.
Cherry, Peach, Plum and Grape Baskets.
Clothes Baskets. Butcher's Baskets.
1, 2 and 3 Bushel Baskets.
Satchel and Market Baskets.
Gardener's Plant Boxes.
Grocers' Butter Dishes, &c., &c., &c.
W. B. CHISHOLM, - Oakville.
243-d

FOR SALE.
FRUIT AND ORNAMENTAL TREES.

Apples, \$15.00 per 100; Pears, \$25.00 to \$35.00 per 100; Plums, \$25.00 to \$35.00 per 100; Norway Spruce, \$5.00 to \$35.00 per 100; Austrian Pine, \$20.00 per 100; Roses, \$10.00 per 100; Grape Vines at all prices.

GEORGE ARNOLD, Prop.,
PARIS NURSERIES

241-f

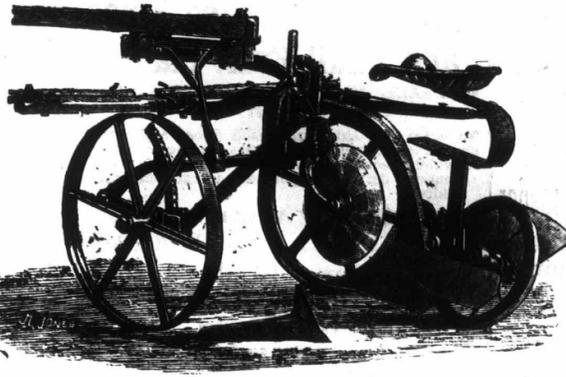
COCKSHUTT'S NEW J. G. C. RIDING PLOW

(PATENTED IN THE UNITED STATES AND CANADA.)

COVERED BY THREE PATENTS. Wiard's, issued 1883; Economist, issued 1884; Cockshutt's, issued 1885.

This Plow is the result of our past experience in the manufacture of Riding and Sulky Plows, combining the best improvements.

A new departure, involving the "king bolt principle," by which the plow beam can be raised or lowered independently of the axle, and the wheels left free to turn independently of the plow bottom.



We manufacture the largest line of both Steel and Chilled Plows made in Canada, of capacity suitable for any style of plowing.

Send for descriptive catalogue. Address

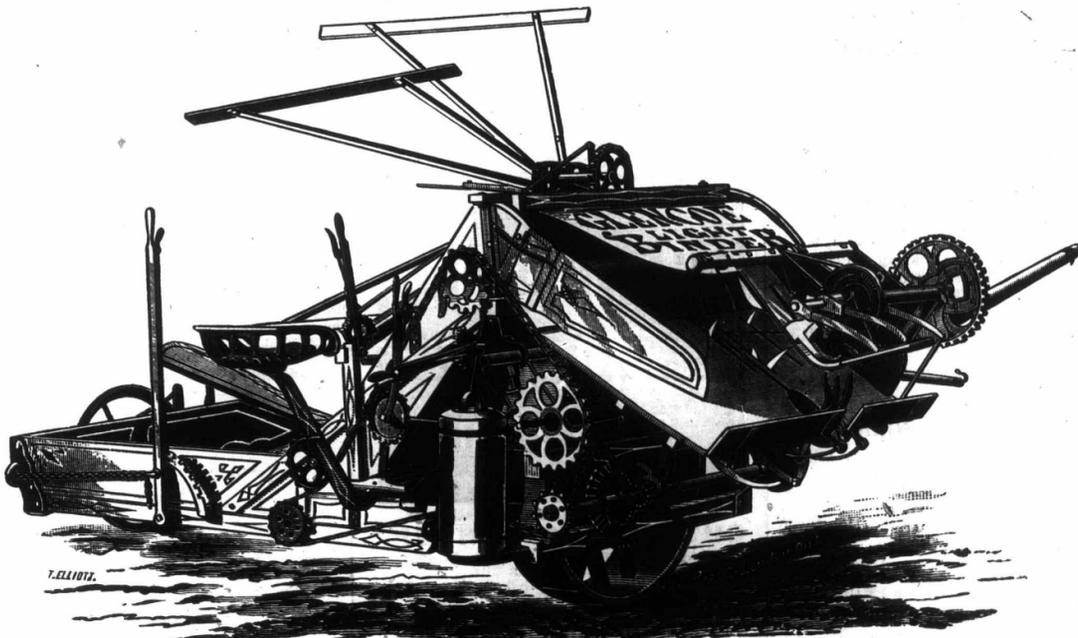
COCKSHUTT PLOW CO.'Y
(Limited.)

BRANTFORD, ONTARIO.

GLENCOE MANUFACTURING CO.

—MANUFACTURERS OF—

LIGHTEST DRAFT! BEST FINISHED!



BEST WORKING! MOST DURABLE!

LATEST IMPROVED, LIGHT-DRAFT TWO-HORSE BINDERS AND REAPERS
FRONT-CUT and REAR-CUT, LIGHT-DRAFT, CHANGEABLE-SPEED MOWERS.

Agents wanted in all unoccupied territory. 245-a

GLENCOE, ONTARIO.

Send for Descriptive Catalogue, and mention this paper

120,000 Norway Spruce

Shelter your barns and stock from the cold. Shelter your orchard from the sweeping wintry winds. Shelter and beautify your homes. Large quantities at low prices. Send for price list. **A. GILCHRIST, GUELPH P. O., ONT.** Mention ADVOCATE. 244-b

ROCK SALT.

LUMP ROCK SALT, suitable for Cattle, Baths, etc. For feeding to horses and cattle this natural salt is much better and lasts longer than ordinary bag salt. Place a lump of it in the manger; the cattle will lick it with a relish. For sale in bulk or packed in barrels. **J. R. WALKER,** 244-f
30 Foundling St., MONTREAL.

PILES! PILES!

Dr. William's Indian Pile Ointment is a sure cure for Blind, Bleeding or Itching Piles. No one need suffer. Prepared for Piles only. It never fails to cure. Sold by druggists for \$1.00, or mailed on receipt of price. **WILLIAM'S MED. CO.,** CLEVELAND, Ohio. 244-y



RUPTURE!

CURES every child sure, and 80 out of every 100 of adults; can prove this by testimony of your own neighbours. *Facts the best evidence.* Send stamp for full information. Address **EGAN'S IMPERIAL TRUSS CO.,** 23 Adelaide-St. East, Toronto, Ontario. 245-y

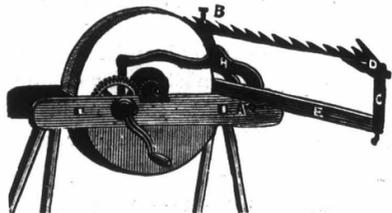
THE STANDARD FERTILIZER AND CHEMICAL CO.'Y.

(LIMITED) SMITH'S FALLS, ONTARIO.

SPECIAL FERTILIZERS FOR FRUIT, Vegetables, Grain, Roots, &c. Prof. Penhallow's Peach Yellows Formula.

Awarded SILVER MEDAL at Toronto, 1885. Diploma at Sherbrooke, E.T. Price List and Pamphlet giving much valuable information on Fertilizers, free on application. Correspondence solicited. Address to **R. J. BRODIE, Manager,** Smith's Falls, Ont. Or to **BRODIE & HARVIE, Montreal.** 241-f

P. STRAITH'S



Reaper and Mower Knife Sharpener

Manufactured at Toronto and Clinton, Canada, and Chicago in United States, and Exhibited at all the Principal Shows both in Canada and United States.

Verdict of all who have used it, the only effective Section Knife Grindstone we have seen. It is not an emery wheel, but the best grit grindstone, with self-adjusting attachments, and so arranged that one boy can grind knife perfectly in ten minutes, at the same time keeping the knife in perfect shape. The reputation of the above machine is now well established throughout the Dominion by farmers who have had them in use for the last three years.

By enclosing \$7.00 in registered letter with the order the freight on the machine will be paid to any railway station in Ontario. Special terms to wholesale dealers. Catalogues sent free.

Address all communications to
PETER STRAITH,
Box 80, CLINTON, ONT.

"The 'ACME' Pulverizing Harrow, Clod Crusher and Leveler is a capital implement for pulverizing inverted sod, in preparing for planting corn, as it goes down several inches in mellowing the freshly turned earth, while its slanting cut prevents tearing up the sod. For this purpose alone it is worth much more than its cost on any farm of even moderate size."

See advertisement on page 153. 245-a



7,000 CHALLENGE WIND MILLS
IN USE IN THE U. S. AND CANADA.

For Power & Pumping Purposes. Have been made 15 years, and have never blown down without tower breaking, a record no other mill can show. Write us, stating nature of work to be done, and we will give contract figures for the job. Send for Catalogue to 225-a St. Catharines Pump & Wind Mill Works.

Farm for Sale,

BEING PART OF BLOCKS C & E, WESTERN DIVISION, TOWNSHIP OF COLBORNE.

About two miles from Goderich, County of Huron, containing 220 acres, more or less; 25 acres bush, and the rest cleared; spring creek running through the premises; good house and outbuildings; 40 acres of fall wheat, in good condition. Will be sold on reasonable terms. Apply to W. WELLS, Salford P.O.; or to H. WELLS, Brewer, Goderich. 245-c

FERTILIZERS

EQUAL TO STANDARD REQUIRED BY THE NEW ACT OF DOMINION PARLIAMENT.

THOS. ASPDEN & SON

Phosphate Works, London, Ont.

TESTIMONIAL.

I have thoroughly tested the brand of Fertilizers manufactured by THOS. ASPDEN & SON, and I strongly recommend it to all desiring to make immense profits. It is the best investment I have ever made, and is worth considerably more than its market price, if properly applied. An analysis of it, with a statement of my profits, will be found in the February issue of the FARMER'S ADVOCATE, page 38. 245-b
W. A. MACDONALD.

WINONA NURSERY.

ALL KINDS OF

Fruit Trees, Grape Vines and Small Fruit Plants

FOR SALE AT PRICES AS LOW AS THE LOWEST.

An extra fine stock of Peach Trees and Small Fruit Plants, including all the leading varieties, on which special reductions will be made. Send us a list of what you want and get our prices. Address—

SMITH & VANDUZER,
244-b WINONA, ONT.

Northwestern Land Agency
ST. CLOUD, MINN.

FOR SALE.

Improved grain, stock and dairy farms; unimproved lands, pine and hard wood timber; granite quarries. Location, soil and water unexcelled. 1st mortgage loans, town, city and school bonds negotiated. Descriptive lists free on application. Correspondence solicited.

244-b **BUCKART, GILLIS & VINCENT.**

LANDS LANDS

Send for Description and Maps of NORTHERN PACIFIC COUNTRY, the Free Government Lands and CHEAP RAILROAD LANDS in Minnesota, Dakota, Montana, Idaho, Washington and Oregon. The Best Agricultural, Grazing and Timber Lands now open to Settlers. SEND FREE. Address, CHAS. B. LAMBORN, Land Commissioner, St. Paul, Minn.

THE LINE SELECTED BY THE U. S. GOV'T TO CARRY THE FAST MAIL.



It is the only line with its own track from **CHICAGO TO DENVER,** Either by way of Omaha, Pacific Junction, St. Joseph, Atchison or Kansas City. It connects in Union Depots with through trains from NEW YORK, PHILADELPHIA, BOSTON and all Eastern points. It is the principal line to **SAN FRANCISCO, PORTLAND & CITY OF MEXICO** It traverses all of the six great States of ILLINOIS, IOWA, MISSOURI, NEBRASKA, KANSAS, COLORADO with branch lines to all their important cities and towns.

From CHICAGO, PEORIA or ST. LOUIS, it runs every day in the year from one to three elegantly equipped through trains over its own tracks between **Chicago and Denver, Chicago and Omaha, Chicago and Council Bluffs, Chicago and St. Joseph, Chicago and Atchison, Chicago and Kansas City, Chicago and Topeka, Chicago and Cedar Rapids, Chicago and Sioux City, Peoria and Council Bluffs, Peoria and Kansas City, St. Louis and Omaha, St. Louis and St. Paul, Kansas City and Denver, Kansas City and St. Paul, Kansas City and Omaha.**

For all points in Northwest, West and Southwest. Its equipment is complete and first class in every particular, and at all important points interlocking Switches and Signals are used, thus insuring comfort and safety.

For Tickets, Rates, General Information, etc. regarding the Burlington Route, call on any Ticket Agent in the United States or Canada, or address **T. J. POTTER** 1st V.P. & GEN. MGR., CHICAGO. **HENRY B. STONE,** ASST. GEN. MGR., CHICAGO. **PERCEVAL LOWELL,** GEN. PASS. AGT., CHICAGO.

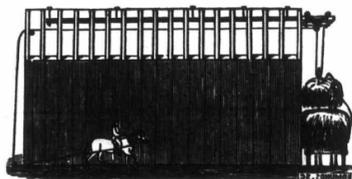
Clydesdale Stud Book OF CANADA.

Entries for the First Volume will close on the 31st of May. No time to lose.

FEES—To members of the Clydesdale Association of Canada, \$2.00 each word. \$1.00 for imported horses on record in Scotch Book up to 31st of May, 1886. For entries in Office Record with less than four or five horses, \$1.00. For non-members, \$3.00 each. Membership fee, \$3.00 per year. Send post card to Secretary for circular or forms.

N.B.—Entries also taken for Canadian Shire Book. **HENRY WADE,** Secretary, Toronto, Ont.

BUCHANAN'S Improved, Doubling-Acting



PITCHING MACHINE

FOR UNLOADING HAY AND ALL KINDS OF LOOSE GRAIN.

This machine can be used in barns, sheds or on stacks. It can be used to unload to either side of the barn floor without being turned around on the track, thus saving the trouble and annoyance experienced in climbing to the top of the barn to make the change. This is a special feature in my double-acting carrier, for which I hold letters patent for the Dominion, and hereby caution the public against buying from any others than me or my authorized agents, any infringement, as I will hold all persons using imitations liable for damages. This machine has never been beaten, either on a fair ground or in the barn, although it has been submitted to any test that the opposing makers could suggest, and proved to be a much better machine in the barn at work than on the fair ground empty. We will send this machine to any responsible farmer on trial, and guarantee satisfaction or no sale. Agents wanted in a great many parts of the Dominion, where I still have no agents established. Liberal discount to good agents, no others need apply, as we will not deal with any but good responsible men. Send for circulars and prices.



THE COMMON-SENSE SHEAF LIFTER

Works in connection with the Hay Carrier, and is the most complete apparatus ever offered to the public for unloading sheaves. No tearing the sheaves apart nor musing the load; leaves the sheaves on the mow in as nice a shape as they lay on the load. Price of Sheaf Lifter, \$5.00. Satisfaction guaranteed.

M. T. BUCHANAN, Manufacturer, Ingersoll

IMPROVED FARMS

MINNESOTA and DAKOTA FOR SALE.

Address **N. W. FARM AGENCY** MINNEAPOLIS, Minn.

DR. W. E. WAUGH, Office—the late Dr. Anderson's, Ridout-St., LONDON, ONT. 241-y

Advertise your Stock in the Farmer's Advocate.

Best Advertising Medium in America.

Hamilton Business College

Corner of King and James Street's, HAMILTON, ONT., opposite Gore.
 A first-class Business Training College, for Ladies and Gentlemen. For full particulars send for Circular.
 M. L. RATTRAY, Chartered Accountant, 243-y Principal. E. A. GEIGER, Chartered Accountant, Vice-Principal.

L. D. Sawyer & Co., Hamilton, Ont.

MANUFACTURERS OF
"L. D. S." ENGINES,
 Awarded FIRST PRIZE, 1885, at Provincial Fair, London;
 Central Fair, Hamilton; and Northern Fair,
 Walkerton.
"Grain Saver" AND "Peerless"
SEPARATORS.
 'Pitts' Horse-Powers, for 4, 6, 8, 10 and 12 Horses.
 Tread Powers, for 1, 2 and 3 Horses.
 Light Separators, for Tread and Sweep Powers.
 Send for Illustrated Catalogue. 245-y



STUMP MACHINES! STONE MACHINES! SPINNING WHEELS!

We manufacture four different sizes of Stump and Stone Machines, also Bryce's Pat. Spinning Wheel. This Wheel fastens to any ordinary table; can be worked sitting or standing; for speed and ease beats them all. Sent to any part of the Dominion on receipt of price, \$5.00. Every wheel guaranteed to give satisfaction. Send for Illustrated Circular. Agents wanted. Address 243-y J. W. ANDERSON, BARRIE, ONT.

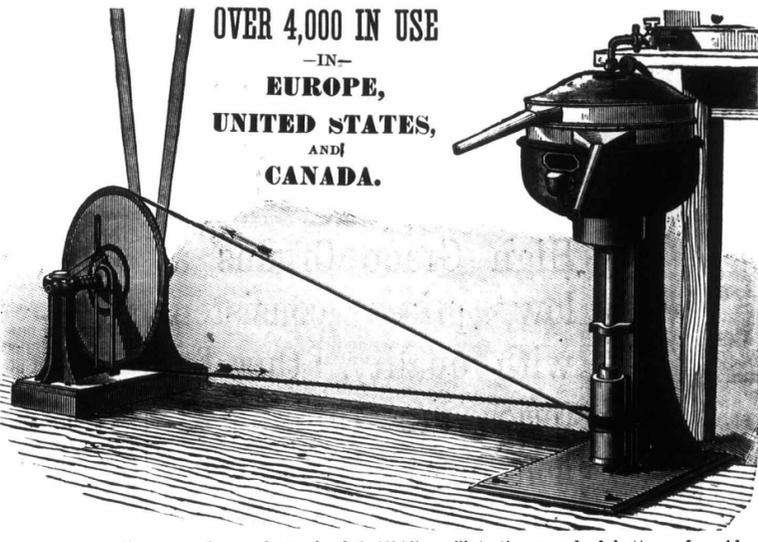
DERICK'S HAY PRESSES.

They are the customer's best. Sent anywhere on trial to operate against all other presses. The customer keeping the one that suits best.
 -Manufactory at 90 College Street, Montreal, P. Q.
 Address for circular P. K. DEDERICK & CO., Albany, N. Y.

CREAM BY MACHINERY.

DeLAVAL'S CREAM SEPARATOR.

Frank Wilson, Esq.:
 Dear Sir,—I having bought and used the first Centrifugal Cream Separator in Ontario, take much pleasure in giving you the following facts:
 I bought a Burmeister & Wain Machine, which is the same as the Danish Weston. It did good work for a time, but before the end of the first year it had cost me over \$200 two hundred dollars for repairs, and would not work satisfactorily, so I put in a DeLaval, and have given it a thorough trial, and find it does its work to perfection. I will recommend it to all, as any boy or girl can run it, and I must say that nothing short of a first-class machinist can manage the Burmeister & Wain.
 I have seen the DeLaval running now the second year, and it has not cost me (\$2) two dollars for repairs the whole time, and is doing as perfect work as ever.
 I also find that the DeLaval will work at its best by setting it level on any ordinary floor, and the Burmeister & Wain requires a solid stone foundation. The foundation for my Burmeister & Wain cost me over (\$50) fifty dollars.
 I do the largest cream trade in Canada, as well as manufacture butter and cheese, and I can with the DeLaval Separator, make a better sample of cream for a city trade than can possibly be done with the Burmeister & Wain, and equally good for butter.
 All parties wishing to buy Separators are invited to come to my place in the centre of the City of Hamilton, and see the Burmeister & Wain and the DeLaval working side by side, and draw their own conclusions.
 Yours truly,
 W. G. WALTON.



OVER 4,000 IN USE
 —IN—
 EUROPE,
 UNITED STATES,
 AND
 CANADA.

St. Lin, P.Q., Dec. 30, 1885.
 Dear Sir.—After minute examination and repeated trials, I certify that the DeLaval Cream Separators work extremely well. They offer great advantages to the dairy interests by their economy, quality and increased quantity of butter produced, and the great advantage to farmers to have only to send their milk once a day to the factory. The process of working is very simple; however, it would be a good plan for anyone about to establish a creamery to serve a few days' apprenticeship to save himself unnecessary expense. I believe it essential to its proper working to procure a good engine and to have a competent man to set up and start the machine.
 The following is the result I have obtained by using the DeLaval Cream Separators during one and a-half months, from 1st Sept. to Oct. 15th. I received 207,428 lbs. of milk, and have manufactured 9,843 lbs. of butter from it, which gives an average of 21 1/2 lbs. milk to the pound of butter. I could not obtain this result by any other process. I invite any persons desirous of establishing a creamery to come and pass a few days at my factory, and I will give them all the information and lessons they want, free of charge.
 E. DESMARAIS.

Wyoming, Ont., Oct. 5th, 1885.
 Dear Sir,—My decision has been formed for some time past, and I can say after due consideration (having used the Burmeister & Wain machine for the past two years and the DeLaval for the past season) that the DeLaval is in many ways superior to the Burmeister & Wain, both in regard to speed in separating, durability, and simplicity. Space does not permit me to enumerate the advantages the DeLaval has over the Burmeister & Wain, suffice it to say that if I was going to start a butter factory I would put in the DeLaval Separator.
 Yours truly,
 ALEX. PREFONTAINE, Butter Maker.

Wyoming, Ont., Oct. 10, 1885.
 Dear Sir,—I have now used three DeLaval Cream Separators daily for five months. They are running nicer to-day than when we first started, give the highest satisfaction, and have not cost me one cent for repairs except to renew two small belts. After they are put in motion in the morning my daughter, aged 15 years can run them until we put through 6,000 lbs. milk; in fact, I think they will be hard to beat. Anyone intending to purchase a machine could not do better than buy a DeLaval. They make a thorough separation of cream from milk, and I also claim that is the only way to get pure butter, viz., by passing the milk through a separator, as it takes all foreign matter out of the milk which is retained in the bowl of the separator I have no interest in the sale of machines.
 JOHN HARTLEY.

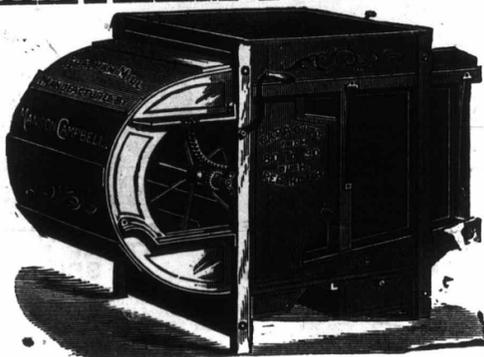
The Judges of the great English Dairy Fair, just held in London, have made a report of an exhaustive comparative test between the DeLAVAL and DANISH machines, resulting in favor of the DeLAVAL on every point covered by a Cream Separator. They give it the highest recommendation for superiority in construction, operation and results that any implement has ever received, and their endorsement clinches the evidence of the great merits and advantages of this most useful of all dairy appliances. They state that no butter-maker can afford to be without one. They say, also: "In regard to the essential points of construction, separation, temperature and quality of cream, and analysis of cream, the DeLaval was far ahead of its opponents, and quite deserved the GOLD MEDAL given by the Council. The power of raising the skim milk after separation to a lighter level seemed to entitle the large A Danish to a second prize, but the failure to separate the milk satisfactorily debarred the other Danish machine from any further recognition."

DeLAVAL CREAM SEPARATOR CO.

W. M. CLINE, Jr., Agent, LISTOWEL, ONT. 244-b FRANK WILSON, General Manager for Canada, 19 St. Peter Street, MONTREAL

THE CHATHAM FANNING MILL

1330 MILLS SOLD IN 1885



BE SURE AND SEE 1886 IMPROVEMENTS BEFORE BUYING.

The most Reliable Fanning Mill in Canada for all kinds of grain. Sold on liberal terms and delivered freight paid to any station in Canada. Send for circular and prices.
MANSON CAMPBELL, Chatham, Ont.
 MESSRS. VANALLEN & AGUR, Winnipeg, Agents for Manitoba and the N. W. T.

Stock Notes.

Mr. J. C. Snell's sale of Shorthorns on April 7th, at Edmonton, was considered a success, notwithstanding the severe snow storm of the 6th, which prevented many from attending. All the animals were sold at satisfactory prices, the highest price being \$425 for an imported cow, and \$350 for a Canadian-bred yearling heifer. The average for females was \$219; for bulls, \$162; for all, \$208.

SIR,—There have been the following sales made since last report from the Alton Hall herds:—To C. W. Saxby, of Illinois, two imported Galloway cows and two Galloway heifers; to J. S. McDonald, Chesley, Ont., one Berkshire boar; to C. A. Kell, Chatham, Ont., one Berkshire boar; to John Meyer, Kossuth, Ont., one Berkshire boar; to Geo. Green, Fairview, Ont., one imported Berkshire sow.—H. SORBY, Gourrock.

Sir,—The following sales have been made since January from the "Maple Lodge Herd," the property of Jas. S. Smith:—To Chas. Wilson, Greenway, the yearling bull, 6th Prince of Thule; to Joseph Jackson, Mitchell, the yearling bull, San Marzano; to Hector Reid, Brucefield, the yearling bull, Seventh Prince of Thule; to John Marshall, Cass City, Mich., U. S., the cow, Matchless Mercedes; to Thomas Crawford, Widder, the yearling bull, Royal Constance; to Thomas Brown, the grade heifer, Lady McFarlane Fourth; and to Duncan Brown, Iona, the 2-year-old bull, 2d Lord of the Manor. There are three young bulls on hand yet for sale.

SIR,—The following list will give you an idea of our success with our horses this season just finished. With our coach stallion, Smuggler, have taken first at Hamburg, first at Berlin, first at Galt, first at Elmira and first at Elora. There were excellent horses to compete against him; some that had not been beaten previously. Besides, we are having a great many enquiries about him from a distance, and even some making offers to purchase him. Our Percheron horses are also equally successful in the prize list, being winners at every show in which they entered, or eight firsts out of eight shows. Though the country is flooded with horses, yet good material and blood will tell. We have every prospect of a grand season this year. We are just advised that \$5,000 has just been refused for a filly coming three years, out of Josephine, the dam of Smuggler.—T. & A. B. SNIDER, German Mills.

There were 37,334,000 sheep in New South Wales in 1884, and, as a result of the drought, there was in 1885 a decrease of 5,673,679. This year will show some recovery.

National Stockman: There are few if any greater mistakes connected with the fine stock business just now than the too prevalent practice of breeding too young. The high cost of the best types of breeders begets a desire to realize from them as soon as possible, and owners very frequently overtax their young stock for this reason. The consequences are seen everywhere—in the early breaking down of usefulness in sires, in the dwarfed development of females, in the imperfection of progeny, in weakened constitutions. There is nothing gained by too great haste in this matter. Nature's laws cannot be violated with impunity, and the greed which prompts their violation in the direction indicated should and often does defeat its own end. This is a point which deserves increased attention.



Subjects the soil to the action of a Steel Crusher and Leveler, and to the Cutting, Lifting, Turning Process of Double Gangs of Cast Steel Coulters. Immense cutting power. Crushing, Levelling and Pulverizing performed at the same time. Entire absence of Spikes or Spring Teeth avoids pulling up rubbish. Only Harrow that cuts over the entire surface of the ground. Sizes, 3 to 15 feet wide. With and without Sulky attachment. We deliver free at Distributing Depots.
 Send for pamphlet containing thousands of testimonials from 48 States and Territories.

BRANCH OFFICE: **HARRISBURG, PENN.** **NASH & BRO.,** MANUFACTORY & PRINCIPAL OFFICE: **MILLINGTON, NEW JERSEY.**
 N.B.—"TILLAGE IS MANURE" and other Essays sent Free to parties who name this paper. 242-d

**THE
 BELL
 ORGAN**

High Grade Organs at low prices consistent with quality. Our factories are running 12 hours per day to keep up with orders, which are constantly increasing. Catalogues Free.

W. BELL & CO.,
 Guelph, Ont.

BRANCHES AT
 Hamilton, Ont.; St. Thomas, Ont.,
 and London, Eng. 240-y

COGENT REASONS WHY THE CHATHAM WAGON

Adopted by the Government of

the Dominion of Canada as the

STANDARD



WAGON.

should command your preference:—

The intrinsic cost and value of it is at least \$10 more than any other wagon made in Canada, and any unprejudiced practical man will tell you so, and the thousands who now have them in use say so, because it is not only made from the best, carefully selected and thoroughly seasoned timber and best of iron, but the **skeins** used, made only by us, are superior to any skein made or used in Canada, and are constructed specially to receive our **Patent Climax Truss Rod**, which doubles the strength of the axle; the boxing of the hubs are **pressed**, not wedged in; a **guarantee** for a year accompanies each wagon, and notwithstanding this additional cost and superiority the **Chatham Wagon** can be purchased at no greater price than is charged for inferior wagons. **Bear in mind**, it is the running gear that carries your load, and no amount of fancy painting on the box will make an easy running and great Carrier of a poorly constructed wagon. **Liberal Terms to Parties Buying in Carload Lots. Correspondence Solicited.**

CHATHAM MANUFACTURING CO., Limited.



FAIR AND SQUARE DEALING.

Believing that if a man has dealt squarely with his fellow-men his patrons are his best advertisers, I invite all to make inquiry of the character of my seeds among over a million of Farmers, Gardeners and Planters who have used them during the past thirty years. Raising a large portion of the seed sold, (few seedsmen raise the seed they sell) I was the first seedsman in the United States to warrant (as per catalogue) their purity and freshness. My new Vegetable and Flower Seed Catalogue for 1886 will be sent **FREE** to all who write for it. Among an immense variety, my friends will find in it (and in none other) a new drumhead Cabbage, just about as early as Henderson's, but **nearly twice as large!** James J. H. Gregory, Marblehead, Mass.

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Team and Freight Wagons are made with Steel Skeins when wanted.

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BAIN WAGON COMPANY, WOODSTOCK, ONT.

N. B.—Every Wagon warranted.

244-e

SEDGWICK STEEL WIRE FENCE



Is the best general purpose wire fence in use. It is a **strong net-work without barbs**. Don't injure stock. It will turn dogs, pigs, sheep and poultry, as well as horses and cattle. The best fence for Farms, Gardens, Stock Ranges and Railroads. Very neat, pretty styles for Lawns, Parks, School-lots and Cemeteries. Covered with rust-proof paint, or made of galvanized wire, as preferred. It will last a life-time. It is better than boards or barbed wire in every respect. Give it a fair trial; it will wear itself into favor. The **Sedgwick Gates** made of wrought-iron pipe and steel wire, defy all competition in lightness, neatness, strength and durability. We make the best, cheapest and easiest working all-iron automatic or self-opening gate, and the neatest cheap iron fences now made. The best **Wire Stretcher, Outting Pliers and Post Augers**. For prices and particulars ask Hardware Dealers, or address, mentioning paper,

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Oil of Vitriol, Muriatic and Nitric Acids

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Hand Grenade

FIRE EXTINGUISHER CO.

ARE MANUFACTURING THE MOST PERFECT Fire Extinguishers in the market. It is the Simplest, Easiest, Quickest, Most Efficient and

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It is simply a glass bottle filled with a liquid that generates gases when broken into the fire, that kill it almost instantly. Every factory, every mill, every business house, every home should be supplied with these goods. Price \$9 per dozen.

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CAUTION! There are some fraudulent companies endeavoring to palm off their goods as being same or similar to ours, etc. We give warning that all infringements on the patent will be prosecuted and all purchasers of the same are liable and unprotected. If you want Fire Extinguishers buy only the **Globe**; it's the best made and you are protected.

Correspondence invited.

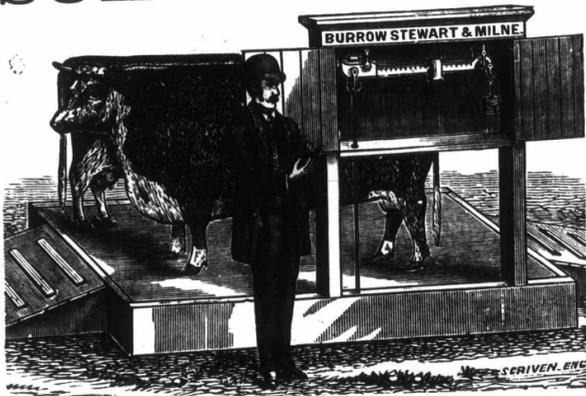
242-b.

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For Sale & Exchange. FREE Catalogue. R. B. CHAFFIN & CO., Richmond, Va.

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 No Farmer, Stock Raiser or Produce Dealer should be without one.
 It weighs Accurately from half pound to 4,000 pounds.

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COMPETITION OPEN TO THE WORLD!

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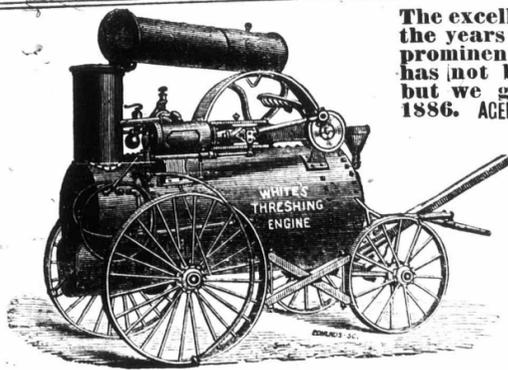
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Awarded Silver Medal, Toronto Industrial Exhibition, 1881.

Awarded Three Diplomas and Two First Prizes, Dominion Exhibition, Montreal, 1882.

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D. W. KARN & Co., WOODSTOCK, ONT.



The excellent record of this Engine as the years roll on has brought it so prominently in favor that the supply has not been equal to the demand, but we guarantee a full supply for 1886. AGENTS WANTED IN SOME LOCALITIES.

It is licensed by all Insurance Co's and has proved itself to be the most durable.

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 The engines may be seen at Van Tassal's foot bridge warehouse, Belleville. 243-y

Seed Potatoes
THE BRONZE KING

I beg to inform the public that I have propagated a potato which has been thoroughly tested, and has proved itself to be far superior to all others known. It is a cross from the **Early Rose** and **Garnet Chili**. I had it tested last season in several sections and on different soils by reliable parties. It was not affected by the rot in a single instance, while other varieties planted by its side were badly affected. This is the first season any have been offered for sale. It is a handsome potato, and of excellent quality.

Only a Limited Quantity for Sale.
 PRICE—50c. per lb.; 3 pounds per mail, \$1.00; \$3.00 per peck; \$5.00 per half bushel.
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 LONDON, ONTARIO.

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The Company issues debentures for two or more years in sums of \$100 and upwards, bearing interest at highest current rates, payable half-yearly by coupons.

Executors and Trustees are authorized by law to invest in debentures of this Company. For information apply to
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The most successful Veterinary Institution in America. All experienced Teachers. Fees, Fifty Dollars per Session. Session 1885-6 begins Oct. 21st. Apply to the principal, PROF. SMITH, V. S., Edin., TORONTO, CANADA. 237-y



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