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AND HOME MAGAZINE

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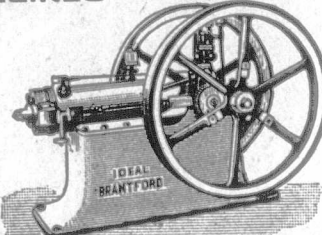
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LONDON, ONT., AND WINNIPEG, MAN., JULY 1, 1901.

No. 529

EDITORIAL.

The Tuberculin Crusade and the Cattle Breeders.

It is to be feared that a very large number of our cattle-owners have not yet realized the real significance of the tuberculin-test crusade. Its dangers have not been fully discerned. The original conception seems to have been that by its use animals with tubercles in their bodies could be entirely eliminated from the country. An elaborate treatise on this subject issued from an American experiment station a while ago disclosed the nature of the design, in the writer's mind, to be the enforcement of tuberculin testing on every farm, and the quarantining of cattle showing a rise in temperature. In a recent annual report, Dr. D. McEachran, head of the Canadian Live Stock Inspection Department, asserts that "with a moderate expenditure to enable us to at once get rid of all those showing symptoms and so presumably infective, fattening the others and quarantining them for life, this disease can be completely eradicated." Cannot the farmer and stockman perceive the true character of the system which a little clique of officials would fasten upon them for the benefit of themselves and the manufacturers of tuberculin? How would the breeder and farmer relish the prospect of supporting a lot of salaried officials whose duty would be to periodically give their cattle hypodermic injections, or, as one writer graphically puts it, "pump poison into them?" Even supposing there were no risks of abortion in pregnant animals, or other subsequent injurious effects, it would be very much cheaper and better for the country to simply pension off these officials at once. For the general farmer and dairyman the system is optional now, but how long will it remain so? The evident, logical design is

TO MAKE IT GENERAL AND COMPULSORY,

as it is upon the breeders who desire to import or to export pure-bred animals to the United States. Grades and scrubs go there without a test! But when an enterprising American comes along wanting first-class cattle, and who does not want them tested, he cannot get them without a dose.

A MISLEADING TEST.

As a scientific test, what reliance is to be placed upon a tuberculin injection? The Dublin experiments showed that it both condemned the innocent and let off the guilty, the extent of error amounting to 17½ per cent. Even Nocard, of France, does not claim that reacting animals are always tuberculous. The investigations conducted by the Royal Agricultural Society of England showed error to the extent of 17.64 per cent. It is not contended that an injection of tuberculin, which is a fluid lymph prepared from the tubercle bacillus itself, passing through the animal system will not by its effects on the tissues or cells cause the temperature of the animal to rise; in other words, occasion what is called a "reaction." It is said that a tubercle the size of a millet seed anywhere in the system would occasion that effect, but should that condemn the animal? Speaking of human tubercles, Prof. Wm. Osler, of the Johns Hopkins University, one of the most eminent medical practitioners and pathologists in the world to-day, states that "a very large proportion of all persons at the age of forty have, somewhere in their bodies, tuberculous lesions. This was discovered by large numbers of post-mortem examinations of persons dying of other ailments or accidents, or probably of old age. The variation of animal temperatures under ordinary conditions, and without any injection of tuberculin,

is remarkable. Our attention has been called to a very careful test made with a Canadian stable full of cattle, of which from five to ten per cent. of their number gave a reaction, without any injections, of from two to three degrees, and all evidently in perfect health and on regular feed. And yet the veterinary branch of the Dominion Department of Agriculture presumes to condemn and throw upon the hands of the breeder animals whose temperature rises two degrees or more under the tuberculin test during the 48-hour period! And this, too, in the name of science! One cannot wonder that indignant breeders look upon this as

A COMBINATION OF HUMBUG AND OUTRAGE.

As every well-informed stockman knows, there are many reasons that will cause a sudden rise in animal temperature, such as indigestion, slight cold, or anything causing a feverish condition. Floyd S. Barlow, of Cornell University, whose letter we republish elsewhere, states that "after the tuberculin has been injected into a cow, some change in the regular current of her life may take place; for example, a rise in the temperature of the air, exertion on the part of the animal, privation of water at the usual time, retention of milk at the usual milking period, coming in heat; in fact, anything that tends to excite the animal may cause a rise of temperature above the normal." What an easy matter it is, then, for officials who are looking for reactions, and whose occupation, like Othello's, would be gone without them, to secure an occasional rise in temperature with perfectly healthy animals. With all these chances against him, and stringent orders, with heavy penalties, requiring quarantining from the rest of the herd for the remainder of its life, or else slaughter of every animal that reacts, how long can any breeder continue a trade in breeding stock with the States without getting loaded up with valuable but condemned cattle? The Government could hardly have devised a more

VICIOUS MOVE AGAINST THE INTERESTS OF THE BREEDERS

of Canada. It will prevent new men from going into breeding improved cattle, and tend to stop those who have started increasing their pure-bred herds. Not only so, but it has come to our hearing that in some way or other those who are manipulating the Washington end of the tuberculin-test business are becoming posted as to the results of the testing of some of our zealous inspectors, so that if they need any excuse to shut out Canadian cattle absolutely, they can soon get it. Within their own borders the test is not allowed to worry the U. S. breeders, but for the sake of this fad the Canadian authorities are being used as a cat's-paw. Thus far, the tuberculin policy of the Canadian Government has done little but damage. The contention that it is imposed as a protection to our breeders is an insult to their intelligence.

A word with regard to the compulsory quarantining on the farm for life of reacting animals. A gentleman who has had an extended experience with the tuberculin test, stated at the Ottawa conference on tuberculosis, in February last, as a result of his investigation, that he did not agree as to the necessity of isolating reacting animals; also stating that his reacting cattle had not failed or become emaciated; in fact, they seemed just as sleek and good conditioned as the others. Four years ago a herd of 29 Jersey cattle were tested by a veterinarian, acting for the Dominion Department of Agriculture, and 16 reacted. They are all alive and well yet, and no better looking herd is to be seen, and not under quarantine, either. Dominion officers report 1,200 reactions, chiefly in suspected

dairy herds, during three years past, but, so far as we can learn, the quarantining of them has been in name only. Why, then, impose it upon breeders?

The test system is on a par with the costly 90-day quarantine imposed on breeding cattle imported from Britain,

THE ABOMINABLE CONDITION

of which some time ago was exposed in our issue of May 1st last, one breeder reporting that his animals had got both foul in the foot and vermin while confined there. The idea is to prevent cattle disease from getting into Canada, and yet animals, after spending three months there, were tramped down and out the identical lane through which fresh arrivals had come in!

What, then, is to be done with this useless and injurious tuberculin-test system? We are of opinion that so long as the Canadian Government maintains it against Britain and the United States, just so long will the States be enabled to keep it up against Canada. There is no doubt that Hon. John Dryden hit the nail squarely on the head when he wrote the *FARMER'S ADVOCATE*, on February 1st last, that the original adoption of the test was a blunder, and the sensible and proper course for the Dominion Government, that first imposed the regulation, should be

AT ONCE TO REMOVE IT.

That is what Hon. Mr. Fisher should do now, and, fortunately, it can be done without reference to Washington. That was the stand taken at the big cattle-breeders' meeting in Guelph at the last winter show, on the motion of Mr. Arthur Johnston, seconded by Mr. Alex. Smith. At a subsequent meeting, in February, the breeders were assured, on behalf of the Government, that relief would be speedily forthcoming, so they refrained from going in a body to Ottawa. How has the promise been kept? The staff of regular departmental officers to do testing has been increased in Canada, with Dr. Rutherford appointed for Great Britain, and there is to be a more stringent enforcement of regulations. They asked for bread, and they are getting a stone.

Canadian Manufacturers Abroad.

Mr. D. Thom, head of the well-known Watford (Ontario) Implement Works, recently called at the *FARMER'S ADVOCATE* office on his return from Great Britain. The agriculturists of Scotland, whom he had the opportunity of visiting, he found, as a rule, prospering; in fact, making money. He noticed a good demand for live stock, ordinary farm dairy cows selling readily at two and three times the prices prevailing in Ontario. Speaking of the International Exhibition at Glasgow, which is proving a great success, Mr. Thom was much surprised at the absence of the Scottish manufacturers of agricultural implements, and upon communicating with them, drew from one of their number the frank confession that the reason was, that in view of the complete exhibit and the superior character and finish of the Canadian machinery shown, the comparison would not be favorable to the Old Country makers, so they deemed it prudent to refrain entirely from attempting to make any exhibit.

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Averting the Tragedy of the Washtub.

Dissatisfied with the outlook at home, and attracted by the glamor of the city, the country girl is drifting from the farm. In many cases it may be a life blunder, but still she goes. On the mothers and daughters who remain behind the burden grows heavier. Domestic service has fallen into disfavor. In both country and city efficient domestic help is becoming more difficult to obtain. Electricity and schools of domestic science may yet solve the problem, but what is to be done meanwhile? Labor-saving machinery has not come to the rescue of the household, as it has in the barn and on the field. In the city, wash-day has been long regarded as an unmitigated nuisance, if not a weekly tragedy of domestic peace. But the wash-woman, like the archæopteryx, will soon be an extinct species, and the place that once knew her will soon know her no more for ever. The steam laundry is coming to the rescue. First, it gathered in the "boiled shirt" and a few collars and cuffs, but now it appropriates all and sundry, and the householder has nothing to do but pay the little bill, which he thinks he more than saves in doctor bills and in the lessened "wear and tear" of nerves and of the whole internal domestic economy. The young man of the farm and the village, a few years ago found out that he could not wear his mother's ironing any more, so he sent it to the town laundry. Now big bundles and hampers of soiled linen come in to the steam laundries by train and stage from all parts of the country. A Wisconsin legislator suggests a co-operative laundry at every crossroad in the State to do the farmers' washing, just as the creamery or factory makes up his cheese and butter. Why not? We would not probably require so many in Canada to keep us clean, but every good-sized village or town might have its laundry that would do the washing and ironing of the district and be a paying institution. It would be a boon to the farmer's wife and give the village a new industry. The work would be more economically done, and we commend the idea to those in search of new fields for enterprise. The individual who solves this problem satisfactorily will be a benefactor to the race, and his name will be revered by womankind when Carnegie and the Scotch universities are forgotten.

STOCK.

Tuberculin Test--Sources of Fallacy.

On page eight of the *Jersey Advocate and Dairyman* for May 22, 1901, is an account of a tuberculin test made on a herd of seventy-six Jerseys. In writing of this test, the owner of the herd said: "Of the whole number, only three reacted, and they were the thriest and healthiest looking cows in my herd. Not one of these showed any symptoms of disease of any kind—no cough. One had a calf two months old; the other two were due to calve in two months."

Now, tuberculin consists of the concentrated, sterilized liquids in which the bacillus tuberculosis has been grown. It consists of *chemical poisons* which the bacillus secretes or manufactures. Having no living germ, it cannot increase its own substance, nor can it cause tuberculosis in a healthy system, as it is soon thrown out of the body through the kidneys; yet, none the less, it is the immediate agent through which all the destructive work of tuberculosis is carried on.

The explanation of the reaction under tuberculin may be very simply stated. The dose is made so small that it will not affect a healthy cow under ordinary conditions. In the slightly diseased cow the system contains a certain amount of tuberculin produced by the bacillus, but to this the system has become accustomed, and it causes no very appreciable fever. But when, in addition to this, the small amount of tuberculin used for the test is introduced into the body of this cow, the increased dose acts on tubercles and nerve centers alike, and a fever sets in. A rise in temperature of 2 degrees, 2½ degrees or more, results in from eight to twenty hours.

There may be other reasons why the bodily temperature of a cow should rise at the time tuberculin is administered aside from the tuberculin itself. In the case of the test mentioned in this article, the veterinarian who first tested the herd should have inquired into the immediate history of the cows which "reacted," and tested them again after an interval of about a month.

The proximity to calving was undoubtedly the cause of the rise of temperature in the case of the two cows which had not yet calved, while various conditions might have been the cause in the other animal.

During the time allowed for febrile reaction to set in after tuberculin has been injected in a cow, some changes in the regular current of life may take place; for example, a rise of the temperature of the air, exertion on the part of the animal, privation of water at the usual time, retention of milk at the regular milking period, coming in heat, and, in short, anything that tends to excite the animal. Any of these conditions may cause a rise of temperature above the normal in any given animal. From this we can gather, in conclusion, that a cow cannot always be condemned the first time that she reacts. If, however, tuberculosis is known to exist in the herd, and a cow reacts, we have more ground for suspicion.

In making a test, each cow's temperature should be taken three times before tuberculin is injected, and the average of the three times taken as normal for her. And no disturbing conditions should occur just before or during the test that might cause a rise of temperature.—*Floyd S. Barlow, in Jersey Advocate and Dairyman: Cornell University.*

The Argentine Embargo Against all Countries.

To the Editor FARMER'S ADVOCATE:

SIR,—As we have a regular correspondent in Buenos Aires, we are from time to time kept more or less informed as to what is transpiring there in live-stock matters, and recently the party who acts for us there has been trying to induce us to make further shipments of Shorthorn cattle and Shropshire sheep to that country. Though considering the matter, we at the same time were not very much inclined to do so, for the fact that the two former shipments that we made there proved so very disastrous. However, we may say that for the present at least we need not further consider the matter, as we to-day (June 15th) have a letter from Buenos Aires, dated May 10th, in which it is stated that the Government of that country passed a law on the previous day prohibiting the importation of cattle, sheep and swine for a term of six months at least, but our letter further states that this embargo may be extended indefinitely, and the embargo is against all countries, so that we as well as all others are shut out for the time being.

Russell Co., Ont.

W. C. EDWARDS & Co.

Diarrhea in Foals.

A sick foal is recognized as a very delicate animal to deal with, and when grass is plentiful and the dam is a good milker, attacks of diarrhea are by no means rare. In such cases it is no bad plan to draw off considerable of the dam's milk several times a day, so that the youngster will not become gorged and its digestion put wrong. Even with this and other precautions, cases of diarrhea will occur, and for which the safest dose to give is from 2 to 3 ounces of castor oil administered on an empty stomach, and followed for some days by small doses of dried extract of malt, mixed with a little milk drawn from the dam.

A Pointed Enquiry by Mr. Ellis.

SIR,—I am this morning in receipt of the printed rules and regulations governing the exhibit of Canadian live stock at the Pan-American Exposition. From a Holstein cattleman's standpoint, I wonder why our Governments are so anxious in assisting the Pan-American Exposition, when every appeal made by our own Toronto Industrial was turned down? Fancy paying the expenses of transporting cattle to and from Buffalo, paying the expenses of two men in charge, paying the expenses of feed while at the Exposition, and for what end? If a Canadian Holstein breeder should be successful in carrying off premiums, thus advertising his and Canadian stock there, he can only feed his vanity. As far as the American market is concerned, the barriers in shipping pure-bred stock of Canadian registration are practically prohibitory. The selfishness of the Reciprocity Act, by which pure-bred animals are supposed to be admitted from Canada to the United States free of duty, and likewise from the United States into Canada, is made apparent when you couple with it the regulation enforced whereby the term "pure-bred" is only admitted when backed up by the fact that the animal must be registered and recognized by the American associations. The fact that it is recognized by a Canadian cattle association is not sufficient proof for the U. S. Government that the animal is pure-bred. Now, as conditions are at present, we admit American animals into our country duty free. The American Government will not admit our animals, and, therefore, it is a one-sided arrangement. We are shut out from their market, but they are not shut out from ours; and still, in the face of this fact, our Governments are making extraordinary efforts and going to great expense in advertising our stock in a prohibitory field. Don't you think, Mr. Editor, that some of our leading Canadian shows could stand a little bit of this governmental assistance with very much better results? Yours respectfully,

York Co., Ont., June 19th, 1901. WM. ELLIS.

[EDITORIAL NOTE.—A good many people outside the ranks of Holstein-Friesian cattle breeders in Canada will probably say "Hear! Hear!" to the spirited note of enquiry which Mr. Ellis has raised. He overlooks the fact, however, that the Canadian stockman who wishes to dispose of an animal at Buffalo when the show is over, is also accorded the privilege of having a dose of tuberculin injected into its system, or else it must come back. Take another department: From a trade standpoint, our fine dairy exhibit at the Glasgow Exhibition is likely to be far more advantageous to Canada than that at Buffalo, because a tariff practically prohibitive shuts our butter and cheese out of the Republic, but in Great Britain Canadian produce is appreciated and freely admitted.]

A Tribute to the Cow.

At the opening of the great Wornall-Robbins Shorthorn sale, held at Kansas City on March 5th, 1901, Col. Woods, the auctioneer, paid the following beautiful tribute to the cow:

"Grand and noble brute; of all God's animal gifts to man, she is the greatest. To her we owe the most. Examine into all the different ramifications and channels of our commerce into which she enters, and note the result should she be blotted out. A Sunday stillness would then pervade the great stock-yard industries of our large cities, and grass would grow in the streets. Seventy-five per cent. of the great freight trains that plow the continent from ocean to ocean would sidetrack, for there would be nothing for them to do. Fully 50 per cent. of the laborers of America would draw no pay on Saturday night, and our tables would be bare of the greatest luxuries with which they are loaded. The great western plains that she has made to blossom (financially) like the rose, would revert to the Indian, from whence they came, and millions of prosperous homes would be destroyed.

"None other like the cow; there is not a thing in her make-up, from nose to tail, but what is utilized for the use of man. We use her horns to comb our hair; her hair keeps the plaster on our backs; her skin is on all our feet and our horses' walls; her hoofs are made into glue; her tail makes soap; she gives our milk, our cream, our cheese, our butter, and her flesh is the great meat of all nations. Her blood is used to make our sugar white, and her bones when ground make the greatest fertilizer, and even her paunch she herself has put through the first chemical process for the manufacture of the best white board paper, and it has been discovered that that paper is the most lasting material for the manufacture of false teeth. No other animal works for man both day and night; by day she gathers the food, and when we are asleep at night, she brings it back to re-chew and manufacture into all the things of which I speak. She has gone with the man from Plymouth Rock to the setting sun; it was her sons that broke the first sod in the prairie's clearing; it was her sons that drew the settler's schooner for the sturdy pioneers, as inch by inch they fought to prove that: 'Westward the star of empire takes its way,' and the old cow grazed along behind; and when the day's march was done she came and gave the milk to fill the mother's breast to feed the suckling babe that was, perchance, to become the future ruler of his country.

"Who says that what we do not owe to man's best friend, the cow? Treat her kindly, gently, for without her, words fail me to describe the condition of the human race in this country."

The Food and the Cow.

In considering the great advancement made in agricultural lines in recent years, nothing is more noticeable than the tendency for stockmen to regard and care for their animals with the same degree of interest as would be given to other pieces of valuable and well-adjusted machinery.

Each of the various classes of animals is adapted to the performance of certain work. The horse comes into use principally as the means of applying power in the work of growing and harvesting food materials for the other animals, and for marketing their products. The others have for their function the manufacturing of the raw products of the soil into other forms of more useful and concentrated character, such as meat, milk, and wool. Peculiar conditions and demands in many instances have made it profitable to carry specialization so far that for the production of meat and of milk two different types of cattle are in use, almost as unlike each other as are representatives of two different species. In the middle Western States, where corn is abundant and creameries are becoming more popular, it has been found advisable to breed cattle that are fitted for combining the milking and beefing qualities. While it seems impossible to secure exactly the same excellence for either work that could be secured by the use of special-purpose animals, yet these cattle are found to yield paying returns for either work, and their owners have two markets to sell in, instead of being entirely dependent upon the value of beef or of dairy products. The care of the females in the dual-purpose breeds is much the same as that required for cows bred entirely for dairy purposes. While the analogy between our farm animals and manufactured machinery may not be always clear, it is most easily recognized in the case of the dairy cow. She consumes large amounts of food, masticates, digests and assimilates it, and in a few hours is ready to yield her product. The amount of her output, like that of any other machine, is, to a great extent, dependent upon the nature of the raw material and the skill of the attendant. There is nearly as much as ever of mystery in regard to the exact way in which milk is manufactured within the cow's body. Much is to be said for and against both theories, but it seems reasonable to conclude that the solids are the shed-off cells of the vesicles of the udder. If this be true, the materials which a cow yields for the nourishment of her calf are a part of her own body. This also explains the impracticability of feeding so as to change the composition of the milk. A young calf's stomach is too delicate an organ to be subject to sudden changes such as would result if his food varied with the pasturage of the dam. It is commonly considered that the quality of milk is dependent upon breed, and that the most that can be secured from feeding is an increase in quantity. As a rule, a machine is most economical when loaded to within a small percentage of the limit of its capacity. A certain amount of force is expended in overcoming friction in the machine itself, and this is but little greater when running at full capacity than when underloaded. A large part of a cow's food goes to repair the waste of tissue and for keeping up the heat and nervous energy of the body. These demands must be satisfied before any considerable amount can be used in the manufacture of milk, and it is by increasing the amount consumed above that required for running expenses that a profit can be secured. The extent to which the consumption may be profitably increased varies with the individuality of the cow, the price of feed, and the value of butter or cheese. There is some danger of overloading and permanently injuring the usefulness of the animal by maintaining the strain for too long a period, but this is seldom done except in some public test where an attempt is made to end the never-to-be-ended battle of the breeds. It is a fact that a cow will yield her greatest flow of milk in the early summer, when she has free access to an abundance of succulent and nutritious grass. An evening visit to the yards at this season is very enjoyable. The animals having been at pasture all day, have so filled their paunches that a pressure is exerted upon the diaphragm, and accompanying respiration we hear the involuntary grunt so expressive of contentment and so suggestive of full milk-pails. Experience has shown that when for any cause the flow of milk is diminished, it can be but partially remedied, and that only by special care and feeding. In the time of failing pastures, it is not always directly profitable to use supplementary feeds. The immediate increase in the milk flow may not pay for the extra feed, but taking into account the whole period, it is a losing game to allow a shortness of feed to have any effect upon the amount of output. As pastures fail, the cow attempts to maintain her former yield by drawing upon her body flesh. This reduces her in condition, and when the inclement weather of autumn approaches, she is unable to withstand its effects, and a further decrease is the result, and when winter feeding is commenced, she is nearly dry and cannot be got back to her former performance. This phase of the subject is of especial importance in the case of dairy heifers. If, after a part of the season has passed, they are allowed to shrink in milk-flow, the udder and organs directly concerned in the production of milk are not as fully developed as they would be if kept at fair pressure with the animal in strong working condition. There are a variety of feeds that may be used for supplementing short pastures. Usually some green crop or early-planted corn is very convenient, and in some seasons the price of mill feeds permits of their being used at a profit. In any case, the young cows should be kept

going with no further decrease in flow than can be accounted for by the approach of the close of the lactation period.

F. R. MARSHALL,
Instructor in Animal Husbandry, Iowa Agricultural College.

On Board a Canadian Cattle Ship.

(SPECIAL CORRESPONDENCE.)

The question of the inferiority of the Canadian export cattle to those shipped from the United States is one that is so vital to our country's interests that I may be excused if I send you a few notes on the cattle on board the steamer Lake Ontario, on which I crossed to Liverpool from Montreal, as this shipment is a fairly average one of all the Ontario cattle that will be exported during the year. Of course, there may be found an occasionally better lot, but this boat load fairly represents the general run.

There are exactly 414 head of cattle on board, ranging from pretty fair to indifferent. Of these, about 180 are distillery-fed cattle from Gooderham & Worts' stables. A large proportion—nearly one-fourth—are bulls, mostly old, of more or less Shorthorn blood, but there are some Ayrshires and Holsteins and a sprinkling of Aberdeen-Angus. A few of the cattle are white in color, and, as these are thin and rough, they show to the worst advantage. There are some large bullocks of a rough class and some old cows. The best stock between decks are those shipped by Jno. Dunn, Toronto. A number of these are young and show better quality, but are too thin for profitable sale. The larger proportion of the cattle are not dehorned.

A fact that strikes the observer at once is the lack of quality, and, even where quality is better than the general average, the lack of finish. And this, remember, even though a large proportion of these animals are contract-fed. The loss to Canadian farmers in raising and disposing of such inferior and unfinished animals as these must be something enormous in the course of one year alone. When will our farmers recognize the fact that they must breed stock of better quality; and, also, that to get the most out of them, they must finish them before disposing of them? One can easily understand why the uniformly-graded car lots of well-bred cattle from Chicago fetch respectable prices, while our shippers so often lose money, when one sees the uneven lot of steers, bulls and old cows in this ship lot. An English gentleman on board, talking of the comparative merits of English and Canadian beef, asked me whether it was possible to get as good beef in Canada as in England, as he had been unable to do so, and with shame I had to confess that the general run of our beef was far inferior to that of the Old Country.

Of course, everyone knows that in Canada we labor under certain disadvantages from which breeders in Great Britain are free. We have our hot, dry summers, with their plagues of flies; our winters are long, and the cattle have to be kept in the stables for a lengthy period, and, in most places, we lack the rich, juicy pastures for which England is celebrated. But these disadvantages can be largely overcome by forethought, by the growth of fodder crops, silage, and careful attention to our stock, and we can raise and send to Great Britain just as good cattle as our American cousins. But, remember, that to get the best stock we must breed to the best sires obtainable, and, having got them, we must feed to keep them until they are ripe for market.

In conclusion, I must give a word of praise to the Lake Ontario, which justly has the reputation of being one of the steadiest boats which crosses the Atlantic. I have certainly found her so, and the cattle on board have rested easily and done well.

G. DE W. GREEN.

Care of Working Horses.

The education of a colt should begin from the first day of its life. It should be caught and held by placing one arm in front and one behind him. Never strike a colt or do anything to cause it to fear you. Show him your power over him, and he will soon become obedient. When teaching him to lead, put a strap around him in front of the hind legs, and fasten a rope to this, passing the rope through the halter ring. Then lead him up to you and pat him. When the colt grows up and becomes accustomed to being led, place him with an older horse and teach him to drive. He should be hitched to an old cart or something which makes a slight noise, and then he will not be afraid when hitched to a wagon or machinery. When he has reached three years of age he can be relied upon to do a good day's work. He should be worked moderately at first.

One important thing in working horses is to have a perfect-fitting harness. Not one farmer in a dozen has such harness for his horses. Use leather collars, and always buy one that fits when drawn up to the last hole, so that it can be let out as the neck grows. Always wet a new collar before using it, and then when it becomes dry it will keep the right shape. Have a collar for each horse, and see that every horse has its own collar. If collars are dampened occasionally they are easier to the horse. Cloth pads are not good, as they absorb the perspiration, and are not easily cleaned. Thick pads should not be used, as they spread the collars and throw the draft further from the shoulders. If these methods are used, people, as well as the horses, would have much easier times.

J. R. B.

Whole Grain for Calf Feeding.

The popular view regarding the preparation of calf food, apart from milk and coarse fodder, is that it should be finely ground, and many prefer to boil it. We have frequently heard of good calves being raised having no other grain except whole oats. The calves commence to eat the oats when quite young, and owing to their rough nature they are well masticated in the end, and therefore properly digested. It now comes out that whole corn is a suitable calf grain, quite surpassing corn chop in results in calf feeding.

In the fall of 1900, the Kansas Experiment Station purchased twenty head of young calves, composed mostly of Shorthorn and Hereford grades. On November 28, these calves were divided into two lots, as nearly equal as possible, the average weight being 127 pounds. Both lots were fed and treated alike, with the exception that one received its grain as shelled corn and the other as corn chop. All the calves were fed mixed hay (red clover, orchard grass and English blue grass). Each lot was given all the milk, grain and hay the calves would eat without scouring. Salt was accessible at all times. For nine days previous to the division into lots, the grain for all the calves consisted of a mixture of shelled corn and corn chop. It was noticed that the calves would begin to eat the shelled corn when three to four weeks old, and in a few cases when two to three weeks old. At the commencement of the experiment, each lot was consuming ten pounds of grain daily. As the experiment advanced, it was found that the corn-chop calves could not eat as much grain as the shelled-corn calves without causing considerable trouble from scours. This accounts for the difference of 325 pounds in the grain consumed by the two lots.

Shelled-corn Lot.—For nineteen weeks under experiment, these ten calves consumed 18,561 pounds of skim milk, 2,611 pounds of shelled corn, and 7,088 pounds of hay. The total gain during the experiment was 2,322 pounds, or 1.74 pounds daily per head. Valuing skim milk at 15 cents per 100 pounds, grain at 50 cents per 100 pounds, and hay at \$4 per ton, the feed cost of raising these calves amounts to \$55.06, or \$5.50 per head. The cost for each 100 pounds of gain is as follows: Skim milk, \$1.20; grain, 56c.; roughness, 61c.; total, \$2.37.

Corn-chop Lot.—The ten calves consumed 18,666 pounds of skim milk, 2,286 pounds of corn chop, 7,088 pounds of hay. The gain of this lot was 2,123 pounds, or 1.59 pounds daily per head. At prices given above, the feed cost amounts to \$53.60, or \$5.36 per head. The cost of each 100 pounds of gain is as follows: Skim milk, \$1.31; grain, 54c.; roughness, 67c.; total, \$2.52. If we raise the cost of grain five cents per 100 pounds (about three cents per bushel) to pay for the grinding, the grain cost per 100 pounds of gain would be increased to 59c., and the total to \$2.57.

Comparing the two lots, we find those on shelled corn made the best gains by 199 pounds, and at a cost of 20 cents less per 100 pounds of gain. Since calves relish shelled corn and will begin eating it when three or four weeks old, and make better and cheaper gains on it, and are less subject to scours than on corn chop, there is certainly no object in going to the expense of grinding the corn. This experiment shows that it is possible to raise good thrifty calves that will gain 1.75 pounds daily per head on feeds produced entirely from the farm, and in a form that requires no preparation of the feed, outside of harvesting, except the shelling of the corn.

Two Good Points in a Stable.

As building time is now on, the points referred to should be provided for before it is too late: Light and ventilation are two of the prime essentials in the proper equipment of a stable. There is a medium in everything, of course, and no one would expect to find a stable as well lighted as a drawing-room; but between this and the dark, stuffy apartments which are sometimes made to do duty for the accommodation of horses there is a very great difference. In addition to being conducive to greater purity of the air present, light is known to be inimical to many of the germs which cause disease in all classes of farm animals, the two great enemies of such bacteria being light and fresh air. Faulty as many stables are on the score of light, even more of them are deficient on the score of ventilation. No one requires a stable to be an apartment through which a continuous rush of fresh air is passing from one end of the day to the other, but there should be ample provision in all stables for the egress of the vitiated atmosphere which rises towards the ceiling when animals are kept in the house for any length of time. It is the escape of this vitiated air, rather than the necessity for a great inrush of fresh air, that is of the most consequence in stable ventilation.

The Value of Porcine By-products.

A very considerable portion of the profit made by bacon-curers is derived from the sale of what may be described as the by-products of the animals killed in their factories. In Chicago, for instance, the greatest pig-killing center in the world, the number of uses to which the various parts of the pig are put is remarkable. Buttons are made from the horny parts, glue and fertilizers from the skull and hoofs, etc., chessman, dice, tooth brushes and knife handles from the bones, while the other portions of the bones are ground up for manurial purposes. Extract of meat is made from some of the blood, and

albumen is extracted from the rest and sold for sugar-refining purposes and for leather-dressing. Other uses to which the by-products of the pig factory are put include the manufacture of neat's-foot oil and gelatine, and the conversion of rough fats into grease and fertilizers.

FARM.

The Tale of the Rings.

BY HERMAN H. CHAPMAN, GRAND RAPIDS, MINN.

HOW A FOREST RECORDS ITS HISTORY IN ITS TREE TRUNKS, TO BE REVEALED WHEN THE TREES ARE FELLED.

Every tree has its life-history securely locked up in its heart. Each year of its growth a thin ring of wood is formed next to the bark, and a corresponding layer of bark adjoining it. As the tree swells and swells, the bark is forced outward, and splits into wide fissures. Much of it falls off altogether, but each ring of wood remains a faithful record of the year in which it was formed. When the axe or saw of the woodman ends the life of the tree, and brings its body crashing to the earth, this record is unrolled before us, and by it we can determine almost every incident in the life and growth of the tree.

Trees, as well as human beings, have their period of struggle and hardship, their prosperous times, their terrible misfortunes and hair-breadth escapes, their injuries and recovery, or their complete submergence in a struggle in which the odds were too great for their feeble strength to cope with.

Here is a sturdy oak, whose tale revealed is that of steady perseverance in the face of difficulties—a slow, gradual growth, never checked, never daunted, till the final goal is reached, and it stands supreme, literally monarch of all it surveys.

Here is a mighty spruce, which has a tale of perseverance, but of a different sort. The oak conquers by force of character, by its fighting qualities. The spruce succeeds by its ability to endure. It is like the patient Jew, frugal, living on what would be starvation to others, till, when their day of strength is past, and sudden disaster overtakes them, he enters into his inheritance and prospers amazingly.

See the record of this spruce: Fifty, sixty, seventy years, each represented by a ring so small that it takes great care to distinguish them at all, and the whole seventy do not occupy the space of three inches at the heart of the tree. What a tale of hardship this sets forth. Other trees have pre-empted the light on which the existence of a tree depends. The poor spruce must be content with the twilight that filters through the branches of its enemies, the poplar, birch and pine. But it is content. It knows that if the young poplars or pines spring up beside it in the shade, they could not endure, but would quickly die. It knows that the time will come when old age or disease will weaken the poplars, or perhaps a heavy wind will lay them low, and the spruce, old in years, but insignificant in stature, will escape injury, and still young in vitality, will soon spring ahead in the race.

Now, see its rings. It has made as much growth in ten years as in the preceding seventy, and soon becomes a large tree.

What does the stump of this old white pine teach us? Evidently something extraordinary has happened to it, for away in near the heart a black scar runs around the edge of one of the annual rings for nearly one-fourth of its circumference, and outside of this the rings are no longer complete, but have their edges turned in against the face of the scar. Each subsequent ring reaches further across it. By the time they have met in the center many years have elapsed, and there is a deep fissure where the scar once existed. But the later rings have bridged the gap, and, growing thicker in the depression, soon fill up the circumference of the tree to its natural roundness, leaving no sign of the old wound. What happened to the tree? While it was still young, its mortal enemy, the forest fire, swept through the woods, destroying most of its companions, and burning a large strip of the tender bark on its exposed side, so that the bark died and fell off. But being better protected than the others, and having still three-fourths of its bark left uninjured, it soon recovered, and its stump reveals how successfully it strove to heal the wound, and grew to maturity, to perpetuate its species.

But as it takes many swallows to make the summer, so it takes many trees to make a forest, and the forest has almost as much individuality as the tree itself. Though each tree and each species struggle with each other for life and supremacy, yet, in a sense, they are helpful to each other, and protect each other from their common enemies.

The enemies of the forest—the wind and the fire. Other enemies there are, such as insects and disease, and sometimes the forest suffers so severely that its whole aspect is changed, and new species come in and replace the old. Much of this history the rings will reveal to us, as is the case in some of the following actual examples from studies recently made in the pine forests of Northern Minnesota:

In one locality, where rather small Norway pine stood very close together, making a thick stand, it was found that almost without exception the trees were of the same age—138 years. No matter how large or how tender the tree, it was just as old as its neighbor.

The rings on all these trees were very large at the heart, but as fifty or sixty years went by, they got narrower and narrower, until some of the smaller trees seemed hardly to grow at all. The reason was

plain—there were too many trees—and as none would give up the struggle, all suffered alike.

But they were not the only sufferers. Here and there we see a slender, struggling white pine making a vain attempt to capture its share of sun and rain. Count reveals that these white pines are also all of the same age, but, unfortunately, only 126 years old. The Norways had 12 years the start of them, and the delay was fatal.

How did it happen that these trees came in so thickly, and all the same year? Perhaps further study will help us to find out. So we go to another cutting, over a mile from the first. Here we find many trees about the size of those we have left, and counting the rings, we find them to be of the same age—138 years. But here there is something more. In a secluded nook stands a group of immense white and Norway trees, perhaps a dozen. These prove to be very old, but, remarkably enough, also of even age—each stump showing 315 rings. Where is the rest of this patriarchal forest? Close about the few remaining may be seen the forms of many more, stretched upon the ground and slowly decaying. These have evidently been blown down, possibly after being killed by fire. Their fate give us the clue to the disappearance of the others. It is plain that some time before 1763 a great disaster overtook the pine forest in this place. Most of it was wiped out of existence, either by fire or wind. But here and there a clump remains, and from them in a favorable seed year, came the seed which started the new and thriving crop of Norway pine.

To find out, if possible, whether this conflagration or blowdown was more than local, we go to another some ten miles from our first, and here again the oldest and largest of the stand, which is all rather small, prove to be 138 years old. Whatever the cause, then, it must have operated over a large area. But this is not a thick stand; in fact, there are many gaps, and much of the timber is limby and knotty, a sure sign that it has not been grown very close together, and soon we find that many—in fact, most—of the trees are but 101 years old, there being two distinct age classes.

How did this come about? Let us look at the older trees. Here upon one of them is a fire scar, made when the tree was 18 years of age. Upon another we find a similar scar, made in the same year. And on close examination, we can hardly find one of the older trees free from the marks of this fire. How plain it is, that this fire, occurring just 120 years ago, or in the year 1781, when the young forest was 18 years of age, killed nearly all the young pine, and gave the forest a blow from which, in this place at least, it never fully recovered. But it did the best it could, for the age of the second class of trees, 101 years, shows that the young survivors of the fire grew rapidly, until at the age of 38 years they were enabled to produce a crop of seeds, or possibly the old trees from which the first ones came were still living, and seeded down the ground a second time, so that a fairly good stand of trees was finally produced.

These studies lead us to infer that pines reproduce themselves as forests, generally under exceptional or unusual circumstances, and that that is their natural way of maintaining themselves as species. The young white and Norway pine, especially the latter, cannot endure much shade when small, and could not possibly grow up as a thick forest under their own shade or the shade of other trees, yet we nearly always find them in dense groves. The rings tell us the secret. In the long period of 200 to 300 years during which the pines live, the "accident" of fire or wind becomes a certainty, and when a strip of forest is laid low or burned up, the neighboring trees stand ready to scatter the seed far and wide in the wind, and the new growth springs up and flourishes.

This is nature's method. But nature's methods are so perfectly harmonized that but little is needed to throw them out of balance.

Nature clears in strips and dashes seed there, and fires are rare and far apart. Man clears over wide areas, and fires of his origin sweep repeatedly over his slashings. The young pines spring up even after the second and third fires, but by perseverance the fires finally destroy them all, and what nature intended to be the young pine forest becomes a barren wilderness.

Preserve Harness in Good Condition.

The rainy day may be profitably employed with a little labor looking to the care of the harness.

Much may be done to prolong the life of a set of harness by giving it a little care and attention in the matter of oiling. Not only does an occasional oiling, when properly given, lengthen the life of the leather, but it also renders it pliable and more comfortable to the animals by which it is worn. Harness should always be wiped clean after being used, so as to prevent the formation of that clammy compound of perspiration and dust which is so frequently seen on badly-kept harness. The natural tendency of the leather is to dry and become brittle; this may be guarded against by subjecting it to a good soaking with oil now and again. The oil when so applied should be well rubbed in with some coarse cloth, and the leather afterwards dried by being thoroughly wiped with a dry rag or woollen material. The best oil to use for the purpose is neat's-foot. The required shade of color can be given to the oil by the addition of lampblack.

As is well known by the farmer, harness costs money. In a comparatively dry climate, such as we have, a little work performed as indicated above will return a handsome profit.

Prof. Reynolds' Ventilation Plan Discussed.

A correspondent writes: "It seems to me that the ventilation pipes suggested in Prof. Reynolds' very excellent article in your last issue are very large, and as there will be a horse-fork car underneath the ridge, through center of barn, the fresh-air inlet pipes would have to be at the ends. The door-air outlet pipes could not be put behind the door next the wall in rear of passage behind cattle, as suggested in plan (page 398), for the reason that the large door hinges close to the wall. Prof. Reynolds' plan provides for the foul-air pipe there by the end wall jutting in about a foot. A pipe could extend up by end wall near rear of cattle, starting say from just above the gutter. The plan does not state how high above the roof the foul-air outlet pipe should extend. Understand it runs straight up from floor through the roof. Would it not be more economical to bring the fresh air in underground by running a pipe a short distance out from the building, and placing a cowl there instead of on the roof? This barn runs north and south. Would a cowl be needed on each end to make the system effective?"

In reference to the foregoing, Prof. Reynolds writes as follows:

First.—As regards the size and location of the pipes, I do not think that the pipes are too large for the number of cattle to be stabled. As to location, it is of no consequence just at what point through the barn, or even outside the barn, the inlet pipes are carried down. It is requisite only that the cowl be sufficiently elevated above surrounding objects to catch the force of the wind in whatever direction it may be blowing.

Secondly.—As regards the outlet pipes, it is not indispensable for them to be carried to the floor in every case. If they open from the ceiling, their purpose will be served with perhaps an occasional danger of too low temperatures in the stable. Nor need they be just at the points where I have indicated in the plan. So long as the air after being admitted to the stable is compelled to circulate through the stable space before being carried off, its purpose is served.

Thirdly.—The outlet pipe need not go much above the roof at the point through which it passes. So long as it is carried through the roof sufficiently to allow free passage of air and for a weather cap to be placed over the end of the pipe, it is sufficient. With the cowl for the inlet, the circulation of air is kept up by the force of the wind, and all that is required for the outlet is a simple opening. So far as the stable itself is concerned, it would be sufficient if the foul air were allowed to escape in the barn, but that might be injurious to hay, straw or grain stored in the barn; and, therefore, it is better to carry the foul air quite outside by a straight pipe, or by a pipe bending from the barn floor to the outside and turning up again after passing through the outside wall.

Fourthly.—The principal places where I have seen this plan of ventilation in use are at Mr. Massey's farm at East Toronto, and Mr. Tillson's at Tilsonburg. I know of one or two places that introduced the same system on a smaller scale last year; and I visited one of these two or three weeks ago, and found it to be working very satisfactorily. This system was placed in a hogpen. The address is J. F. Maunders, Little Britain, Ont. The use of the cowl is becoming quite common in connection with sub-earth ducts for cheese factories, and the method of the distribution of the air is, I believe, after the system of Mr. Usher.

Fifthly.—As to bringing the air underground a short distance, this would be an advantage, since the air would be warmed in winter and cooled in summer in passing through the ground; but I do not see how it would be more economical, since you have just as great a length of vertical pipe from the cowl down, and the additional cost of the ground tile.

Sixthly.—I think that one large cowl at the end of this barn could be made sufficient. The dimensions that I stated in my last letter are not too great for satisfactory ventilation at all times. It must not be forgotten that provision is to be made for calm days, when the movement of air will be very slow, and that on cold, windy days the shut-offs may be used to check the inflow of air. While the dimensions I have stated are, I think, none too large, yet a somewhat smaller inlet pipe will be found to serve the purpose with more or less satisfaction. Those who are putting in the ventilation system must be guided by their own judgment and by local circumstances, such as the elevation of the site and the amount of cost they feel inclined to bear in this connection. A comparatively small pipe under the system that I have outlined will be found very much superior to no ventilation at all or to another system without the cowl.

Very truly yours,

J. B. REYNOLDS.

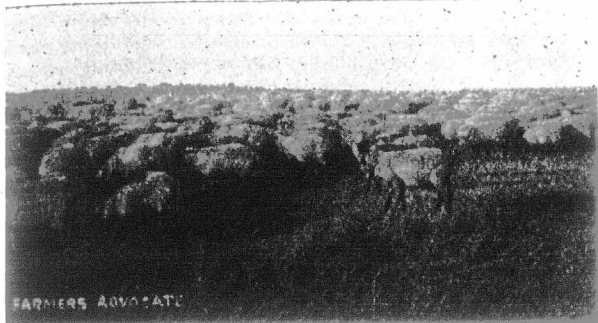
Ontario Agricultural College.

The spring crops and hay in most parts of the Province of Ontario are very promising for a good yield, frequent rains having supplied ample moisture. Fall wheat in some sections suffered from cold, dry winds in May, and in some parts the Hessian fly has damaged that crop considerably, while in others the prospect is very satisfactory. The only feature that mars the beauty of farm crops is the alarming spread in some districts of such weeds as charlock and ox-eye daisy.

Irrigation in South Alberta.

BY J. M'CAIG.

It is undoubtedly the case that the greater part of what constitutes modern civilization is due less to favorable natural conditions than it is to the improvement wrought on natural conditions by the ingenuity and industry of man. The *laissez faire* system is bad for nations and individuals alike. The men who trust to the beneficence of nature to provide for them, and the nations that fail to improve on and skilfully manipulate their resources, will find themselves alike shouldered back into insignificance and obscurity. Rewards fall to the industries and occupations that embody and illustrate the greatest skill and the greatest art; mere



"TOO MANY LEGS."

subsistence returns are the lot of those who are content to follow commonplace and routine lines.

In connection with the business of agriculture, it is rather remarkable that the pioneer West should show a susceptibility to the need of improving on natural conditions above what is shown in the east. This is manifest with respect to the practice of irrigation of arid or semi-arid lands. It may be pertinently remarked that the conditions are not the same or similar: that a precipitation of twenty-eight or thirty inches in the east, as against ten or eleven inches in the west, puts lands in these opposite ends of the Dominion in two totally different classes. This is, on the whole, true. On the other hand, it is certainly the case that in some seasons a crop may be reduced by drought to one quarter of its value, when relief could occasionally be given by the diversion of a small stream.

A very fortunate conjunction of circumstances has given irrigation a strong impulse in Southern Alberta. In the first place, the surface configuration is such that the irrigating of considerable areas of fine lands is a comparatively easy proposition. Secondly, the tide of immigration that has set in Canadawards with the rapid appropriation of United States free-grant lands has turned into our country a class of settlers from Utah and other States, many of whom are thoroughly conversant with the management of irrigable lands and thoroughly imbued with the idea of the advantages and certainty of a good system of irrigation.

It must be conceded that, apart from the scarcity of rain, Southern Alberta is one of the most favored regions of the Dominion of Canada. There is probably no better ranching country in the world. The soil is a rich alluvial, fertile sandy loam or clay loam, such as might be looked for at the base of the great continental ridge. With only a third of the moisture that the eastern Provinces have, this beautiful prairie region is covered with grasses in such luxuriance and variety as make it a rancher's paradise. With regard to climate, likewise, it is no less fortunate. Contrary to what might be expected of any part of the great interior continental area cut off from the ameliorating influences of the warm, moist Pacific winds by the Rocky Mountains, the climate is not extreme, nor at any time severe in winter. It is swept and warmed by a part of the south-west equatorial wind called the chinook, which blows the ranges clear of any light, dry snowfall that does come, or by its warmth causes the snow to totally disappear, so that grazing is not interrupted at any time. As this wind is almost a constant wind, the climate in winter is kept almost continually balmy. The occasional low dipping of the mercury that sometimes occurs brings little inconvenience, for the climate is always dry and changes are not, consequently, felt. It is slight wonder that homesteading of Government lands has gone on at a phenomenally rapid rate, which means, of course, that the time is fast approaching when each rancher will have more neighbors than are compatible with continued large profits in the future, for a rancher's profit is measured chiefly by the scarcity of his neighbors. The inevitable future for him is to become a farmer instead of a rancher. To do this he has to overcome the natural scarcity of moisture and become his own rainmaker. Irrigation is still young in the West, but it is very rapid, and within the last couple of years a couple of hundred miles of irrigation canals have been dug in Alberta, and an area of between five hundred thousand and a million acres have been thus made available for intensive agriculture, with large possibilities for additional ramification and extension.

The advantages of irrigation, even over the precipitation of moisture in sufficient quantity by rain or snow, are evident, and amount practically to an insurance of the crop. By it one is prevented from both oversupply and undersupply. Even where rainfall is sufficient, it frequently does not come at the right time. A crop of grain may do well for a

couple of months at the beginning of the season and afterwards be ruined by three weeks of continuous drought. Again, an extra wet spring may delay planting or sowing, or may cause the rotting of seed in the ground. Where the supply of moisture is under the farmer's control, he can have just what he wants and at such times as he judges it will be best to apply it. In addition to making possible the regulation of the water supply, irrigation provides constant fertilization by means of the alluvial matter carried in suspension in the waters. The vigor of the soil is thus constantly and periodically renewed. This explains the apparently inexhaustible character of lands in Colorado and other irrigation States of the American Union, where wheat crop after wheat crop is taken from the soil without any measures for renewal or rest of the soil being necessary. The alluvial plains of the lower Mississippi and of the Nile Valley illustrate the operation of the same processes. On the whole, irrigation stands for the certainty of methods approaching scientific and within the control of man, against the uncertain and spasmodic bounty of nature, with respect to an essential in the growing of all crops, viz., moisture. The experience of Manitoba during the past season's drought is an eloquent argument in favor of having the water supply under the control of the agriculturist, as the drought in that Province meant the loss of the greater part of the wheat crop.

The methods by which irrigation is secured are two. One is the flooding method, the other is the furrow method. By the former, water is carried by a lateral or side ditch from the main canal to the highest point of a farm, and is taken from this ditch by other furrows, from which it floods the crops to be benefited by it. The furrow method is employed for roots and vegetables principally, the water being turned into the furrows between the rows and allowed to settle to each side to the roots of the crops. For the successful operation of any system of irrigation, it must be understood that the land to be irrigated presents only slight irregularities or variations of surface, as is the case with the prairie land irrigated in the district of Alberta, and, of course, generally speaking, only the land on one side of the canal can be irrigated, as the canal cannot be carried along the crest of a ridge, but is led along the side of a gradual slope or dip.

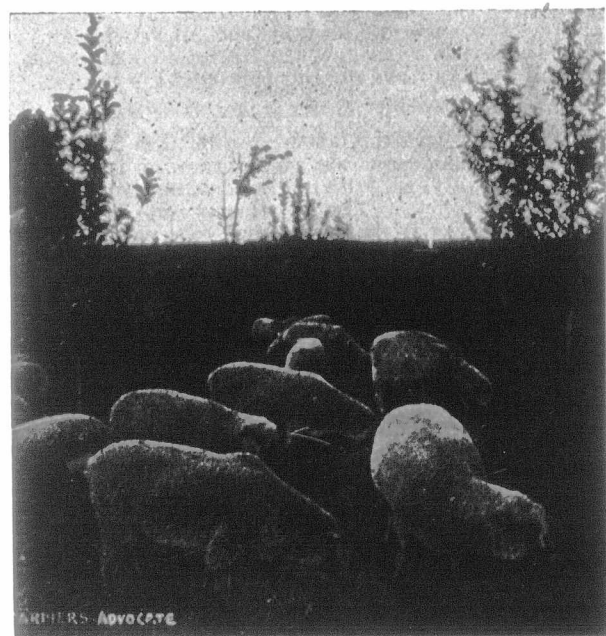
The most ambitious and complete irrigation undertaking in the Northwest Territories is, perhaps, the Galt canal. It is named after Mr. E. T. Galt, the president of the Alberta Railway & Coal Co., with headquarters at Lethbridge. Mr. Galt is likewise president of the Canadian Northwest Irrigation Co., whose work is referred to above. The topographical feature of South Alberta on which the canal is constructed is a general fall from the point where the Rockies cross the Montana boundary towards the north-east, in the general direction of the slope of the Nelson or Saskatchewan River system. The fall between the intake and the town of Lethbridge is about one thousand feet. Lethbridge, the present terminus of the system, is about fifty miles north of the United States boundary, but, as the canal crosses the country diagonally, the length of it is nearly seventy miles. Twenty miles south of Lethbridge, near the new town of Magrath, a branch of the system turns easterly to Stirling, a new town on the railway connecting Lethbridge with Great Falls. Both these towns are settled principally by Mormons, who have displayed a commendable thrift and energy in establishing and improving their new homes and farms. Last year beautiful grain and root crops were produced in the neighborhood of both these towns. The water of the canal is drawn from the upper part of the St. Mary's River, a stream abundantly fed by the snows of the Rockies, and entering Canada from Montana. This river flows north-east to join the Belly River, of which it is a tributary, a few miles from Lethbridge. The irrigation canal runs in a direction parallel with the river, and at some distance from the left bank of the river. The water is thus diverted and trained, so to speak, along the upper elevations of the left basin of the river, so that from these elevations the water is utilized to irrigate the lands below the ditch in elevation and between it and the river itself. At Lethbridge the water is returned to the Belly River, dropping into it from the bench country, which is three hundred feet above the bottom of the gorge through which the Belly River runs at this point. The water of the St. Mary's, or part of it, is thus used, in a natural and easy way, to render richly productive for intensive agriculture large tracts lying adjacent to its artificial course. Along this course many natural channels are utilized to carry the water, but in many places flumes are constructed to carry the water across slight depressions. The chief irrigable lands, and the best and most fertile lands, lie about the town of Lethbridge. This town is an important mining center and is growing steadily, and everything indicates that it will become more important. It is a fine market for farm produce, while, on the other hand, the existence of good farming lands (now made productive) in its neighborhood will build it up and stimulate its industries by the cheapening of food products. It short, it possesses the complementary and necessary conditions for substantial and rapid growth by having valuable industries itself and the immediate prospect of cheaper food stuffs to support its industrial population.

The engaging in farm work on the ditch is not regarded as a doubtful experiment. Experienced irrigationists are taking up lands and breaking

them with a buoyant confidence. The excellent soil and climate of the district have been waiting only for the water to give the district the highest attractiveness for the agriculturists. Men who have never yet worked on irrigable lands are not absent from the settlers on the ditch, and Ontario has given its contribution in skill and intelligence to the group of settlers rapidly taking up the lands. Houses, sheds and fences are being built, while breaking the virgin soil has been going on with a steadiness and energy this spring that show a strong confidence in the results. The rapid sale of lands lying close to the ditch has led to the extension of the system by the construction of lateral ditches from the main canal that will reach large tracts of land at considerable distance from the main canal. It is quite a popular plan to buy a quarter-section of land below the ditch—i. e., of land that can be for the most part irrigated—while larger tracts are bought on the upper side of the ditch that are cheaper, and that are grazing lands simply. In this way the area devoted to cropping is cheaply supplemented by grazing land.

The opening up of these irrigated lands in the very heart of what is, perhaps, the finest ranching country in the world is making a fine opportunity for the fancier and breeder of pure-bred cattle and sheep. The principal market for Ontario bulls is the Northwest Territories. These bulls are reared on lands representing a value of from fifty to seventy dollars an acre, in a climate that requires expensive housing in winter time, and they can be sold at a satisfactory profit after paying the Canadian Pacific Railway one hundred and seventy-five dollars a car, besides incurring considerable other expense in bringing them out. Range bulls are not satisfactory. It is Ontario bulls, or, at least, bulls of Ontario type, that are required. The North Alberta country is doing a profitable business in producing stock bulls. This country has a considerable fitness for producing such animals, as it gives opportunity for mixed farming, but it still has scarcely the moisture to make possible a high degree of succulent feeding, which is the necessary condition to producing the fastest-growing type of stock animal. Everything considered, there seems to be the highest inducement to the establishment of pure-bred herds for the rearing of good sires in the irrigable-land district. All kinds of roots and cereals with which sappy and rapid-growing animals are built up are a pronounced success. If this can be done on lands that can be had at ten dollars an acre, with no clearing to do, and without a heavy contribution to the railway companies, there should soon be plenty of good herds in our midst.

The same argument applies to sheep. The range sheep grow light with rustling for food over long distances, and with the competition for food that belongs to the grazing of sheep in bands of two or three thousand. This tendency to grow "too many legs," as it is sometimes expressed, has to be constantly counteracted by the use of sappy, meaty, good-sized eastern males. The demand for these is large and is constantly on the increase. If the same sheep can be produced here, he should be as profitable at half the price as he is when grown in the east and transported to this country at a high freight rate. Rams could be produced here that would have a semi-range character. This would give them



"THE SAPPY KIND."

a hardness that would counteract the tendency to become reduced in energy and strength that result from putting a highly-nurtured eastern ram on the ranges in late fall, with an unlimited number of ewes to follow. The demand is already here; the conditions are such as to invite the breeder and fancier of the pure-bred stuff to follow his bent on the irrigable lands. Ranching and the breeding of pure-bred males of fine type are complementary phases of the live-stock industry of the country. Each is necessary for the successful pursuit of the other. To the confident and enterprising pioneer will fall the rewards.

The west illustrates a phenomenal development; but what has already been done is not a patch to

what the next few years will see. A man does not need the eye of the prophet to foretell a flourishing future for this country. What has been done so far has been elementary and tentative. The rancher has been gathering up undisturbed the unshorn wealth of the boundless prairie. The simplicity of his business is going to be displaced, or, at least, supplemented, by the art and science of the thorough-going agriculturist. The climate, soil and other natural advantages of South Alberta, coupled with the best art of a susceptible and enterprising class of colonists, are going to make a garden of the West that the east dreams not of.

Cooking on the Farm.

That noted exponent of cookery, Mrs. Rorer, has the following in the *Ladies' Home Journal* regarding farm cookery during the summer:

FARMERS' WIVES DO NOT LEAD EASY LIVES.

The housewife, who must be chambermaid, seamstress, cook, and frequently laundress, must study menus that will build the brain and brawn of her family, take as little time as possible to prepare, and at the same time be palatable and sightly. Her life is not an easy one, but she alone, it would seem, is responsible for many of the hardships of which she complains. The hours which she spends in fancy cooking and the ironing of fancy clothing might, for her health's sake, much better be given to resting and recreation. The latter is quite as necessary as the former.

Complicated mixtures, such as pies, cakes, preserves and jellies, are seen in great variety and abundance on the farmhouse table, all of them producing much heat without giving a corresponding amount of nitrogen or muscle-making food. As the hard work of the farm is done during the heated term, any one can see at a glance the folly of such a diet. Butter and cream, admirable foods for winter, are undesirable in hot weather; and still, during harvest time, when the men are at the greatest strain, these so-called good things of life are most bountifully bestowed upon them.

WHAT WE MUST EAT TO PRODUCE ENERGY.

The object of eating is, first, to contribute to the growth of the body in its building period, infancy and manhood; second, to sustain the body under labor by providing proper material for the replacement of the worn-out particles which are constantly being cast off; third, to heat the body and produce energy. The average bill-of-fare seems to carefully and entirely skip the first two objects, and the third one is followed as closely in hot weather as in cold. The knowledge of how to live should and will be taught, before another generation goes out, in every public school. The wife of the farmer in the next generation will have some little time for rest and recreation; her husband will be a better-fed man—consequently, a better man. Work will be easier, and the world will be altogether brighter. City folks will be going to the farms, instead of all the country boys coming to the overcrowded cities.

Under the existing circumstances, however, the average farmer—the man who works on the farm—eats, with the thermometer at ninety degrees, a dinner of boiled ham, potatoes, bread and butter, and pie, with coffee and cream. This is not an unusual nor an overdrawn bill-of-fare. With the exception of the little lean in the ham, the dinner is entirely carbonaceous, leaving the man who is in the field without nitrogen, the muscle-repair food, of which he is in need during the working hours.

CAUSES OF GREAT MORTALITY IN SUMMER.

People who eat day after day in this way give out quickly, and conclude that farming is a hard way to earn a living, which is, of course, true under such circumstances. The weather is hot—very hot, and the dinners which the farmer eats contain fuel sufficient to keep the body warm with the thermometer at zero; the body is surrounded by an oppressive atmosphere, almost that of the body heat. How, then, can the lungs and heart do their work in this overtaxed condition. Sunstroke or heat exhaustion is the common result. The causes of the enormous mortality, both of children and the so-called "overworked," during the hot weather are perfectly well understood; they are chiefly overfeeding, lack of pure air in sleeping-rooms, dusty beds and carpets—in other words, a lack of household knowledge. Remedies are equally well known: the judicious selection of cooling, well-blended foods taking the place of the green, succulent vegetables containing starch; pure water; light, comfortable clothing; well-ventilated sleeping-rooms; regular bathing, and general hygiene.

As the working hours of the farmer are long, no doubt four meals a day would be better than three. The eleven o'clock luncheon, which is usually sent to the field, instead of consisting of cake and pie, might be buttermilk and brown-bread sandwiches, or milk and gingerbread, milk and sandwiches, or some food that would be sustaining and easily digested without giving heat. Cold, not iced, water should be taken in abundance, and the skin kept in perfect condition to induce rapid evaporation, which always lowers the temperature of the body.

OF WHAT THE BILL-OF-FARE SHOULD CONSIST.

Oatmeal and well-cooked preparations of wheat should take the place of meat and potatoes for breakfast. Frequently when our country neighbor wishes to express the strength of a person he says, "Why, he is as strong as a horse." This horse strength, it must be remembered, comes from oats. There is no law compelling us to feed a horse en-

tirely on oats, or man entirely on potatoes. Observation would make us think that the contrary might be true. Oats possess all the constituents necessary for the maintenance of high bodily vigor, and are one of those complex foods, especially with the addition of milk, capable of supporting life for an indefinite period. The cooking and manner of eating make a difference in their digestibility.

Slow cooking and slow eating should be the motto with all sorts of foods, but for cereals or starchy foods this becomes a command. Cook enough oatmeal one day to last for two; each careful warming-over aids its digestibility and makes it sweeter.

LEAN MEATS MAY BE USED ONCE A DAY.

Lean meats may be used once or twice a day; eggs, concentrated nitrogenous food, may always take the place of meat at one meal. It is not necessary that meat should ever be added to the morning meal. In cooking green vegetables, if care be taken, sufficient may be cooked one day for two, thus saving the artificial heat of the house and the strength of the housewife. It requires the same amount of fire to cook half a peck of string beans as it does to cook a smaller quantity; one part may be put aside and served cold with a little French dressing for the next day's dinner. Cauliflower and cabbage are equally good cold or hot. Green peas may be very carefully cooked, and a portion seasoned with salt and pepper and put aside; next day throw them into a double boiler to re-heat. When hot they will be ready to use. Cold meats, if nicely garnished, are palatable and sightly.

Sunday's dinner may always be prepared on Saturday. Potatoes may be boiled, and on Sunday hashed, mixed with cream sauce, and heated in a double boiler.

Asparagus, string beans, lima beans, peas, and even squash, may be carefully cooked on Saturday and re-heated on Sunday.

Such desserts as old-fashioned rice pudding, and those made from gelatine, also cup custards, may be made and placed aside. Fruit should be used during the summer, and cooked desserts saved for the winter.

HABITS THAT MIGHT WELL BE CHANGED.

It has been our habit, and the habit of our mothers and grandmothers, to have the heavy meal for the farmer at noonday—not because it was the proper thing to do, but because we have followed the example of generations previous. Observation told us that the generations were getting weaker, but this did not influence the noonday dinner. In the Western part of the United States, on the large ranches where work, necessarily, is very heavy, men find that they cannot work during the afternoon if the heavy meal has been taken at noon. The bodily temperature is greater during digestion, and they are unable to work easily in the hot sun during the process of digestion. Now the heavy meal is given at five o'clock, when the day's work is comparatively over, that they may quietly rest and digest. In some parts of the country progression has gone so far that the men rest during the greater heat of the afternoon, begin their work at half-past three, work until six, then take their dinner, rest an hour after, and work in the field during the early twilight.

AIM FOR SIMPLICITY ON THE TABLE.

In all walks of life the cry is for greater simplicity. No longer is the overlaid table containing six or eight kinds of preserves and half a dozen kinds of cake popular; in its place we have higher thinking and lighter living, foods prepared in such a way as to bring rest and happiness. In arranging meals the housewife should take into account the ages and habits of the different members of the household, the surrounding heat and hours of labor, and fill the demands, which alone can make perfect health. The intelligent woman no longer stands over the hot fire to preserve or make layer cakes or pies—all composed, perhaps, of good wholesome food, but each better without being made complex. She takes her bread-and-butter sandwich with the fresh fruits, rather than rubbing the butter into the flour and putting the sweetened cooked fruit inside. In this way she has better and more digestible food.

Selecting the Fittest.

Here is a short and true Canadian story worth more than many a three-volume novel. "Up in the Gatineau Valley there lived a man named Meldrum. He had several daughters, and they went into the fields and picked out the big early heads of wheat from large, vigorous plants. The seed from these, Meldrum clean thoroughly and sowed again. He thus got exceptionally good plants with large heads and fine wheat. With this wheat he took the gold medal at the Paris Exhibition, and for years afterwards Meldrum wheat sold at fine prices for seed." Bettering the moral, Sir W. C. Macdonald, of Montreal, at the instance of Professor Robertson, has given \$10,000 (£2,000) as prizes for young people on Canadian farms who produce from seed-plots of a quarter of an acre the finest ears of wheat and oats yearly, and the best produce in three years. In this way 700 young men and women in the Provinces of the Dominion are studying scientific farming by "selection of the fittest." The worthy Yorkshireman, a good farmer, too, who said oracularly fifty years ago that "steam was in its infancy, but agriculture had reached perfection," was a little premature, perhaps! We may learn something yet even from our own Colonies.—*London (England) Telegraph.*

Doing the Chores.

There is no more important work on the farm than doing the chores, as we usually style it. They should be done regularly, systematically, and cheerfully. Animals appreciate kindness. The tame creature that walks up to its master to receive those gentle, familiar strokes will thrive better and return its owner more money than the one that runs to the other side of the yard for fear of a thump or a kick. It pays to treat your animals kindly, if for no other reason than the appreciation they will show you.

I would not have a man on the farm who did not take some pride in doing chores. The man who thinks anything is good enough, and does things any way for the sake of having them done, has no business on a farm.

The man who expects his cows to do their best on pasture alone is far behind the times. If it pays a dairyman to weigh every pound of feed, every pound of milk, and keep an account, will it not pay the farmer? Try it, and you will be surprised how many "star boarders" you have been keeping.

On most farms, hogs are looked on as the next important live stock, especially so just now, with the price at \$7 per cwt. The up-to-date farmer has it arranged so that his hogs get the separated milk while still warm. All the feed is weighed and charged up to the pigs the same as the cows. See that their quarters are kept clean, and that they have a good run on pasture; it will greatly lessen the cost of production.

The value of having water before all stock at all times can scarcely be overestimated. After the hogs, there is the poultry to be fed and their quarters cleaned. This is a busy season in the poultry yard. There are the sitting hens to feed. They should be made to leave their nest every morning for feed and water. Then there are the little downy chicks and the larger ones that must not be neglected.

The first three months of a chick's life is the most important; not just to keep them alive that length of time, but to see how large they can be made to grow. After that they will pick their living if given their liberty, with a good feed of oats.

I have always noticed that the farmers that see to these seemingly small details are the ones who are coming to the front—the man who, when he knows a thing ought to be done, finds a way to have it done at once. When there are growing boys and girls in the family, these odd chores might be divided amongst them. One girl I know takes all the care of the poultry, and another tends the garden. The product of the garden is used at home, and the product of the poultry yard is divided equally between the two daughters. The boys care for the cattle and hogs, and receive a share of the proceeds in return. But when there are no boys and girls large enough for this work, I think it highly advisable to engage a chore boy.

R. F.

Large Farms and Their Management.

THE HOPE FARM.

Farming on a large scale has not been a success in the West during the past few years, especially wheat farming, for which a number of causes are accountable. High wages for help, bad seasons, inefficient management and improper methods have all tended to couple the word failure with what used to be known as the *bonanza* farm. A marked exception from the above is to be found in the Hope Farm of Wm. Martin, located a few miles south and west of St. Jean Baptiste. The careful, businesslike supervision of the owner is strengthened by the efficient work of the manager, T. M. Campbell, and as a result matters move smoothly and methods are progressive on this 2,400-acre estate. A herd of first-class Galloways is kept, which has given this farm a name throughout the West. At the time of our visit seeding was in progress, 1,000 acres being seeded to wheat, 200 to oats, 100 acres to barley, and flax, 200 acres. Summer-fallowing will be done on only about 175 acres, a less acreage than usual. In this respect we find the management is strictly up-to-date, and prefers the grass method as being the more satisfactory and permanent way of conserving soil fertility; consequently, we were not surprised to find a half-section in grass (timothy), an additional half-section of native sod being used for pasture. The adoption of regular seeding down to grass leads up to a systematic rotation of crops, which will in future be followed on the Hope Farm. It is the intention to seed down a quarter-section annually, leaving it down for two years. It will then be broken up and cropped for three or four years and again seeded down. Mr. Campbell believes that this method will overcome the tendency of the land to blow away, one of the results of the continual working incidental to summer-fallowing. There is no question but that the filling of the land with roots means more humus, and consequently a lessened tendency to be blown away and a longer drought-resisting power. Other large farms can afford to take their cue from the Hope Farm in this matter. The summer-fallow is plowed twice, if time will allow, deeply about haying, and shallow after harvest. If the weeds get ahead of the plowing, they are mowed and burned and the land harrowed and disked in lieu of the second plowing. Land intended for crop is harrowed twice in the spring, ahead of the seeder and twice afterwards. A light harrow is used as a weed exterminator; a soil packer is also used on the farm. Manure made during the winter is hauled right from the stable and applied as a top-dressing to the

grass land; that made in the summer is piled and used when desired. Eight binders are employed to cut the harvest, each drawn by three horses; for other work, eight four-horse teams are employed. The working hours on this farm are reasonable and in line with the most progressive methods. Breakfast is at 6 a. m., the men and teams leaving for the field at 6.30 a. m. Dinner is called at noon, one hour being allowed for the meal and siesta. Supper is at 6 p. m.; in harvest time at 6.30 p. m. A businesslike method is followed in the hiring of the men, more especially with a view to prevent them leaving in harvest and threshing time, when they might be allured by higher wages. Each man signs a contract for the summer period (7 or 8 months) at \$20 per month, \$5 additional per month being paid to those who complete their term of service. During the winter \$25 per month is paid, the men to board themselves. At the time of our visit 10 men were employed, and who boarded at the boarding-house. In addition to the herd of pure-breeds, sheep-feeding is practised to a considerable extent during the winter, the screenings from the farm elevator being profitably utilized in this manner, with the addition of hay. Native hay is preferred to timothy for the sheep. Last winter 240 sheep were fed at a profit on the farm, self-feeders being used for the screenings. The esthetic side is not at all forgotten, several large tree plantations being seen on the farm. It is the intention this season to plant 10 acres with 500 birches and some 2,500 elms. Water is abundant on the farm, got from a deep and seemingly inexhaustible well, as also from a convenient coulee. This farm is a valuable object-lesson of the possibilities in the combination of cattle-breeding, grass-growing and wheat-raising.

The Ontario Experimental Farm.

June is always a busy month at the O. A. College Farm. On the 21st inst., some 2,000 excursionists, hailing from Bruce and Dufferin, visited the institution. This is above the average day's visitors, but on the 15th this number was exceeded by 500 people. On other days during the month the numbers ran from 800 to 1,800, so that the month's visitors reached probably 25,000 people, including many heads of farms and families and their sons and daughters. On the 21st inst. a member of our staff spent the day on the Farm. Most of the officers and many attendants were in their departments, devoting their time to answering questions and imparting information. The huge undertaking of feeding the multitude was quickly accomplished, and without confusion, in the gymnasium building, where some 800 could sit down at once on benches running lengthwise of the hall. When all the seats were filled, President Mills called for 34 young men from amongst the excursionists to act as waiters. The lunch, composed of warm tea, ham sandwiches, soda biscuits, buns, and cheese, proved acceptable, substantial, and was much relished. At the close of the lunch, Dr. Mills devoted a few minutes to giving information and advice as how to best employ the afternoon, informing the visitors where to go for special information re weeds, insects, etc. Referring to the prevalence of weeds, he estimated that very many farms had depreciated quite \$15 per acre because of weed infestation. To get rid of them, the advice was to throw off your coat and go at them. It is well to become informed as to the nature and habits of the particular weeds we wish to destroy, but while many are spending time studying the best ways to eradicate them, the weeds are growing and getting farther and farther ahead. "Go at them," said Dr. Mills "and do not relax effort until they are destroyed." Even the best land cannot grow two crops profitably at once. Dr. Mills waded into those farmers who will not spend a cent to give their sons who are to remain on the farm an education, while they spend lavishly on the boys who are leaving the farm to enter the professions. The result of such is to push the business of farming down below all others, even to the very bottom of illiteracy.

THE EXPERIMENTAL FIELD

of 44 acres has particular interest for visitors, as here are hundreds of neat, uniform plots of grains, roots, corn, grasses and clovers, growing side by side for comparison in varieties, dates of seeding, thickness, etc. For the first time in years variety tests in fall wheat were done away with, by plowing up the plots for other crops. A test in wintering had concluded by that time, and showed that the usually hardy, stiff-strawed, heavy-yielding, soft-grained Dawson's Golden Chaff had been winter-killed to the extent of 47 per cent., while the weaker, better-milling, millers' favorite Turkey Red had succumbed only to the extent of 35 per cent. A day spent in this field with Mr. Zavitz (who, by the way, is now in Europe) or one of his staff has valuable lessons for any farmer who will take an interest in what he sees and hears.

FALL WHEAT FOR BREAD.

The assistant chemist, Robert Harcourt, B. S. A., had, just previous to our visit to the farm, concluded

the preparation of a bulletin, which will soon be published, giving details of his work in testing the bread-making power of various wheats, including both fall and spring. The object of the test was to arrive at, more particularly, the actual comparative values of Turkey Red, a fall wheat introduced by Ontario millers from Kansas, and such Ontario-grown sorts as Dawson's Golden Chaff, Michigan Amber, Clawson, etc., which are heavy yielders, but poorer milling sorts. In order to have the test as fair as possible, 10-bushel lots of each sort were carefully ground by one miller, and the last 100 pounds of the flour used for the test. The grinding was done at the beginning of last winter, when millers considered the wheat was in prime condition. The baking was done by a skilled Guelph baker, who gave each class of flour what he considered the most fitting treatment. From beginning to end the work was done with a view to exactness. With some varieties, 10-bushel lots of wheat were selected from different districts. For instance, Turkey Red was got from Kansas, also from two Ontario points. Below we give table, showing the varieties, number of tests, yield and estimated quality of bread from 100 pounds of flour:

FALL WHEAT.		
Variety.	Tests.	Yield. Lbs. Av. quality of bread.
Turkey Red.....	3	157.6 95
Scott.....	1	148.2 90
Michigan Amber.....	5	147.9 88.6
Gen. Giant.....	5	147.4 84
Jones' W. Fife.....	1	146.1 85
Walker's Reliable.....	1	145.7 80
Manchester.....	1	144.5 85
Early R. Clawson.....	3	143.2 75
Dawson's Golden Chaff.....	7	141.6 81.7
SPRING WHEAT.		
Fife.....	1	154.2 100
White Russian.....	3	144.6 82.3
Horison's Bearded.....	1	140.5 80
Colorado.....	2	140.1 75
Thicket.....	1	140.6 77.5

SUGAR BEETS.

The second visit to the sugar-beet plots, planted under the auspices of the Ontario Government, had been made by representatives from the College previous to our visit. The reports of these men indicate that the plots in the east, about Whitby and Lindsay, are in better condition than those in the west. The cold, wet weather during May injured the beets to some extent, especially in low ground, and also where the seed was planted too deep. About one inch was the depth recommended the farmers to plant, and had that not been exceeded, the results would have been a more even stand of plants. In ordinary seasons, probably the deeper-planted seed would have come out all right, but this year much deep-down seed rotted in the ground. In any year, one inch will be found a suitable depth in well-prepared soil, so perhaps the adverseness of this season's weather will prove advantageous in the lessons taught in the very beginning of our beet-growing experience. As a rule, the beets were all thinned by June 20th.

THE DAIRY.

At stated hours, illustrated lectures were given the excursionists, in the largest dairy class-rooms, by Miss Rose and Prof. Dean, on buttermaking, care of dairy stock, etc. In front of the audience, on the large blackboard, was written a recipe for keeping flies off cows, as follows: For 25 cows, 1 gallon of fish, seal or tanner's oil, 4 ounces crude carbolic acid, and 1 pint of coal oil, well mixed and applied to all parts of the cow, except the udder, with a cloth or brush. The addresses delivered were listened to by both men and women with rapt attention, and we are much mistaken if some farmers' wives do not, as a result, change their methods of making butter; and thus the good work of education goes on.

In the line of investigation, Prof. Dean is experimenting with cheese-curing in varying degrees of light and temperature. He has one room well lighted and another totally dark. Curds from the same vat are divided, part of the cheese going into the light and part into the dark room. Both rooms are kept at the same temperature and humidity. It is expected the cheese will be cured by the middle of July, when they will be scored. Repeated trials in curing cheese in different temperatures above 50 degrees, Fahr., decided that about 65 degrees gave better results than any other, both in less shrinkage and higher quality. Curing at any warm temperature (above 50 degrees) fails to produce a uniform ripeness and flavor, and so last year Prof. Babcock, that illustrious dairy scientist, discovered that curing cheese in a temperature near the freezing point gave most desirable and uniform flavors. To this end, Prof. Dean, in the dairy department; Prof. Harrison, in the bacteriological laboratory, and Prof. Harcourt, in the chemical laboratory, are conducting tests with a view to ascertaining the actual cause and effect of low-temperature curing. The cold room stands at about 38 degrees, and in it are placed cheese direct from the press, those one week old, two weeks old and three weeks old all taken from the same vat of curd. In the meantime the cheese is held at 65 degrees, and a fifth cheese from the same vat as those placed in the cold room is being cured at 65 degrees. It is expected the cold-curing will require seven or eight months, and when it is completed, the scoring will be compared with that of the cheese cured at 65 degrees. Prof. Harrison will investigate the bacterial development, and Prof. Harcourt the

chemical, as the curing advances, so that considerable light upon cheese-curing may be looked for during 1901 from Guelph Experiment Station.

THE POULTRY DEPARTMENT.

During the excursions, Mr. Graham, B. S. A., in charge of the poultry department, is kept very busy answering questions, as no end of people seem to have trouble with their poultry, and they come to him for information. He is asked about breeds, feeds, breeding, and all the rest of it, and he invariably gets a good audience when he commences to talk. He advised setting hens on the ground, making the nests of tansy, which will drive away lice. If this cannot be secured, a dozen camphor moth-balls will have the same desirable effect and do no harm. Mr. Graham has several hundred chicks under his charge, and he knows practically all about them all. The value of unlimited range for young chickens was clearly demonstrated in litters of the same age, some of which were confined to a few rods, along with other hens and broods, and others allowed free range in a clover patch. These latter consumed less food given them, and were much more stocky and vigorous. Mr. Graham is raising all his chicks to be used for breeding with hens, instead of with brooders, regardless of whether they were hatched by hens or incubators. While they may not grow quite as rapidly at first, they develop constitution and vigor. Those raised by brooders will be used for fattening.

Referring to the matter of poor hatches generally complained of, Mr. Graham got in January 50 per cent. hatches, 35 per cent. in February, 15 in March, and 10 until the middle of April, while by May 1st 75 per cent. of the incubator eggs produced living chicks. The low hatch during the winter months are considered to be due to lack of exercise and fresh air, incident to unavoidable close housing. An effort will be made to correct this next winter by compelling the hens to scratch over more straw for their feed, and by introducing more fresh air by means of a sub-earth duct opening beneath the stove, so as not to reduce the temperature unduly.

OTHER DEPARTMENTS.

The farm and stock under Prof. Day all give evidence of judicious management. The crops are all particularly promising, and all the stock, except the sheep, are thrifty. It seems impossible to have sheep do well on this farm owing to the presence of tapeworm, which seem to have all conditions at hand for their favorable development. The most striking individual in the bull stable at the present time is a remarkably fine Shorthorn, imported in dam last year by H. Cargill & Son from Wm. Duthie. He is a beautiful roan, not large, but his quality is superb. He is by Bapton Conqueror (73981), and out of Sittyton Amaranth 4th, a cow closely related to Field Marshal and Abbotsburn. Prof. Day is having a modern system of ventilation put in the main cattle barn. It is practically the same as that recently described in the FARMER'S ADVOCATE by Prof. Reynolds, who has made a thorough study of ventilation, and is now gathering information and working out cold storage. In conversation with him we learned it is his opinion that mechanical refrigeration is the only feasible one for a district storage, such as, at least, every town should have.

The work on the new Massey Hall has little more than commenced, the excavation for the basement and a small portion of the foundation walls being under way.

A Summer Trip Among Farmers.

(EDITORIAL CORRESPONDENCE.)

A holiday trip through fertile farming districts in Central Ontario in the leafy month of June in such a sappy season as the present is an inspiration to an agricultural editor, keeping him in touch with at least a portion of his wide constituency, and revealing the needs and the progress of his patrons in their interesting occupation. Leaving London, east-bound, and passing through portions of the Counties of Middlesex and Oxford, one is impressed with the general prevalence of pasture lands and comparatively large herds of dairy cattle, while the numerous big barns with basement stables, and the thrifty appearance of the farm homesteads generally throughout these the pioneer cheese-factory and creamery districts of Canada, indicate that the owners as a rule have done well by devoting attention to the milk business and pork production as a source of revenue. Tarrying for a night at Huntingford, the noted beef and grain growing farm and home of Mr. William Donaldson, of South Zorra, near the pretty town of Woodstock, to be christened a city on this Dominion Day, we find ourselves for the first time viewing the gold-medal prizewinning farm in a group of six western counties of Ontario, and second only in a provincial sweepstakes competition. Here is a 400-acre farm of strong land, well underdrained, kept scrupulously clean and neat, growing great crops of grain, clover, roots and corn, with thickly-set permanent pastures, closely resembling those of Old England, on which typical Shorthorns and Shropshires thrive. The wide avenue approaching the homestead, the roomy and parklike appearance of the grounds surrounding the dwelling, embowered in trees of Nature's planting, the extensive and substantial character of the buildings, and the general

appearance of thrift, strongly remind one of an Old Country steading, while the hospitality of Huntingford is proverbial and hearty.

A run through the fruit-growing section known as the Niagara district, extending from Hamilton to St. Catharines, and "The Falls," the traveler finds himself in what seems a veritable paradise, in which all manner of fruits grow in profusion on extensive plantations, the fruit farms varying in size from ten to ten times ten acres, thrifty looking, and generally well cultivated and kept. Well organized, working harmoniously together for the common weal, and jealous of the good name gained for the quality of their fruits, the orchardists of the district register progress from year to year, and are gradually gaining ground for their products in home and foreign markets, while the homes of the people are models of comfort and good taste. On June 19th we found ourselves on the fine stock farm of Mr. Hudson Usher, at Queenston Heights, historic ground where the monument to General Brock rears its head high above the surrounding scene. Lunching under the maples, preparatory to the dispersal sale by auction of the late partnership herd of Shorthorn cattle to make room for a better class, the view of the fruit-growing valleys, the hills beyond, and the Niagara River winding its way between tree-clad banks, is charming and impressive. Hard by, here are the extensive cement works of Isaac Usher, with a capacity of some 400 barrels per day, and the beautiful residence of the proprietor, the walls of which, as well as of the farm stables, are built of cement concrete and promise to be as lasting as the hills.

A day at East Toronto, at Dentonia Park, the summer home and stock and dairy farm of Mr. W. E. H. Massey, with the Jersey cattle breeders in their annual meeting, held under the shade trees on the lawn at Dentonia, was a pleasant experience. Here the Canadian Jersey Cattle Club was organized, and launched on a brand-new constitution, after the members had partaken of a sumptuous luncheon topped with luscious strawberries and rich Jersey cream, generously provided by the hospitable host, who kindly showed the company over the well-kept 200-acre farm, with its broad fields of corn and clover, ample equipment of stabling, complete dairy outfit, extensive poultry-breeding plant, and trout ponds, a busy business man's hobby, and last, but not least, the fine herds of prizewinning Jerseys, Guernseys and Ayrshires, which are of the highest type of their breeds, and have recently been reinforced by the arrival of superior sires imported from the homes of these breeds.

A stay over Sunday in the prosperous town of Oshawa found us in the rich agricultural riding of South Ontario, and, by appointment, an hour or two on Monday was spent at Maple Shade, the fine 400-acre farm and home of the Hon. John Dryden, Minister of Agriculture for Ontario. Here is good practical farming without frills, the buildings plain and unpretentious, but the fields broad, clean, tiled, drained, well fenced, and bearing crops every one of which will score one hundred per cent. on a high standard, as will also the bulk of the typical animals composing the blue-blooded herd of Shorthorns and flock of Shropshires, headed by high-class sires which are kept not in pampered show condition, but in the best of breeding form, with ample exercise as an essential in treatment and balanced rations constantly observed in the feeding formula.

A run up Yonge street, north of Toronto some sixteen miles, on the Metropolitan electric road, lands us at the gate of Springbrook, the noted stock farm of Messrs. J. & W. Russell, Richmond Hill, the home of prizewinning Shorthorns galore at national and international exhibitions, where matrons, the mothers of champions, are found passing a peaceful old age in vernal pastures, surrounded by promising offspring of various ages, the red, white and roan in glorious profusion bedecking the fields, while in cool, roomy boxes at the barns the show cattle luxuriate in preparation for coming competitions in the arena of the show-yard in case the owners conclude to make a public display again, but every day is show day at Springbrook, and the show is worth going a long way to see, as it is the proud product of at least a quarter of a century of patient, yet persistent breeding on independent and intelligent lines, with constitution, substance and quality combined as the motto and the aim, while the record tells the tale of success.

On to Aurora, on the electric cars, a distance of 14 miles further, and the visitor is let down at the farm gate of the Sheriff Hutton of Canada, where the only William Linton maintains a select little herd of imported Shorthorns, rich in the blood of Royal winners of former days, in the herd of his illustrious father, on the Yorkshire Sheriff Hutton Farm, supplemented by recent importations from the famous Ardferd Abbey herd of the late Mr. Talbot-Crosbie, of Ardferd, Ireland. For story and reminiscence, an evening with Linton is only equalled by the perusal of the Arabian Nights entertainment. Two miles further on we come to the beautiful and well-conducted 200-acre farm and summer home of Postmaster-General Mulock, where great crops are grown and large lots of export cattle fattened. Tarrying for a night with our old-time friend, Mr. Thomas Teasdale, at Thornhill station, one of the most successful of Canadian breeders of Berkshires, and one of the safest judges of stock in the Dominion, as well as an excellent farmer, a pleasant time was spent in the discussion of stock and farming problems and in reminiscences akin to those of the old soldier who shoulders his crutch and tells how fields were won.

DAIRY.

Household Tests for the Detection of Oleomargarine and Renovated Butter.

The following tests, which will later be published in the form of a bulletin, emanate from the Department of Chemistry, Washington, D. C.:

Two household tests are given—the boiling test and the Waterhouse test. The former has been in use for about ten years, and was originally used only for the detection of oleomargarine, but after the advent of renovated butter the test was found to serve almost equally well in distinguishing this product from genuine butter, although not from oleomargarine.

It may be conducted in the kitchen as follows: Take a piece of the sample about the size of a chestnut, put it in an ordinary tablespoon and hold it over the flame of a kerosene lamp, turned low, with chimney off. Hasten the process of melting by stirring with a splinter of wood; then increase the heat and bring it to as brisk a boil as possible. After the boiling has begun, stir the contents of the spoon thoroughly, not neglecting the outer edges, two or three times at intervals during the boiling—always shortly before the boiling ceases. A gas flame, if available, can be more conveniently used.

Oleomargarine and renovated butter boil noisily, sputtering (more or less) like a mixture of grease and water when boiled, and produce no foam, or but very little. Renovated butter usually produces a very small amount. Genuine butter boils usually with less noise and produces an abundance of foam. The difference in regard to foam is very marked as a rule.

The Waterhouse test, designed a year or so ago by Mr. C. H. Waterhouse, at that time dairy instructor at the New Hampshire College of Agriculture and Mechanic Arts, is as follows: Half fill a 100 cc. beaker with sweet milk; heat nearly to boiling and add from five to ten grams of butter or oleomargarine. Stir with a small rod, which is prefer-



JERSEY HEIFER, GUL BAHAR 147713.

Calved Nov. 7th, 1899. Daughter of Primrose Park's Prude, now in Pan-American Dairy Test.

OWNED BY W. J. CRAIG. (SEE GOSSIP, PAGE 448.)

ably of wood and about the size of a match, until the fat is melted. The beaker is then placed in cold water and the milk stirred until the temperature falls sufficiently for the fat to congeal. At this point the fat, if oleomargarine, can easily be collected together in one lump by means of the rod, while if butter, it will granulate and can not be so collected. The distinction is very marked. The stirring is not, of necessity, continuous during the cooling, but it should be stirred as the fat is solidifying and for a short time before. The milk should be well mixed before being turned into the beaker, as otherwise cream may be turned from the top and contain so much butter fat that the test is vitiated for oleomargarine.

Why Cream from Stale Cows is Slow in Churning.

To be successful as a buttermaker, one needs to be a student of the conditions governing the production of the raw material. Many a farmer's wife or daughter has complained of the butter being a long time in coming, the cause for such not being thoroughly understood. Students of dairy problems are on to the fact that the length of time that a cow is in milk exercises a very important influence upon the size of the fat globules contained in her milk, and the length of time which it requires to churn the cream obtained from such milk. The further a cow gets from the date of dropping her last calf the smaller do the butter-fat globules contained in her milk become, and the longer does it take for such milk either to rise in the form of cream or, when churned as cream, to "gather" into butter. This is one of the reasons why in autumn and winter churning usually takes a longer time than during spring and summer months, because under the system which prevails in most parts of the country most of the cows calve in the early spring, and are consequently well advanced in their period of lactation by the time the autumn is reached.

The cause known, the remedy is not hard to find.

The trouble can be overcome by having some cows come in fresh in fall and winter, so as to have a sufficient quantity of milk from freshly-calved cows to neutralize that from stale cows.

Definition of Good Butter.

"Good butter should possess a uniform appearance, neither patchy nor striped. Its color, which is influenced by the feeding and by the individuality of the cows, should be uniformly that demanded by the market. Good butter should neither be dull nor entirely sparkless in appearance, but ought not to possess too strong a glitter. It should possess the mild glitter that it has when it possesses the characteristic grain which distinguishes it from all other fats. In properly-prepared butter, the exceedingly fine division which the fat originally possessed in the milk should not be entirely lost. To this may be ascribed the fact that butter-fat is very easily digested—a fact quite characteristic of butter-fat.

"Good butter should neither be too soft—that is to say, smeary—nor too hard. The drops of moisture present in butter should not be too large nor too abundant, but must be quite clear, and should not have a milky appearance. Salted butter should not contain undissolved salt.

"The flavor of good butter should be that of pure butter only, and should not be associated with any kind of foreign or unusual flavor. Aside from the fact that salted butter is distinguished from unsalted butter by its salt flavor, butter possesses a different taste according as it is made from sweet or sour cream. Butter made from sweet cream is characterized by a clear, extremely mild, and by no means strong flavor. Butter made out of sour cream has a certain aroma and a powerful characteristic flavor which in most markets is demanded as an essential quality.

"We do not know the origin of this aroma, and we know nothing in regard to its chemical nature. We think it is due largely to the action of the lactic bacteria and partly to the food of the cows. Butter made from the milk of cows that have been in milk for a time is generally firmer than that from milk from recently-calved cows, and usually possesses a less fine flavor."—Fleischman.

Week's Work in Pan-American Dairy.

CONDENSED REPORT FOR THE WEEK ENDING JUNE 12TH.

BREED.	Milk.	Fat Content.	Butter 85% fat (Estimated).	Cost of Feed.	Profit.
	lbs.	%	lbs.		
Jerseys.					
Gipsy.....	262.50	4.00	12.35	\$1.19	\$1.90
Primrose.....	179.90	5.50	11.64	.91	2.00
Queen May.....	243.20	4.50	12.88	1.20	2.02
Hexina.....	246.80	3.70	10.74	1.19	1.50
Mossy.....	247.60	3.80	11.07	1.20	1.57
Ayrshires.					
Kirsty Wallace.....	240.80	3.70	10.48	.91	1.71
Lady Flora.....	313.70	3.10	11.44	1.18	1.68
Alice 2nd.....	321.14	3.45	13.04	1.18	2.08
Betsy 1st.....	303.30	3.45	12.31	1.18	1.90
Pearl of Woodside.....	295.80	3.60	12.53	1.18	1.95
Holsteins.					
Meg.....	340.30	3.00	12.01	1.25	1.75
Tidy.....	344.00	3.10	12.54	1.25	1.89
Inka Mercedes.....	354.30	2.60	10.84	1.20	1.51
Hulda.....	344.20	2.95	11.94	1.20	1.79
Beauty.....	353.80	3.20	13.32	1.21	2.12
Guernseys.					
Vega.....	231.00	4.10	11.14	1.28	1.51
Cassiopeia.....	223.00	3.90	13.15	1.28	2.01
Mary Marshall.....	260.30	4.80	11.70	1.27	2.41
Madora Fern.....	216.20	3.95	10.05	1.10	1.41
Procris.....	292.20	3.90	13.41	1.22	2.13
Shorthorns.					
14th Princess of Thule.....	274.40	3.60	11.62	1.25	1.66
Daisy D.....	273.20	3.00	9.64	1.25	1.16
Miss Molly 24556.....	298.80	3.45	12.13	1.25	1.78
Queen Bess 21786.....	292.30	3.20	11.00	1.25	1.50
Rose 3rd 113205.....	316.40	3.00	11.17	1.25	1.54
French-Canadians.					
Liema Flory.....	246.40	3.90	11.31	1.03	1.80
Rouen.....	223.30	4.20	11.03	1.03	1.73
Denise.....	254.50	3.65	10.93	1.03	1.70
Luna.....	234.80	3.40	9.39	1.03	1.32
La Bouchette.....	171.30	3.35	6.75	.87	.82

HERD RECORD FOR WEEK ENDING JUNE 18TH.

BREED.	Milk.	Fat.	Butter 85% fat.	Total cost of Feed.	Net profit.	Highest and Lowest test.
	lbs.	lbs.	lbs.			
Shorthorn.....	1442.	48.36	56.84	\$6.24	\$7.98	3.75
Holstein.....	1685.4	52.41	61.67	6.07	9.35	3.2
Ayrshire.....	1476.8	53.33	62.75	5.68	10.02	4.15
Jersey.....	1088.9	48.99	57.66	5.18	9.24	3.2
Guernsey.....	1187.1	51.21	60.26	5.41	9.66	5.4
French-Canadian.....	1108.6	43.05	50.57	5.07	7.60	4.5

Ayrshire Men Condemn the Test.

At the annual meeting of the Canadian Ayrshire Breeders' Association, on motion of Hon. Wm. Owen, seconded by Mr. R. Hunter, it was resolved that the cattle-breeding industry of the country is seriously menaced by the tuberculin test as now applied to cattle purchased for importation or sold for export, that it is misleading and of no real value, and should be discontinued.

The Duty of the Patron of the Cheese Factory.

The patron of the cheese factory owes a duty to himself and to the other patrons in that he should strive to send his milk to the factory in the best possible condition for the manufacture of the best quality of cheese. It is in the individual interest to do so. The competition is now so keen in the markets of the world—and every one catering to the wants of the public is trying to do his best in placing the best article in the best possible condition on the market—that, as a matter of necessity, the careless and incompetent must go to the wall. No matter how clever or competent or painstaking our cheesemakers may be, unless the milk is given to them in the best condition they simply cannot manufacture the best quality of cheese.

The cows should have free access at all times to running spring or good well water and salt. They should have an abundance of succulent, nourishing food, whether it be ensilage, natural grass, clover pasture, mangolds and hay, chop or bran, or whatever may be in season.

We milk in the stable, and believe it to be the best place and saves time. The stable should be kept clean and well littered with straw or chaff. The cows should be milked regularly by the same persons, at, as near as possible, the same time night and morning. The cows should be handled very gently and always stripped clean.

The milk stand should be placed in a convenient place, away from all bad odors and where a current of pure air will pass if there is a draft. We strain the evening's milk through an aerator, which spreads the milk in small jets, thereby letting off a great amount of the animal heat, and the milk should be stirred until all the animal heat has been taken out. It is a good plan to place the can in a tub of cold water, but the milk should be stirred at the same time, as cooling without stirring does not produce good results. Some use a pail with a perforated bottom and a solid bale, like a sprinkler can. This is pressed down in the can of milk and raised up quickly and held up over the can until the milk has run out through the small holes. If the atmosphere is pure, this does very well, but if there are any bad odors in the air, the milk has great assimilative powers and will be apt to take up any bad germs that may be floating about.

When setting milk for butter, we desire the cream to rise to the top, but in keeping milk for the purpose of making cheese, the object should be to retain the cream incorporated with the milk as it comes from the cow, and prevent it from rising to the top, as the cream that is separated from the milk is apt to run off in the whey. The milk should be cooled to 65 degrees.

There are various devices for stirring milk, one of the latest being an arrangement of clock work which when wound up will keep stirring the milk nearly all night if wished. This will pay better where the milk is paid for by the result of the Babcock test + 2 p. c., and would be a great labor saver, especially in haying and harvest. The morning's milk should be put into a separate can, and should not be mixed with the evening's milk.

Furious driving of milk wagons to the factory should not be tolerated, and no honest man will adulterate his milk with water or remove cream.

Where whey is returned to patrons in milk cans, it should at once be emptied out into a swill barrel at or near the piggery, where the cans should be washed with lukewarm water, then carried out to the milk stand and thoroughly scalded with hot water, then rinsed with cold water and set out in the sun and wind.

When going to milk, it is a good plan to empty a pail of cold water from the well into the can and leave it in until the milking is done, then empty out before you put the aerator bowl on the can.

Oxford Co., Ont. D. LAWRENCE.

Tuberculin Test Temperatures.

A young cattle-breeder enquires: "I would be obliged if you would state, through the FARMER'S ADVOCATE, how the rise in temperature is determined condemning an animal under the tuberculin test?"

[The latest directions sent out to inspectors of that department require five temperatures, three hours apart, to be taken before the tuberculin is injected into the animal, and six afterwards. The highest of the former is compared with the highest of the latter, and if a rise in temperature is shown of two degrees or more, the unhappy animal is condemned. The whole performance is forty-eight hours in duration.]

"Why do ducks put their heads in the water? For divers reasons. Why do they take them out? For sundry reasons. Why do they put them in again? To liquidate their little bills. Why do they take them out again? To make a run on the banks."—Exchange.

The Use of Pasteurized Milk.

At the recent meeting of the British Dairy Farmers' Association, at Glasgow, Scotland, Mr. Jas. Stirling, of the Glasgow Dairy Co., read an interesting paper on the pasteurization of milk for sale and manufacturing, followed by Mr. F. J. Lloyd, F. C. S., consulting chemist of the Association, who said no matter what care they took, undoubtedly milk was not so pure which came direct from the cow, and was delivered to the consumer, as milk which had passed through the process described by Mr. Stirling. The questions to be determined were whether pasteurization paid, and whether it made milk less digestible? When milk was heated to the pasteurizing temperature the albumen was coagulated, and the infant could not digest the solidified albumen. A change also took place in the mineral matter. Undoubtedly milk which had been heated was less digestible than milk which had not been heated. The fine matter removed from the milk in the cleaning process described by Mr. Stirling was the indigestible material which was generally left in pasteurized milk. Mr. Stirling demurred; what came away was only impurities, and was not coagulated albumen. Mr. Lloyd, however, held that that was the effect of pasteurizing milk. The demand for pasteurized and separated milk was, in his opinion, an erroneous one, and had been brought about by the faddists in the medical profession, who wanted to make out that the milk supply was the cause of the spread of tuberculous disease and infant diarrhea. Tuberculous bacilli were sometimes present in milk, but not very often; still, it was the duty of farmers to guard against it and do their best to prevent its occasional presence. The large cause of diarrhea in children was that the milk was kept in the houses under

be scalded, aired and kept scrupulously clean. Prime butter has a delicious flavor, clear grain, and is firm and sparkling. People are willing to pay a good price for a good article. Although so many farmers are sending their milk to the factories, there yet exists some ambitious women who are not afraid of work, and are fond of dollars and cents, who still persist in the old-fashioned method of making butter for sale. Their butter is good, and they have regular customers who buy it from them from one year's end to another. These women know that it pays better than selling the milk.

Now, women folk, I believe you can all make good butter if you are determined to do so. Some of you may have given up the work in disgust, because you did not meet with a ready sale for your butter. Perhaps you never guessed what the reason was. I will tell you, your butter was of an inferior quality. Make up your minds that you will either make good butter or none at all.

P. E. Island. A. R.

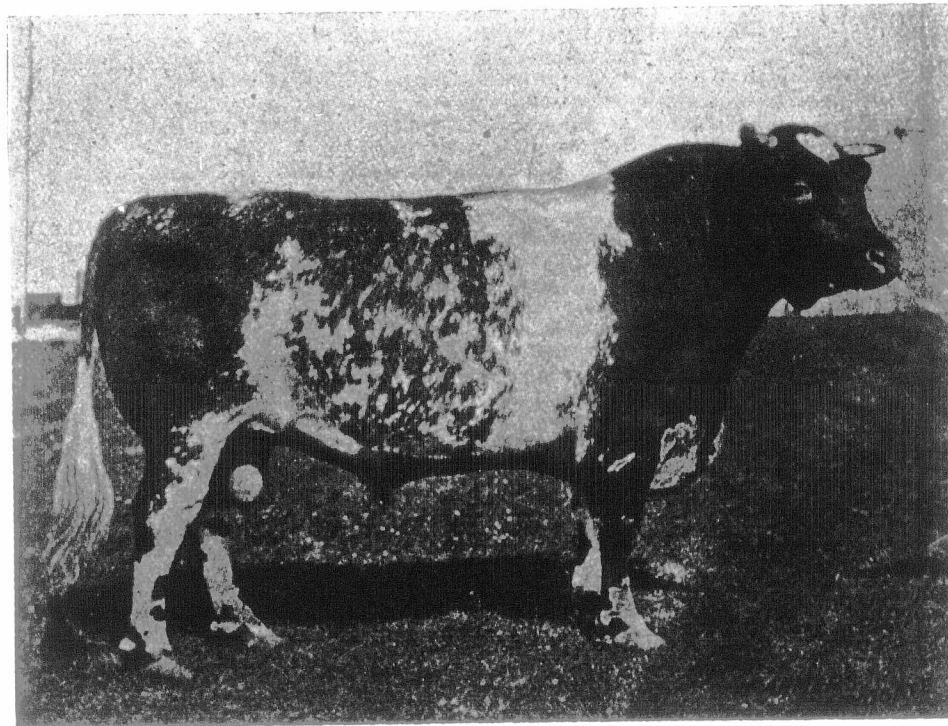
Cleanliness in Handling Milk.

It is said to be a fact by those who are conversant with the average dairy farmer's practice, especially those who send milk to cheese factories, that quite a high percentage of them do not strain the milk at all. They know it will be strained before it goes into the vat, and claim to consider that is straining enough. These same patrons, as a rule, are not careful to wipe off the sides and udders of the cows; they may even wash their teats with the cow's own milk, and think it harmless to milk with dirty hands. These are the causes of many bad flavors in cheese, and, so far as they exist, go to injure our trade in the motherland.

Though the straining of milk, either in the cow shed after it is drawn from the udder, or in the dairy after it reaches that department, may be of some service in ridding it of any large particles of dirt or other matter which it may contain, it is of but little use in preventing the entry of the tiny dust grains, which, after all, constitute the great bulk of the filth which dirty milk contains. The effect of straining, so far as these minute dirt particles are concerned, was well shown in an experiment recently carried out at one of the American agricultural stations. In this experiment it was found that though the straining of milk left it cleaner so far as the larger particles of dirt were concerned, it proved of but very little advantage in excluding the bacteria which, as is well known, are chiefly conveyed through the medium of dirt. It was found that about 60 per cent. of the dirt from the manure and the air was soluble in water, and that no amount of straining would prove of any service in depriving the milk of this soluble material. With the object of testing to what extent dust and bacteria found their way into milk, trials were made with milking into covered pails with apertures only six inches in width at the top, and into others with from two to three times that extent of opening in the pail. With the six-inch opening it was found that the number of germs present in a certain quantity of milk was 2,300, whereas in the milk drawn into the ordinary pail with the wide top, the number of bacteria present worked out to over 43,000. The advantage of using the narrow-mouthed pail with the object of excluding the bacteria in this case was well shown by the fact that whereas the milk drawn into the narrow-mouthed vessel did not go sour until after being kept 64 hours, that milked into the open pail—and subsequently found to contain 43,000 odd bacteria—went sour in 47 hours. The experiment, therefore, afforded an excellent illustration of the great advantage of keeping the milk clean, and of having the surroundings of the stables or of other departments in which the animals are kept as free from dirt as possible.

Enriching Skim Milk for Calves.

In these days of cream separators and thorough skimming, it behooves us to be on to the most economical way of enriching skim milk for calves. The *Farmer's Gazette* states that a grain mixture which was used with much success at the Munster Dairy School as a substitute for the butter-fat abstracted from milk in the process of separation consisted of 1/2 lb. to 1 lb. daily of a combination of equal parts of linseed meal, bran, and oatmeal. A commencement was made with these by giving the calves 1/2 lb. of the mixture, and then the allowance was gradually increased as the age of the animals advanced until when five to six weeks of age they were given from 1 lb. to 1 1/2 lbs., according to size and other conditions. It is better, however, to allow the calves to eat the mixture dry, so that it will be well masticated, than to mix it with the milk; otherwise, it will tend to be carried past the first and even the second stomach before digestion begins.



INSPECTOR 72715.

Shorthorn bull, winner of first prize and championship at Bath and West of England Show, 1901. OWNED BY MR. G. HARRISON, DARLINGTON, ENGLAND.

unsanitary conditions, and was not often given to the children until it was becoming sour. It would be a godsend if these people could be induced to use pasteurized milk, but they were, he was afraid, the very class that would make least use of it.

Buttermaking on the Farm.

I think every farmer's wife or daughter should at least make enough butter for the use of the family. In the first place, when you make it, you know, or ought to, that it is clean, and I am sure you would relish the butter better than if you bought it from a person you did not know. Then you have the delicious fresh buttermilk to drink, which is so healthful. Some physicians recommend it as a cure for liver troubles. We keep enough milk to make butter for our own use, and send the balance to the factory. But many of our neighbors sell all their milk and buy butter. When I used to buy butter, before we bought the farm, I found it hard to get a prime article. I always took a good look at the woman who offered it for sale before I looked at her butter. When I saw one dressed particularly neat, tidy and clean, who had nice clean, white towels over her butter, I looked at it and asked her the price. One can nearly always tell whether butter is good or not by its appearance without tasting it. I have seen greasy, mottled stuff offered for sale in the market that I would not think of tasting—the look of it was quite enough. Yet women called this butter, and expected people to buy it. Carelessness and lack of cleanliness on the part of the buttermakers was doubtless the cause.

Cream should be churned twice a week in summer, and the milk cans, creamers and churn should

GARDEN AND ORCHARD.

Summer Institute Picnic Meetings.

AS REPORTED BY THE SUPERINTENDENT.

A successful orchard meeting was held on Wednesday, June 12th, at the Experimental Fruit Station located in East Northumberland, on the farm of Mr. W. H. Dempsey, near Trenton. Mr. Dempsey had everything in readiness for a large gathering, and was not disappointed. Over 300 people were present, and showed by their attention and inquisitiveness that they meant business and were there for practical instruction. Mr. Dempsey has on his farm more than 175 different varieties of apples. Of course these are not all hardy, nor are they all suited to the climatic conditions of Lake Ontario, but it is only by trying them that we can find out which are best. The Department of Agriculture, seeing how farmers were imposed upon by irresponsible fruit-tree agents and nurserymen, has taken upon itself the responsibility of deciding which are the best apples for the different localities. Many thousand barrels of apples are shipped from this immediate vicinity each year, and there is no up-to-date farmer within a radius of many miles who has not been benefited directly or indirectly by the work done on Mr. Dempsey's place.

PRUNING.

Prof. H. L. Hutt, of the O. A. C., introduced the topic of pruning, and the matter was fully discussed by the members. Some advocated high pruning, but the majority were in favor of the lower form, starting the first limbs about four and a half feet from the ground, and trimming the branches upward, so as to allow free cultivation well up to the trees.

FARMERS GIVING MORE CARE TO THEIR ORCHARDS.

Prof. Hutt stated that he has been visiting this section for a number of years, and each year he could see a distinct improvement in the matter of cultivation. "Ten years ago," said Mr. Hutt, "it was the rule in many places to leave the orchards in sod, and allow the farm stock to pasture under the trees. Now we see nearly every orchard cultivated, or, at least, not left long in grass."

In reply to a question as to why some fruit-growers in New York advocated seeding the orchard and leaving it in grass for many years, Mr. Hutt replied that they did not in any case ever take a crop of hay from the orchard, but cut the grass and left it to dry as a mulch on the surface, and that many of them even ran disc harrows over the surface at frequent intervals. The consensus of opinion at the meeting seemed to be that in this country the best way to care for an orchard was to cultivate up to July, and then plant some catch crop, such as rape or clover (the latter preferred, either crimson or red), and plow this under again the next spring.

ORCHARDS PAY THE RENT.

"It is a poor orchard in this country," said Mr. Dempsey, the director of the Station, "that will not pay the rent of a hundred-acre farm. Of course there are some years that we have a very small crop, but this does not occur often, and, as a rule, where the farmer gives the orchard a fair show, and attends to the spraying, he can sell his apples in the fall for more than enough to pay his rent, or if it be his own place, a good interest on his investment."

WHALE-OIL SOAP.

Being near the base of supply of this article (it is manufactured at Conseccon, about twelve miles away), the fruit-growers of this section naturally use a good deal of this insecticide. This year, when the aphid was so bad on the plums and cherries, it was found very useful. Some, however, neglected to apply it early enough, and thus the result is a good crop of plant lice now. Those who were sufficiently forehanded to spray when the lice first appeared on the buds, in late April or early May, using about a pint to the gallon, have had very little trouble with lice since.

CANKERWORM PREVALENT.

"We have not," said Mr. Thos. Carlaw, of Warkworth, "one nest of tent caterpillars this season where there were thousands last year. In fact," said he, "I have driven to this meeting all the way from Warkworth, and did not see a dozen tents, except a few in this immediate section." This cannot be said of cankerworm, but, like most other insects, they are found most common on the farms of those who neglect early spraying. We noticed many trees on the road entirely stripped of foliage. "Ought to have had Paris green early," said Prof. Hutt, "and they would not have cankerworm now."

ROTATION OF CROPS IN THE ORCHARD.

As the Institute members passed from one part of the orchard to another, Prof. Hutt pointed out the advantage of using different catch crops in orchard cultivation. "Nitrogen is all right," said he, "and phosphoric acid is necessary, as well as potash, but in order to get all three ingredients into the soil, we can no more stick to one crop than we could to one form of commercial fertilizer. I like to see clover used often. A good rotation for an orchard consists of buckwheat, clover, rye and clover. This gives lots of green stuff to turn under each year."

VARIETIES.

Mr. Dempsey, like Mr. Caston and many other good fruit men, sticks to the old favorites. "No

better early apple," said Mr. Dempsey, "than 'Duchess of Oldenburg,' and for early fall use the 'Snow,' 'Trenton' and 'Gravenstein' do well in this vicinity. For winter apples the 'Ontario,' 'Ben Davis,' 'Stark' and 'Seek-no-Farther' are popular varieties with both orchard men and buyers." "We must not forget the boys and girls," said Mr. Dempsey, "and so we always have 'Ribstone Pippins,' and, of course, the 'Northern Spy' is always in order."

GRAFTING.

"I see you are all unanimous that the Tallman Sweet is the stock on which to graft apples," said Mr. Dempsey, on speaking of a report of the Craighurst meeting last week. "It suits us too," said he, "and you will also see that we have a lot of Spy stocks. There are a lot of others that are good, but we avoid the Golden Russet. It has given us very poor satisfaction as a stock on which to graft winter apples." "How about the Red Astrachan," someone asked. "There are better," said Mr. Dempsey, "but I have had good results in some cases even from them."

THE BUYER'S STANDPOINT.

Mr. R. J. Graham, the "Evaporator King" of Belleville, was present at the meeting. "This is a great idea," said he, "to get the farmers together and have practical demonstrations in pruning, grafting, budding, spraying, and general discussion on orchard management. As a buyer, I would like to impress one thing upon you, and that is the necessity of producing the very best quality of apples. I know the fault does not all lie with the farmers, as we shippers have to take some responsibility in the matter. At the same time, we cannot send a uniform quality of good apples to the Old Country if you do not produce them. It is the same in buying apples as in buying hogs," said he. "If you have a lot of hogs, some of them good and some of them bad, the drover has to take the lot and pay you an average price for them, knowing that he will have to make up on the good ones what he loses on the poor ones. So when we are buying we have to take the good and the bad alike, and have to get rid of the poor ones as best we can. Our packers classify all apples into four grades in the barrel—called 'facers,' 'followers,' 'fillers,' and 'tails.' The Englishmen complain that in too many cases the 'tail wags the dog.' No farmer," said Mr. Graham, in conclusion, "can get along nowadays without adopting new methods, and this applies to orchard management as well as to anything else. You must spray without ceasing," said R. J., "cultivate well, cut down or top-graft the unprofitable trees, and in re-planting select only good-selling varieties. Remember that there are always three qualities that we look for in an apple: 1st, they must all be a good size; 2nd, they must be a good color; 3rd, they must keep well and stand shipping. If you can combine these with a good flavor, well and good, but these three must stand first."

Distribution of Fruits.

BY JOHN B. PETTIT.

Important changes are, from time to time, taking place in the fruit-growing industry, and, as a result, those who are engaged in this branch of horticulture have new lessons to learn as the seasons go by. Until within comparatively recent years there were only a few farmers in certain favored localities that went in for fruit-growing, and they devoted but a small plot on their farms to this purpose. Then the question of a market never entered their heads, for when they themselves and their neighbors were supplied, there was seldom any left to market. Today, apples, peaches, pears, plums and grapes, and all the different varieties of berries, are produced abundantly.

There are but few points in our country where large quantities of fruits are grown. For instance: Apples, in the north-west, central and eastern parts of Ontario, and in a couple of the Eastern Provinces; peaches, in the Niagara peninsula; plums and pears, in the apple sections; and grapes, in the Niagara district. So, practically speaking, excepting apples, the bulk of all fruits is grown in two or three sections of Ontario.

The manner in which the crops of large and small fruits from these enormous plantations are to be distributed over and throughout the Dominion and into other markets, is a problem that must be solved by progressive fruit-growers. The over-production of the last few years, of all varieties of fruits in those localities mentioned, has brought forth this question of distribution, which at the present time is not properly handled. And it is a growing problem, as there are thousands upon thousands of trees that have not as yet reached a fruiting age. The fruit-growers themselves, the railroad and express companies, do not appreciate the situation as they should and must in the near future.

Express and railroad companies charge an almost prohibitory rate for carrying fruit, and, as a result, people living but a couple of hundred miles from the seat of production often do not get a chance to purchase, for storekeepers in such towns say that the express charges eat up all the profits on consignments. "Commissioners' fees are often added to this, also.

To partly counteract these high express rates and commissioners' fees, we must ship in car lots, and, if possible, direct to retailers. To do this, there must be co-operation among fruit-growers, by

which they may combine and ship fruit daily in car lots; sometimes by fast freight when distance is not too great. This requires headwork, and, if necessary, they should allow the "business man" among them a small margin for managing such shipments. Such cars should be filled with nothing but first class fruit, and that well packed. Any second-grade fruit or rubbish should be shipped by itself.

To bring about a wider distribution of our fruits, different methods of packing must be resorted to. Packing as an art has as yet been scarcely thought of in this country. The Californians are experts at this work, and we may well take lessons from them. There is an increasing demand for our fruit in Manitoba and the far West, and this market can be secured and maintained if our fruit is so put up as to stand the journey and still be in presentable condition. There is also an unlimited market in England and other European countries for our apples, pears and grapes, if they are properly graded and so packed as to reach their destination in marketable condition. In order that our products may stand these long journeys, we must know at just what stage of maturity we should pluck them, for if harvested when either too green or overripe, the results will be unsatisfactory. The distribution of the coming enormous crops is a vexatious problem, and demands co-operation of growers, that all may reap the greatest profits.

Growing Gooseberries and Currants.

GEO. W. STRAND, BEFORE THE MINNEAPOLIS HORTICULTURAL SOCIETY.

Currants may be increased either by cuttings, layers or division of old plants. Where only a few plants are wanted, and old ones of that variety are accessible, if sections are taken which are fairly well rooted and composed of the newer growth, they will make very good and vigorous plants, but it is preferable to start them by either of the other methods.

For commercial purposes currants are grown almost exclusively from cuttings. These are made from the new growth soon after the leaves fall, which is about the 1st of September in this latitude. They are made six or eight inches long and tied in bunches, having the butts all one way. Although some plant them at once, it is preferable to callous them first, as this hastens the rooting process. This may be done by placing them in the ground, butts up, covering them enough to prevent them from drying out. Fermenting manure is sometimes used to hasten it. As soon as calloused, and before the small roots start, they should be set out, about four or six inches apart, in rows from three to four feet apart, set firm, in a slanting position, leaving only the upper bud exposed. A mulch of straw, applied soon after, will also be of great benefit, removing the same from just over the row before growth starts in the spring. Cuttings thus treated will have roots started before severe weather sets in, and are in condition to make the best plants.

If necessary, they may be set early in the spring, but they do not stand near the chance of growing or making as good plants as fall-planted cuttings.

Thrifty one-year-old plants are all right for transplanting, but two-year-olds give the best satisfaction generally.

Currants root very readily by layering. This may be done during the fore part of the growing season by bending down and partly covering the new growth.

Gooseberries do not start as easily as currants from cuttings, and are grown mostly from layers. The layers are generally started as soon as the new growth is long enough to conveniently handle in June. These are taken up in the fall and transplanted into rows, about six inches apart, to be grown for one or two years, the same as currants.

Another method of starting gooseberry plants is to hill up the two-year-old plants that are to be dug that fall. This will cause roots to form in the newer growth, and a good stock of layers can thus be procured with very little labor or expense. The trimming up which the stock thus receives will be more beneficial than injurious.

In starting layers, if a cut is made in the lower side—making it rather long and almost to the center of the stalk, so it will stay apart when pressed back into the soil—this will greatly aid the formation of roots, as they start more readily from a calloused surface. In fact, this is almost the only way some varieties of gooseberry and other hardy plants, such as roses, can be induced to root to any extent when propagated in the open.

As in the production of other kinds of nursery stock, the season, soil and care has much to do with the quantity and quality.

Prof. E. S. Goff (Wis.): The gentleman stated, and I think we have been taught in books and other publications, that only young wood should be used for cuttings. I visited one of our largest Wisconsin currant-growers, and was surprised at the way he did his propagating. He did not use young wood, but he took his cuttings from the older wood. He took the prunings from the oldest branches that got down where the currants got dirty. He cuts them out and then he cuts the branches off at every joint and leaves on a small shoot, which he uses as a cutting. They were very finely rooted; in fact, I found they were so nicely rooted that I could make several plants of them. It may possibly mean earlier bearing. This gentleman said he had adopted this method because he found it better in his own work. He cut them off in the spring and planted them in the ground. I wish to be understood, however, that all of these cuttings had a bud at least

of young wood, or one or two buds of young wood somewhere on them, but they included a portion of the older wood, so that every branch of old cane that has an inch or two of young wood can be used for cuttings.

Plum Rot

(*Monilia fructigena*).

A sample of plums much affected with plum rot was brought to the FARMER'S ADVOCATE office. They were taken from a tree that had been faithfully sprayed three times this season, at the recognized correct dates, with Bordeaux mixture. By the 20th of June fully 25 per cent. of the plums on a heavily-laden tree were affected, and the disease was spreading. Two years ago the same tree was sprayed with Bordeaux in spring and with copper carbonate when the rot appeared, and the affected plums were picked off, thus checking the disease, so that a fair crop of fruit was harvested. We would very much like to hear from readers who have been able to check, ward off or cure this trouble so prevalent and destructive in many plum orchards.

POULTRY.

Seasonable Poultry Notes.

BY FARMER'S WIFE.

Growing chickens cannot be induced to eat too much. Push them along so that they will attain full growth before cold weather sets in. The pullets of early hatchings, if well fed and housed in a sheltered place, will begin laying in November. Separate the young roosters from the pullets, if it is possible, and feed them extra, so that they may be well grown and fleshed when the time comes to sell them. They should be kept hungry, yet have sufficient to eat. I find a good plan is to give them enough to only partially satisfy their appetite in the morning and never enough during the day, so that they will hunt around for food. The exercise will do them good. But for the evening meal they should have enough of good grain to fill their crops, so they can go to roost comfortably. Late-hatched chicks should receive the very best of care and be pushed along as rapidly as possible. It is easy to do this now when the weather is warm.

A fat hen is not a good layer. Do not feed corn more than once a day to laying hens. Bran, if well cooked or scalded, makes a good feed for poultry. Corn may be used as a part of the ration, but meat in the food will show its effects in the egg basket.

For gapes, dip a feather in turpentine and insert it in the windpipe.

Whenever possible, let the poultry have the run of freshly-plowed fields. Ground oyster shells and sharp grit are better than dosing for weak fowls.

A sick fowl rarely cares to eat, but will drink. Hence, the best way to give medicine is in the water.

Sour food is the worst thing a chicken can be given to eat. It makes a heavy draft on the strength of the little fowls to dispose of it.

Bear in mind, readers, that chicks are addicted to the natural habit of drinking when they have access to water. Keep them supplied with a dish full of water, into which drop a few old nails occasionally. This, I find, will furnish iron in about the correct quantity.

Preparing Poultry for Killing.

The time will soon arrive when the boys will be asked to go to the yard and knock down a young rooster or two for the table. This is the custom on many farms, and may be considered not a bad one after the household has grown tired of pork and other heavy meats. Even this toothsome bit of diet may be much improved on by housing the cockerels on good feed for a couple of weeks, and then fasting them a day or two before killing, and allowing them to hang in the cellar or other cool, clean place for a day or two after killing before being cooked. In preparation for killing, fowls should be fasted for at least 18 or 20 hours. This is more especially necessary where the birds are intended for market and are meant to be kept for some time before passing into the hands of those by whom they will be consumed. Fasting the birds in this manner clears their crops of all food; and thus improves their keeping qualities after being killed. If their crops are not thus emptied the fermentation set up in the undigested food very often leads to injurious results when the dead birds are kept for any length of time.

Ridding Poultry Houses of Vermin.

The bugbear (or *bete noire*, as the Frenchman puts it) of the poultry man or woman is vermin, to get rid of which bisulphide or carbon is said to be an excellent preventive. A continental investigator, who has recently been testing various remedies for lice and other parasites in fowls, finds that by placing a vessel containing a quantity of this bisulphide of carbon underneath the perches, all the lice or other parasites present in the house will be gradually killed off. Bisulphide of carbon, as is well known to chemists, is exceedingly volatile, and when used in poultry houses for this purpose it must be renewed at intervals of a few days. It is said, however, that even in very bad cases a week of fumigation with this material is sufficient to clear poultry houses of all the vermin present.

Bisulphide of carbon is too powerful in its effects to be used without care, and if a great amount is used, the poultry should be outside the house while the fumigation is going on.

Turkey Raising.

HATCHING, FEEDING AND CARING FOR THE YOUNG—TREATMENT FOR LICE.

BY "OLD MAID."

My experience in raising turkeys has been a very successful one, extending over quite a number of years. I think the time when I first became the proud possessor of a turkey all my own will never fade from my memory. A kind neighbor gave me a young turkey when I was quite a little girl, and from the time her hired man appeared with it under his arm I have been a turkey-raiser. Purchasing three more hens and a gobbler, I managed to raise quite a large flock the first year. I breed from only fine, healthy stock, saving my best for that purpose, and do not breed from the same stock long. I change my gobbler every year, and select hens from my own stock, as they are less inclined to wander away than strangers. The hen dearly loves a secluded spot for her nest. When she sits I put shelter over her, that can be closed at night and opened every morning, to keep the wild "varmints" from her and let her sit, providing she has chosen a reasonable place for the purpose. If moving is attempted, they are very "set," and will sometimes abandon a nest if moved, or so neglect the eggs if shut in that they fail to hatch. Sometimes there are one or two very early layers in the flock, too early to really care to set them, as early turkeys are not desirable, as the early rains and dampness are destructive. In this case I break these hens up and let them lay again, putting the surplus eggs under chicken hens. When I come to set them, I prefer not to make mothers of the latter, as their habit is so different the little ones will not thrive with them after they begin to need a wider range. The lice of hens accumulate quickly and prove more fatal than their own and harder to get rid of, so I put little ones hatched by hens with turkey mothers.

Sometimes the wings of little turkeys grow faster than their bodies, the quills stick out longer than the tail feathers: at the same time, many dwindle, get thin and die. Unless the one in charge understands these symptoms, the loss may be great without the cause being suspected. Catch the little ones and carefully turn back the feathers which cover the root of the quills on the wing, and in between the quills will usually be found lice, which are sapping the life away. The surest remedy for turkey lice is one part kerosene to three parts oil. Any oil which runs freely and will not get gummy on the feathers is good. Put it in a slender-necked machine-oil can, and let a little out along the roots of the feathers of each wing affected. The kerosene needs the oil, as alone it blisters the tender flesh and causes unnecessary suffering. Night is a good time to apply, just as they are put in the coop. Be careful not to get on too much, as that sticks the feathers down. Go over the flock a second time to make sure of a second crop; a large flock can be gone over very quickly.

After the patient mother has completed her time (from 28 to 30 days), I teach her to come to the house every day for food, and then comes the time for caring for the little creatures which are to be tended and kept growing into lordly young gobblers and meek plump hens to grace some festal board later on. I keep my eye on a hen which I know to be hatching, but never allow her to be disturbed to remove the little ones. If kept quiet she will seldom kill any, and will call them out of the nest herself.

The mother needs a refreshing dust bath often, as she has not left the nest while hatching. She is not confined, but the little ones are very unsteady on their legs. I make a triangle of boards nailed together, which need not be very high or very large, yet large enough for the mother to get in with her brood when she chooses. The little ones doze and enjoy the sun, while the hen dusts herself and picks grass and gravel at pleasure.

The cheapest and most healthful food for little turkeys is curd made like cottage cheese, unseasoned. They are very fond of it and thrive upon it, with the insects of all kinds which they get. Stale bread soaked in sweet skimmed milk is good for newly-hatched poults. Milk is good for turkeys of all ages, but for young ones do not let it stand and get warm and sour. It is unnecessary to make egg bread, custard cakes and expensive foods; they are too rich and produce diarrhea, and must be guarded against. Make the food sweet and wholesome, as variety is not necessary, but do not give grease or meat of any kind.

In wheat localities, whole wheat boiled makes the best food for young turkeys and for fattening. Don't fuss with a healthy flock, but if there is a tendency to diarrhea, pepper (black or red) mixed in the food is a good remedy. As a tonic, put a small lump of coppers in the drinking water occasionally. Many lose small turkeys by keeping them too closely confined. Turkeys must have range in order to become strong and thrive. I have large coops for each mother, but, unless necessary, they are not shut up after the dew is off the grass, excepting rainy days. They run in an orchard, and the little bodies grow broad and the legs get the stocky look of thrifty little turkeys; when a little older, they stay very contentedly in my meadow nearly all day.

A turkey hates to go in her coop at night unless it has been moved during the day. If it is changed every day, she soon regards it as a safe place to keep her little family over night, and should it rain in the night, change it so it will be clean for the day. Filth is a deadly foe to a young turkey in confinement. I have always kept my coops on the ground. An experienced raiser, who has tried floors, prefers

the ground, as it is more natural and healthful. I think it is a good plan to keep a box skunk-trap set at night near the coops.

When the turkeys get large enough to fly over a stone wall they will wander farther away and there is danger from hawks. I keep track of their whereabouts as well as I can, which takes me outdoors no more than is necessary for good health. I have had them so wild that they caused me considerable trouble, but it was caused by introducing strange hens.

The curd diet is excellent while it lasts, but much is required as they grow larger. While they are small, a little goes a great way, even feeding five times a day. I prefer whole buckwheat to any food when my supply of curd runs short. It is healthy, and prevents diarrhea. The finest turkeys I ever raised were fed almost exclusively on fresh curd and buckwheat. Cracked corn, wheat and buckwheat is good food when they have grown larger.

As soon as they show a desire to roost, I encourage them, providing it gives promise of fair weather in which to make the new departure. I accordingly introduce them to the turkey tree—a large maple—in which generations of turkeys have roosted before them, providing a narrow board with cleats to climb up. They are up and off in the morning before I am around. They do not care to wait for their breakfast, preferring grasshoppers and crickets to anything I might offer. They generally return at 10 or 11 a. m. to rest and refresh themselves with cool buttermilk, sweet skim milk or whatever I have for them. I make it a point to offer them something to encourage them to come home.

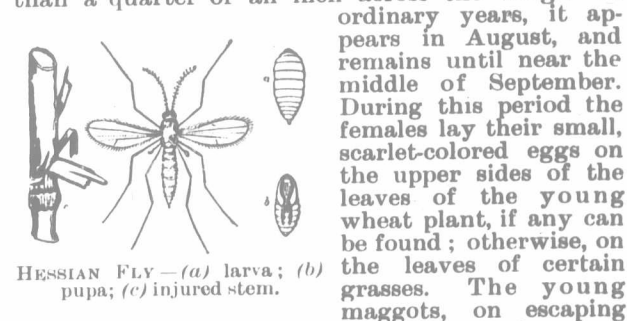
It is well always to feed when shutting them up at night, which should be at 5 p. m. when small, as after that time they get so sleepy it is slow work. This teaches them to expect supper, and they will soon come of their own accord. When large, the supper need not be a very hearty one, as they don't need it if there are plenty of bugs, but, just for the principle of the thing, to get them home, it is best to offer a reward. When feeding buckwheat for the first time, they rush around expecting the familiar food of curd, and receiving only buckwheat, a universal cry of "quit" will be set up all along the line, and it is only after careful examination and thoughtful observation of the fact that the mother is eating that they can be induced to touch the stuff of which they are afterwards always so fond. After the flock goes to roost they are usually very little trouble until marketing.

ENTOMOLOGY

The Hessian Fly Again.

Reports are coming in from many parts of the Province that this serious pest of the wheat field has done very extensive injury, to the extent of destroying many hundreds of acres of fall wheat, which until a few weeks ago gave every promise of a very abundant harvest. Much has been said and written on the best methods of dealing with this pest, and perhaps what I have to say will contain nothing new on the subject, but as many farmers who have lost heavily this season may not be disposed to sow as large an acreage as usual, a knowledge of the best methods to adopt in the preparation of their fields may tempt them again with the hope that they will have better luck next time.

The winged fly which lays the eggs from which the maggots emerge is a minute creature, not more than a quarter of an inch across the wings. In



HESSIAN FLY—(a) larva; (b) pupa; (c) injured stem.

ordinary years, it appears in August, and remains until near the middle of September. During this period the females lay their small, scarlet-colored eggs on the upper sides of the leaves of the young wheat plant, if any can be found; otherwise, on the leaves of certain grasses. The young maggots, on escaping from the eggs, make their way down the shoot between the shoot and the sheath of the leaf to the base of the plant. There they imbed themselves in the shoot, with the result that a small gall or enlargement is produced, just above the roots and a short distance below the surface of the ground. There the maggot grows and feeds, thus sapping the vitality of the young plant.

By the time winter comes on the maggot has reached full size, and assumes the well-known "flax-seed" condition. The effect on the plant is to weaken and dwarf the shoot so much that the frosts of winter kill it outright. As the main stem has been badly weakened, it is not in a condition to send out lateral tillers which will survive the winter and bear heads the next season.

In the spring the next stage of the insect is entered upon, viz., the pupa, which, however, it soon leaves to become the adult two-winged fly again. The flies of this spring brood appear in May and June, and lay their eggs on the upper surface of the leaves. Maggots again emerge from the eggs, and as in the case of the fall brood, make their way down the stalk between it and the sheath of the leaf, but usually not so far down. They come to rest at one of the lower joints, where they pierce the stalk

and encase themselves in a kind of gall-like enlargement. It is these maggots that do the harm at the time of the ripening of the crop. The straw becomes so weakened that it topples over and never ripens the heads, which, of course, are never filled.

The Hessian fly passes the summer in the "flax-seed" stage in the stubble, although occasionally the "flax-seeds" are to be found imbedded in the straw at a height sufficient to be carried away on the straw on the removal of the crop from the field.

Preventive Measures and Remedies.—1. From a study of the life-history of the Hessian fly, it is evident that only by intelligent application of preventive measures, such as are at once suggested to every wide-awake farmer, can it be held in check. The fact that the eggs are laid during the last week of August and the first two weeks of September suggests the practicable measure of *late seeding* in regions which are subject to almost annual attacks of the fly. If the seeding is delayed until the female flies have laid their eggs and have perished, then the maggots must make their appearance in plants on which the eggs are laid. In this way the wheat plants escape.

2. When it is impossible or impracticable from some cause or other to seed late, it is possible to destroy many of the eggs or maggots on early-sown fields of wheat by pasturing the field with sheep. Inasmuch, however, as the eggs liberate the maggots in four or five days after they are deposited on the leaves, the supply of food for the sheep will be somewhat limited. This method can be used with good results if the farmer is an observant man and can tell when the flies are laying their eggs.

3. Several authorities advocate the burning of the stubble. This treatment is one which has been practised for over a century, and has produced good results. By the burning of the stubble after harvest, the "flax-seeds" are destroyed. Sometimes this treatment is impracticable, as, for example, when the field is seeded to clover.

4. Mention has already been made of the fact that the "flax-seeds" are frequently found higher than usual on the stem, and that they are carried to the barn in the straw. During the threshing of the grain immediately after harvest, the "flax-seeds" are separated in the chaff and screenings. The desirability for the burning or early feeding of the chaff and other rubbish will be readily conceded by all, to prevent the escape of the flies.

5. A device which has not been adopted to any extent by farmers, yet with remarkable success whenever tried, is the one of sowing narrow strips some two or three weeks before the usual time of seeding, to act as decoys or traps. Such strips will attract many flies to lay their eggs, which may be readily destroyed by plowing the young wheat plants under. It is not contended that all the eggs of the summer brood of flies will be destroyed, but undoubtedly much serious injury will be avoided. These decoy strips should be sown about the middle of August or the last week of August, and should not be allowed to stand more than three weeks.

6. A very important point in combating the pest would be, if it were at all possible, a uniformity in the time of seeding by all the farmers of an infested section. Such a practice would, according to Prof. Webster, of Ohio, "serve to scatter the fly over so large an area that, though numerous, they would work less injury than if confined to a few fields."

7. A well-established system of rotation of crops will do much to lessen the extent of the injury by the Hessian fly. The flies are thus compelled to go in search of the new fields, and run a risk of being destroyed in so doing. Prof. Webster says that after thirteen years of study of the Hessian fly in Indiana and Ohio, he is satisfied that four-fifths of its injuries may be prevented by a good system of agriculture. He says: "For years I have seen wheat grown on one side of a division fence without the loss of a bushel by the attack of this pest, while on the other side the crop was almost invariably more or less injured. No effect of climate, meteorological conditions or natural enemies could have brought about such a contrast of results. The whole secret was in the management of the soil and the seeding."

It is not the purpose of this article to explain what Prof. Webster means by a proper management of the soil and the seeding, beyond stating that the field should be plowed early, and kept in a good state of tilth by getting a well-pulverized, compact soil. When the time comes (after the flies have laid their eggs) to sow, then sow the best seed that can be procured. A rich soil will, of course, bring forth stronger, sturdier plants than a poor soil, with the additional result that the plant, even if attacked, will winter better also.

During the month of May the writer had an opportunity of studying the Hessian fly problem in Huron, Middlesex, Kent, and North Essex. Although a few exceptions occur, it may very truthfully be said that *late-sown* fields wintered best, and suffered least from the fall attack of the fly. In very few instances did he find fields infested which were sown after 20th of September. It is true that fields sown after this date are now infested, but such infestations have occurred this spring from autumn-infested fields. The last two seasons must not be taken as a guide for future measures, for the month of August of both years was so dry that the flies did not emerge at the usual time, but nearly two weeks later. Should there be a good rain towards the end of next August, it will be safe to sow wheat any time after the 11th September.

In conclusion, it ought to be borne in mind that

there is no known remedy for the spring brood of flies, and, therefore, it is all the more incumbent on the farmer to attend to the fall brood and make the conditions as favorable as possible for the wheat crop and as unfavorable as possible for the pest. It is not likely that the adoption of any of the methods of treatment I have outlined above will exterminate the fly, but it is claimed that the fly can be held very perceptibly in check by an intelligent combination of two or more of these measures, according to the conditions, which are likely to be somewhat different in different localities.

It is but fair to say that there are many peculiar circumstances in connection with the appearance of the Hessian fly which entomologists have not yet been able to explain, and that many more careful observations will have to be made before the full life-history of the pest is known.

W. LOCHHEAD,

Ontario Agricultural College.

APIARY.

Seasonable Notes.

BY MORLEY PETTIT.

With regard to re-queening each year, as Mr. Dickson recommends in his paper on "The Production of Extracted Honey," which was reviewed in this department last month, there is some difference of opinion. Mr. J. B. Hall believes in keeping some queens four or five years. Mr. S. H. Sibbald voices the writer's experience when he says, "I have always found a larger per cent. of my colonies in good shape that contain a young queen." Occasionally a three-year-old or even a four-year-old queen does good work; but usually when the queen is starting on her third season, the colony builds up very slowly in spring, and does not do nearly so well all summer as those with younger queens. If the bees are to be allowed to rear their own young queens, the best time to remove the old ones is just before the close of the honey flow, that the bees may not swarm when the young queen hatches.

"District Intelligence" from various O. B. K. A. directors located in different parts of the Province shows that bees generally did not winter very well, and some say their neighbors lost heavily. There was considerable spring dwindling and robbing, but the bees were building up nicely when the cold, wet weather in May and early June gave them a setback. At the present time of writing (June 18th) prospects are bright for a good clover flow, but bees are not in extra good condition to take advantage of it. From the present outlook, prices this year should be at least no lower than last, for the markets in both Canada and the United States are practically bare, and bees are by no means plentiful in the country. It should be the aim of every beekeeper to produce a first-class article, and then hold it at a good price.

To keep pollen out of sections, give plenty of room for pollen below. When a swarm is hived on starters, either put in one comb as a pollen catcher and put on sections at once, or do not put on sections for a couple of days, until they have built some comb in the brood chamber. In doing the latter with a large swarm, an empty hive should be placed under the brood chamber during the two days there is no super, else the bees are crowded and become dissatisfied. In any case, a queen excluder should always be used under the super. Some localities are much more troubled with pollen than others.

The best smoker fuel is one that is inexpensive and always at hand, one which does not easily "go out," even if the smoker is set down for a few minutes with the nozzle pointing diagonally towards the ground, and which will burn a long time without refilling, and give a good cloud of smoke at a moment's notice. Partially-decayed wood is very good if thoroughly dry and cut into coarse, broken shavings with a drawing knife. Cedar bark is used by those who have it, and cotton waste smeared with oil from locomotives is also recommended. W. L. Cogshall says he leaves burlap exposed to the weather over winter and it makes excellent smoker fuel the following summer. The most convenient lighter for a smoker is a bicycle oil-can full of coal oil. Put a little fuel in the bottom of the smoker and squirt some coal oil over it. Drop in a lighted match, and as soon as the oil and fuel are ignited put in more fuel, working the bellows the while; replace the nozzle and the smoker is ready. A discarded milk can turned on its side with the bottom slightly elevated makes a dry, fireproof storeroom for the smoker when not in use.

For rapidly removing combs of honey from a hive, the bees may be nearly all driven down out of the super by the use of smoke and a peculiar manipulation of the quilt or cloth which covers the frames. First smoke a little at the entrance, then loosen the cloth at one side, blow in some smoke, and holding the cloth by the loose edge firmly in one hand, flap it up and down on the frames four or five times, blow in more smoke and repeat the flapping. This repeated a few times drives nearly all the bees into the brood chamber, when the combs may be quickly removed, given a quick shake at the entrance and set on the ground behind the hive. The super can be refilled with empties and the hive closed before the bees begin to come up again. By this time, if there is no brood in the combs standing on the ground, the

few remaining bees feel lost and defenceless, and may be brushed off almost like flies; but if they stand longer they will probably cluster, and may be savage if more smoke is not used. Some do not bother with these few bees, but allow them to fly home from the windows of the extracting-room.

What of the Honey Crop?

It would be interesting to learn from our bee-keeping readers situated in various parts of the country the condition of the clover-honey yield and the prospects for basswood. Let there be a general response at an early date, that a definite conclusion may be arrived at by our readers regarding the honey crop of the country.

QUESTIONS AND ANSWERS.

1st.—Questions asked by bona-fide subscribers to the *Farmer's Advocate* are answered in this department free.
2nd.—Our purpose is to give help in real difficulties; therefore, we reserve the right to discard enquiries not of general interest or which appear to be asked out of mere curiosity.
3rd.—Questions should be clearly stated and plainly written, on one side of the paper only, and must be accompanied by the full name and address of the writer, as a guarantee of good faith, though the name is not necessarily for publication.
4th.—In veterinary questions, the symptoms especially must be fully and clearly stated, otherwise satisfactory replies cannot be given.

Veterinary.

FATAL RESULT OF HERNIA FOLLOWING CASTRATION.

I got a veterinary doctor to castrate my colt about two weeks ago. He did the job under the chain process at five o'clock Wednesday evening, and the next day at 2 o'clock the colt was dead, after suffering terribly. He was the finest year-old colt ever seen here. He weighed 1,075 lbs., was fat and very active; sired by a pure-bred Percheron. In five minutes after the operation his intestines came out. He threw him and put them in only where the testicles had been, and then sewed him up. What did he do to him, and what should he have done? He said the colt was perfectly healthy, that he was not ruptured in any way, but he strained himself. I do not believe that, but I believe he tore the inner lining some way, as he did not half tie the colt, for he, the colt, could draw each leg through the rope about a foot, and all the time he was turning the screw the colt was floundering around. Before he did the job I wanted to get two men to help us, but he said he did not want anybody at all, he could do it alone. I firmly believe he killed my colt. Can I come on him for damage? If you can, I wish you would answer these questions through the *ADVOCATE*. I was offered one hundred dollars for my colt from the owner of the sire; he wanted him for a breeder.

2. Is a fat bull as sure to get calves as a thin one; both running in the pasture? G. FAWCETT.

[In order to understand or appreciate the above sequel to castration, it is necessary to have some knowledge of the anatomy of the parts. Leading from the scrotum into the pelvic cavity is an opening. The opening from the scrotum is called the external inguinal ring, then there is a short passage called the inguinal canal, and the internal opening is called the internal inguinal ring. There are, of course, a right and left canal and ring, one for each testicle. In foetal life (that is, before birth) these rings are large, and the testicles pass through them from the pelvic cavity into the scrotum; then, under normal conditions, the rings contract, nothing but the spermatic cord being contained therein. In rare cases the openings are so small that the testicles cannot pass through, and consequently do not reach the scrotum. This condition constitutes what is generally called a *ridgeling*. In some cases the contraction of the rings is not sufficient to prevent a portion of the intestine passing through into the scrotum. This constitutes *scrotal hernia* or *rupture*. In many cases of this kind *hernia* is not always present, the intestine being sometimes drawn up into the cavity, and at other times it is in the scrotum. It is the duty of a veterinarian, before castrating, to examine for *hernia*, and if it be present, to either postpone the operation or operate by what is called the covered operation, but in cases where the intestine is retracted, for the time being, into the cavity, no person can suspect the presence of occasional *hernia*. It is probable that in the violent muscular exertion experienced in being cast, or in regaining his feet, he enlarged one of the rings, and thereby made it possible for the intestine to pass through. The operator cannot be held responsible for accidents of this kind. The *ecraseur*, or chain process, is one of the most approved methods of operation. When the intestine appeared, the operator did right in casting him and returning the viscera. It should have been returned through the rings mentioned into the pelvic cavity, and means adopted to prevent its protrusion. It is probable that was done, and that you are mistaken in saying that it was merely returned to the scrotum. *Hernia* following castration is an unfortunate accident, not usually due to carelessness or ignorance on the part of the operator, and frequently fatal in its results. When operations are performed by professional men, if ordinary care and skill be exercised the operator is not liable if results be fatal; but if you can prove carelessness or gross ignorance on the part of the operator, you should be able to recover.

2. Excessively fat bulls are not as potent as those in moderate flesh. This applies to all males.

J. H. REED, V. S.]

BOG SPAVIN AND CAPPED ELBOW.

I have a horse, five years old, that got hurt in a fence two years ago. He puffed in the joints where the bog spavin came. I blistered them and got it off one. There is still a puff on the other: it is quite soft, and he is a little stiff when let out and it seems to hurt him getting up. He has never been worked.

2. I have a horse with a shoe boil on him. It has been on for a year or two and seems hard and calloused inside the skin. What would be best to remove them?
CHAS. BROADY.

King's Co., P. E. I.

[Chronic bog spavin, such as you describe, is very hard to remove. There are different methods of treatment. The fluid can be drawn off with an aspirator (an instrument especially designed for such purposes), and a little iodine solution injected into the cavity. This operation would probably have to be repeated occasionally. It requires an expert to operate, and often is unsatisfactory. Another treatment consists in frequent applications of cold water and the application of pressure either by bandaging or the use of a truss especially designed for the purpose. The hock is a very hard joint to bandage so that the bandage will not become displaced. Another method, and perhaps the best, is repeated blistering. Use the following blister: Biniodide of mercury, 1½ drs.; powdered cantharides, ½ dr.; vaseline, 1 oz.; mix well. Apply with smart friction. Tie her so that she cannot bite the parts. In 24 hours rub well again with the blister, and in 24 hours longer wash off and apply some vaseline. Let her head down now. Apply vaseline every day until the scale comes off. Blister in this way every month and you will probably be able to remove the enlargement, but it will be liable to reappear.

2nd. A surgical operation is the better way to remove the tumor on elbow. The horse should be cast, firmly secured, the tumor carefully dissected out, and the lips of the wound neatly stitched together. Then the horse is allowed to get up, and the wound treated as an ordinary wound, with some good antiseptic, say carbolic acid, 1 part, and water, 70 parts, three times daily until healed.
J. H. REED, V. S.]

PERSISTENCE OF THE URACHUS IN FOAL.

I have a colt, foaled on the 9th of May, from an imported Clydesdale stallion and a heavy mare, that leaks its water at the navel. It has been very restless, and will make its water and then go a few steps and make it again a half-dozen times in succession. It is constantly hunching from one hind leg to the other when standing up; otherwise, it seems smart. It will run and play in the field when it is out. I had a filly from the same horse and mare last year that was just the same. It is the third foal that the mare has had. There was nothing wrong with the first one; it was from another horse.

1. What is the cause of the leaking? Has the sire or dam anything to do with it?

2. Is there anything that can be done for it? I tied the navel last year, and left it on about 24 hours, and took it off again, as it would have died: it was swelling and getting quite hot. It stopped leaking in time, but did not seem to thrive right.

I would not like to be without the ADVOCATE. I think every farmer should have it.
W. F. Grey Co., Ont.

[1. Before birth, the urine escapes from the bladder by the urachus, or navel, the opening of which should become obliterated at or immediately following that event. Occasionally, however, the urine escapes through this channel after birth for a time, when it is termed "persistence of the urachus." The sire and dam are in no way responsible for this trouble.

2. It is important to keep the foal in a clean box stall, if inside, or on clean grass in a comparatively dry field, if outside, as there is danger of blood-poisoning. Bathe the part well, three or four times daily, with the following lotion: Powdered alum and powdered borax, of each, ½ oz.; tannic acid and carbolic acid, of each, ½ dram, and 12 ozs. of water; to be well shaken before applying. Last year the string was applied too tight, causing the swelling and heat referred to. It is well, however, if the navel suspends sufficiently, to apply a soft cord just tight enough to hinder the leakage.]

ENTRO HETATIS IN TURKEYS.

All the people around here are losing their turkeys; even the old hens and toms die off very quickly. The birds seem to have a diarrhoea, and soon go.
DAVID HUSTLER.

Lambton Co., Ont.

[The turkeys are in all probability suffering from entro hetatis, or liver disease, that originated some years ago in Rhode Island, and which is, unfortunately, spreading rapidly. As yet, no cure has been found for this disease. It is caused not by a germ, but by a higher organism than a germ. The only possible way to deal with it, so far as known at present, is to feed the turkeys either from your hand or from a clean trough, the object being to keep them from eating the protozoa, or insect, as we may call it, that is voided in the droppings. Never feed off of the ground, or allow any food to lie about and become infected. This is, at best, a very slow way, and not always a sure way, to effect a cure. By sending a specimen that has died to the Bacteriological Department of O. A. C., Guelph, those whose turkeys are dying can find out if this is really the disease or not, or if they will take the trouble to examine the liver of a dead turkey, they will find it covered with whitish spots when this disease is present.
J. E. MEYER.

Waterloo Co., Ont.]

WIND SUCKER—IMPACTION OF THE COLON.

1. I have a cow which sucks wind when she is tied in the stable. She will hold her head down and breathe hard, as if in pain. Don't seem to hurt her, but is very disagreeable to listen to. Please advise?

2. I have a mare which takes spells of impaction of the colon. It is very difficult to give her medicine when she is sick. She has taken it as often on the grass as in the stable. She is fed on hay and oats, with a little boiled flaxseed, twice a day. What is best to be done to ward off the attacks?
A RECENT SUBSCRIBER.

[1. A wind-sucking cow is very rare. It is a vice, not a disease, although it predisposes to indigestion. A strap buckled tightly around the throat just behind the angles of the lower jaw will prevent it. If the habit is confirmed it is very hard to cure, and she will in all probability practice it unless the strap is kept on.

2. Repeated attacks of impaction of the colon, or indigestion in any form, are due to weakness of the digestive organs. I am of the opinion that your mare suffers from ordinary spasmodic colic, rather than impaction of the colon, as she would not be likely to recover from repeated attacks of that trouble. Prevention consists in careful feeding. Feed easily-digested food of good quality, and in small quantities. Feed four times daily instead of three, and give less at a time. Tone the digestive glands by feeding a little ginger once daily in her food. Commence with a teaspoonful each night, and, as she becomes accustomed to the taste, gradually increase the dose until she will eat a table-spoonful, then feed her this quantity regularly.
J. H. REED, V. S.]

WHAT AGE TO BREED HEIFERS?

I have two heifers thirteen months old that I intend to keep for dairy cows. At what age should they be bred in order to give the best permanent results? They are above the average in size, and in splendid condition. It has been my custom to breed heifers at about sixteen or seventeen months old, and then keep them farrow for one season, having them drop their second calf at four years. Is this a good plan? I find that this treatment allows good development during the third year while the cows are farrow.
Richmond Co., Que.
SUBSCRIBER.

[There is much difference of opinion even amongst leading dairymen as to the most favorable age at which to breed dairy heifers, and it would be interesting and profitable to have the views of a number of breeders of dairy cattle upon this point. Our own view of the matter agrees with Subscriber regarding the age at which to breed. We consider it wise to not breed them after calving for at least six months. Their first milking period should be continuous for fifteen months, which will establish the habit of long milking. They should then run dry for three months before calving, which will give them a good chance to build up and nourish the foetus.]

LAMENESS AND PAIN IN COW'S FEET.

I would like advice about a seeming disease which is somewhat prevalent among the cattle in my vicinity. The foot is the part affected. A slight swelling in the ankle joint and above the hoof is all that can be seen, but the cattle seem unable to bear the pain caused by standing on it, and will swing the foot and hold it up when standing. They lie down until seemingly starved into getting up to feed, and cows lose in flesh and milk supply rapidly.
Middlesex Co., Ont.
IVOR C. BICE.

[You do not state the secondary symptoms shown in the cases cited; do not say whether the swelling and soreness is followed by eruptions or by recovery. The symptoms given simulate the early symptoms of eruptive ergotism, caused by cattle eating ergotized grasses or grain; but in those cases there is always an eruptive stage, sometimes followed by recovery and sometimes by death. Treatment for such cases as you describe would consist in applying hot poultices to the parts. It would also be well to apply an anodyne lotion, as 2 ozs. laudanum, 4 drs. acetate of lead, 6 ozs. water. This will ease the pain and allay the inflammation.
J. H. REED, V. S.]

SORENESS OF TEATS IN COW.

A valuable Holstein cow, five years old, suffers at intervals of two or three weeks from soreness of teats and lower part of udder, the surface of which appears very much inflamed, and, after the first day, is dry and cracked. Have applied lard and find it beneficial, but it does not prevent the recurrence of the trouble. What can I apply to her teats to toughen the skin, which is at any time very tender? She is not troubled in this way during the winter or while in stable.
Richmond Co., Que.
SUBSCRIBER.

[Some cows, on account of a normal tenderness of the skin, are predisposed to sore teats. Regular and careful milking is necessary in order to prevent it. The application of medicines with a view to toughen the skin, as suggested, is usually not satisfactory, as such applications cause a dryness of the parts, with a tendency to crack. When the teats become sore, use the following ointment: One dram boracic acid, six drams vaseline, eight drops carbolic acid, well mixed; apply a little after milking. The application of a little of the ointment after milking, regularly, will keep the skin soft and pliable, and to a great extent remove the tendency to soreness.
J. H. REED, V. S.]

HARD, ROUGH LUMP ON MARE'S LEG.

I have a Coach mare, three years old, that was kicked on the hind leg between the hock and fetlock, on the outside of leg. It is all healed up, but has left a hard, rough lump. What can be done to remove the eyesore?
C. E. M.

York Co., Ont.

[Repeated blistering will tend to reduce the enlargement, but will not remove it altogether. The chances are the hair roots are destroyed and cannot again be made to grow. If the enlargement is callous it may be burned down partially with acids by a veterinary surgeon. A more definite knowledge of the character of the enlargement is necessary before we can recommend the proper treatment.]

Miscellaneous.

BROMUS GRASS.

Mr. D. McKenzie, of Middlesex Co., Ont., left at the office of the FARMER'S ADVOCATE a bunch of grass, that was out in head, for identification. It is a fine-growing grass, about 30 inches high, and somewhat resembles chess, to which it is closely related. It is known as soft Brome, and is not unlike *Bromus inermis*, now so popular in Manitoba. Its heads somewhat resemble meadow fescue in form, but the Bromus has short beards, or arms, attached to the chaff. It comes quite early, and therefore is suitable to form part of a pasture mixture.

THE PEA WEEVIL.

I have twelve acres of the Golden Vine peas now growing, and promising a good crop. The seed came from Toronto, and was entirely free from the bug. But the bug will get in its work here in all probability, and I want to treat them with bisulphide of carbon. I do not know rightly how to go about it. As they require to be saturated with the bisulphide of carbon for forty-eight hours, the use of a barrel is prohibited, for it would take such a long time to treat several hundred bushels that the bugs in the last portion would have the peas destroyed before they could be treated. I have bins in the granary that hold 200 bushels, and would like to fit up one for the purpose. Would some one who knows tell us what is the best material to line it with that would be air-tight, yet cheap and durable. I thought of using tin or galvanized iron soldered at all joints. Would the fumes, of the bisulphide attack and destroy either, and if so, what material should we use? We read that the bisulphide of carbon can be poured over the peas, when it will run down through the peas and vaporize, thus driving out the air and filling every space with the deadly fumes of the poison. We are also told that we can put the fluid in a wide, open dish sitting on top of the grain, and that the fumes, being much heavier than air, will settle down among the peas. Which is the better way? Pouring the poison on the peas would leave the top free to be covered by a wet quilt or cloth. The dish would be in the way. I think that pouring the fluid over the peas would be the better way, but am willing to be set right by some one who knows. I intend to draw the peas from the field directly to the threshing machine, and treat the grain immediately afterwards. At that time the bug is very small, usually, and the injury to the pea very slight. If drawn into the barn and threshed in the fall, the bug will have attained its full size, and the mischief will all be done. If all farmers would act together the bug could be exterminated.
H. PETTIT.

Middlesex Co., Ont.

[While readers are preparing to answer this question, we would advise using rather stiff bin boards, and lining the bin on bottom and sides with two thicknesses of heavy paper pasted on, being careful to cover all openings. This is cheap, easily applied, and effective in every way. Between pouring on the liquid and placing it in a vessel, we much prefer the latter, because it would be much more pleasantly done and surer to destroy the bugs in the upper layer of peas. Pieces of wood can be placed across the top of the vessel, and the vessel, which should be shallow, sunken into the grain. The bin should be closely covered with papers, then a wet cloth, and finally a board cover lined with paper the same as the box. The joint between the lid and box need not be sealed or pasted over, because the air must get out as the carbon bisulphide evaporates and takes its place.]

FOOD RATION FOR STOCK BULL.

Previous to this year I depended upon my neighbors' bulls to have my cows bred, but seeing no improvement in my young stock over their parents, I secured a well-bred, choice young Shorthorn bull, and I would like to learn the best ration to give him to keep him in presentable form and sure breeding condition?
YOUNG FARMER.

Bruce Co., Ont.

[The food ration that has been employed with satisfaction for several years at the Ontario Agricultural College, where quite a number of stock bulls are kept, consists of chaffed hay, with about 15 pounds of roots in winter and grass or green feed in summer, and from 4 to 6 pounds of meal per day, according to the size of the animals and the amount of service performed by them. The meal mixture consists of about 4 parts of ground oats to 1 part of bran. The amount of hay is restricted to 15 pounds, and grass or green feed to a little less than very hearty animals would care to eat, because some of the old bulls will over-eat and become lazy. The bulls thus fed were active, reasonably sure, and carried a sufficiency of flesh for breeding purposes.]



BOBS, THE BELOVED.

Private Miller, No 3203, lay in the end cot. The big school-room had been turned into a hospital, and the blackboards stretched around the walls like a band of premature mourning.

Once he had been a very big man, but now his hairy arms that lay listlessly outside the cover were almost the same size from wrist to shoulder, and every bone in his skull showed plainly through the skin. His head had been clipped and so had his beard, but a thick stubble hid his big, gaunt jaws. The doctor said he was probably going to recover, but he did not look it. Enteric fever had made such a wreck of him that death seemed to be written in his deep-sunken eyes and sound in the weak, hollow tones of his voice. He was used to hospital life, having been down to Wynberg twice, in the first six months of the war, with Mauser holes in him. Then he got the fever at Natal Spruit, and this was all that was left to look at—the mere framework of the strongest man in the regiment.

It was very quiet in the bare little room. Occasionally a man muffled, but as a rule they all lay there with their eyelids closed, or else looking blankly up at the ceiling in a slow-breathing, half-waking sleep.

An Army Nursing Sister came into the room quietly. Some of the men followed her with their eyes. She went to the little table near the window and put a little bunch of flowers in a glass. She wasn't very pretty; she was tall and angular, and had prominent front teeth that were continually showing; but her very presence seemed to brighten the room. The little cap with its long, white streamers, appeared to soften the strongly-marked face. After she had arranged the flowers, she turned to the end cot and straightened the pillow with a knowing pull here and a soft pat there. She was very proud of him, was Sister Potter, for twice they had put the little screen around his bed, behind which men are expected to die more privately, as it were, and make their exit as gracefully as they can alone and uninterrupted. But Sister Potter had determined to pull him through, if possible. Not that she was not determined to pull everyone through who came into her hands, but this man especially, for the orderlies said the end cot would soon be vacant. And there were plenty enough waiting out in the tents of No. 5 field hospital to fill it a score of times over.

The volunteer surgeon who had charge of the ward declared that Sister Potter had saved Private Miller by sheer force of will. Everyone knew she had a will of her own, and her word was law, but whatever it was, the screen had been withdrawn and the cloud of death had passed by the end cot to settle suddenly and unexpectedly on a light case near the doorway. The Sister had not said anything to her patient as she arranged his pillow. She had simply smiled at him, more with her eyes than her lips, which were open continually. She felt his brow with her long cold fingers. No. 3203 looked up at her. He did not smile in return, but started to say something, and after one or two efforts came out with it weakly:

"Is ta little mon comin' ta see me?" he asked.

The nurse did not reply at first. It was the same thing he had said over and over again in his delirium: When was the little man coming? Why wouldn't they let him in? He was just outside there asking for Private Miller. Over and over again in all sorts of ways it had been repeated; as a question, a complaint, or a request. Now here he was without a degree of fever, and yet with the same words on his lips.

"Oh, he's coming soon, but I suppose he is very busy now," said the nurse quietly, and as she spoke it was evident wherein lay her power and charm. It was her voice so low and sweet and comforting. Many a poor fellow had listened to it and never known why he felt better. Many had found the secret, and questioned her for the mere sake of the sound of her reply. Private Miller only nodded his head slowly two or three times, as if he agreed and was consoled.

In the evening, as is usual with the fever, his temperature rose, and when the nurse came to give him his little bowl of arrowroot, he was a little flighty and would not touch it.

"He waud na coming," he muttered. "He's hard pressed w' ta big fight that's comin' on. I want ta dee—He waud na come."

"No, he couldn't come to-day," said Sister Potter, but perhaps to-morrow.

Then she went out and told the volunteer surgeon; and that night he dined with a member of the headquarters staff.

The convalescents, in their light blue hospital suits with the broad white trimmings, stood up and saluted. A little knot of red-capped nurses in the corridor were in a flutter of whispering. The orderlies standing at the entrance of the wards froze into an attitude of attention. Sister Potter bent over Private Miller's pillow.

"He'll be in in a few minutes," she said.

"Who?"

"The little man. You know you wanted to see him."

"God guide us, I want ta see! be seen? Caud na I get a shave first, eh? weak fingers to his rough, hairy chin. 'I'm disreputable. But you're na meanin' it," he added, weakly. "He waud na take trouble to see the like o' me."

In reply the nurse gave a little soothing caress to his wasted bony hand.

Down the corridor came four or five khaki-clad figures. At the head walked the volunteer surgeon, and beside him, with a strong, quick step, walked a short, well-knit figure clad in an immaculately neat uniform, held in by a broad belt and cross straps. Above it rose a kindly, strong face, with a gentle, almost merry, expression in the eyes. A firm mouth with strong downward lines, yet sympathetic as a woman's, a brow furrowed by care and work, and a voice that, like the nurse's, made one's heart warm to him, completed the man.

It was the "little mon," Bobs, the beloved!

The occupant of the end cot caught sight of him just as he entered. He struggled to rise, but Sister Potter's hand restrained him. He saluted, none the less, with a swift movement at first, and then a drop to the counterpane, as if the effort had been too much for him. His face flushed, and his breath heaved. For an instant the Sister looked at him nervously. The other men in the room, who were all convalescents, rose to a sitting posture. The Field Marshal took them all in with a sweeping kindly recognition, and walked to the end cot quickly. He sat down on the edge and took the big hairy paw in his.

"Well, Miller," he said, "I've come to see you. They tell me you're doing famously, and soon will be out there sitting in the sun."

The man could not reply. His eyes shifted from the Field Marshal's face to the hand that was holding his own. Two or three times his lips moved, but he could not speak. But the little man was talking again.

"And now I'm going to tell you what we're going to do with you," he went on. "As soon as you're strong enough, we're going to send you to England, to home, and then when you come back you're going to get your stripes, for your captain has taken very well of you. You were wounded at Belmont, I understand, and at Koodersberg, weren't you?"

But Private 3203 could not even move his head in reply. He just looked and looked; so the Field Marshal gave him a

slight farewell hand grasp, then a friendly nod, and with a word that included all the others and an answer to their salute, he took his staff and his presence from the room.

As for Private Miller, he looked up at the Sister, smiled a wan smile and faintly dead away. But when he came to himself the first words he said were those: "D'ye ken the little mon; he took my hand. A'am to get well soon! He took ma hand."

THE QUIET HOUR.

The Presence of God.

"If we with earnest effort could succeed To make our life one long connected prayer, As lives of some perhaps have been and are,— If,—never leaving Thee,—we had no need Our wandering spirits back again to lead Into Thy presence, but continued there, Like angels standing on the highest stair Of the sapphire throne,—this were to pray indeed! But if distractions manifold prevail, And if in this we must confess we fail, Grant us to keep at least a prompt desire, Continual readiness for prayer and praise— An altar heaped and waiting to take fire With the least spark, and leap into a blaze!"

Moses had been given a great charge, and felt overwhelmed by the weight of responsibility. How true to nature is his appeal: "See, Thou sayest unto me, bring up this people, and Thou hast not let me know whom Thou wilt send with me." He could not succeed in such a tremendous undertaking if he worked single-handed. Think of the gracious answer—an answer that rings joyously down through thousands of years, bringing courage and hope to the servant of God to-day as it did then—"My presence shall go with thee, and I will give thee rest." Rest! Surely in this age of rush, when everybody is hurrying to overtake everybody else, and innumerable occupations distract the mind, the prospect of rest is most desirable. Not rest after labor, but rest in labor is what we need. How can this restful spirit be obtained? The answer to this question is not doubtful. We are not told that some favored souls may find it, while others are forced to struggle vainly with anxiety and worry. The promise is for all that labor and are heavy-laden. "Come unto Me," the Master says, "and I will give you rest."

Our answer to this promise—which is also a command—should be prompt.

"I need Thy presence every passing hour; What but Thy grace can foil the tempter's power? Who like Thyself my guide and stay can be? Through cloud and sunshine, Lord, abide with me!"

But, if the presence of God brings rest, why are we not more restful? We know, as a matter of fact, that He is always with us, but we too often fail to realize His nearness. We struggle on wearily, determined to do our best, but too often forgetting to look up to our dear Lord for the help and encouragement which can brighten the dull hours like sunshine. In the morning we dress in a hurry, and rush through a prayer which is often little better than those ground out by the "praying machines" of Thibet. Such prayers may be better than nothing—they are at least an acknowledgment of God—but why do we open the door of a great treasury and then shut it again and go empty away?

"Can it be that I rose in the morning, And took up the work of the day, With its cares and its crosses so heavy, Without kneeling a moment to pray? Can it be that I took of life's blessings, With no thought of my God's loving care, That day after day is about me, Without even one moment of prayer?"

It is not want of time that hinders us from praying. Our Lord has cautioned us against valuing prayers by their length. One real look up into His face, one earnest appeal for help, or even the thrill of gladness which comes from kneeling quietly at His feet without a word, can make one who waits on the Lord renew his strength. He can "mount up with wings," or, in other words, do each appointed duty gladly and joyfully as unto the Lord.

My dear friends, I have received many kind messages of encouragement, for which I return very grateful acknowledgment, and I do really try to make this Quiet Hour helpful. Will you stop reading it for a little while now, and realize that Christ is here, close beside you? Will you lay your burden on Him and then remember that it must be all right if He has the management of it? Morning and evening prayers are a necessity to anyone who is trying to live a spiritual life—as surely you are—but praying to God, and then forgetting Him for the rest of the day, will never win for you the fulfillment of the grand promise—"My presence shall go with thee, and I will give thee rest."

"Can it be that at noontide, when resting From the burden and heat of the day, In a cool shady place by the wayside, That there I forgot too to pray? Can it be when my day's work was ended, And I rested from toil and from care, That I never once turned my face upward To commune with my Father in prayer?"

In order to enjoy the rest and refreshment of communion with God, it is not always necessary to know beforehand exactly what we are going to say. In a conversation with any friend, we don't usually plan out our topics, but one thing leads to another. If the friend is very dear, the pleasure of being with him is generally more to us than anything he may say. Friendship with God, and communion with Him, is far more than prayer or praise. To live with God day after day is to become gradually transformed into His likeness. Like mirrors turned always towards the Sun of Righteousness, catching the light and reflecting it, some people show quite

plainly that they have "been with Jesus." There is no need to talk about it, the face shines with an inward light, even as the face of Moses shone when he had been talking with God.

Perhaps you feel that your life is being wasted. You have grand and noble ideals, but, where you are placed, it is impossible to carry them out. Remember the presence of God! He is with you, and prepared to give you the victory right here where He has placed you. All the little tiresome duties, which seem to amount to so little when done, become grand and important when taken one by one from His hand. If you forget Him all day long, no wonder you get cross and impatient when little vexations and interruptions annoy you. If you really love Him, and remember that each of these is an opportunity of winning a victory, you will fight as a soldier should under the eye of his Captain.

"No wonder the day seemed so lengthened, And its burdens so heavy to bear, And I so impatient and fretful, When I ne'er offered one word of prayer! God pity the soul that is living So far from his Father away, That in all of life's bane and its blessing He never once thinketh to pray!"

HOPE.

Clarissy Ann's Recipes for Layer Cakes.

When I first left school and took to cooking, I was most ambitious to learn how to make a really good layer cake, one of those light, moist, spongy ones, that taste "just right." I got recipe after recipe, and tried time after time, with heated face and anxious heart. But woe, woe was me! What capers those cakes cut! One would be flat, another would rise quite beautifully, but would be hard and dry throughout; another would look very well outside, but would be full of great holes! However, I kept at it bravely, until at last a lady in Illinois took pity upon me and volunteered to give me minute instructions in the art of layer-cake making. From that time to this I have never had a single failure in getting a moist, delicious cake, and I take much pleasure in passing on her instructions for the benefit of any other young housekeeper who may be having similar trouble with layer cakes. I will subscribe two recipes—both good—the first of which is my "Illinois" cake: Take one cup of butter, and cream it with a knife. Into this beat thoroughly two cups of white sugar. Have three eggs beaten separately; beat them in with the creamed butter and sugar, also one cup of sweet milk. Have three cups of flour in a sifter; into this put one and a half heaped teaspoons of good baking powder. Sift in gradually, and beat the mixture well. Pour on layer tins lined with greased paper, spreading the batter very evenly, and bake in a rather hot oven. Do not open the door too often, nor shut it hard. Test the cake with a clean broom splint, and do not leave it in the oven a minute after it is done, as it will dry out. This cake forms the foundation of many cakes. You may bake it in two, three or four layers. Between these you may put soft custard alone, or custard spread with any kind of fresh or canned fruit, bananas, pineapple stewed and shredded, sliced strawberries, etc. Chopped nuts are very nice mixed in with the custard, or if preferred, no custard may be used, but simply fruit jelly or jam. I usually make the custard with sweet milk, a very little sugar, a heaped teaspoon of cornstarch, and a few drops of vanilla; an egg may be added if preferred.

The second recipe I got from a Toronto lady. It is very good, and somewhat cheaper. "Toronto" cake: Cream one quarter cup of butter and a cup of white sugar; beat in one half cup of sweet milk; when well beaten, put one and a half cups of flour in the sifter, stir half of it in and beat; then into the flour still left in the sifter put two teaspoons baking powder, sift in and beat well; last of all, whip in quickly the whites of three eggs which have been beaten stiff. Bake in two layers, in a rather hot oven. The filling for this cake is made of the yolks of the three eggs boiled with a little sugar, one and a half cups of milk, and one teaspoon of cornstarch.

Both of these cakes may be iced or covered with whipped cream.

Upon one detail I would especially caution you: Never stir the batter for layer cake; always beat it briskly with a first, stiff spoon. The result will be much better if this is done. It is also better, or if preferred, no custard may be used, but simply fruit jelly or jam. The cake cuts more economically, and in more attractive-looking pieces. Besides, it is no longer fashionable (and there is a fashion in cakes as in everything else) to set whole cakes, in their shape, on the table. Instead, they look much better placed in small squares on a napkin in baskets or on fancy cake-plates.

Sometimes one will have trouble in getting cakes to turn out of the pans nicely without breaking. To overcome this difficulty, I use, very successfully, two good wide shingles, covered with oiled paper. When the cake is baked, turn out one layer upon one of the shingles. It will then, of course, be upside down, so one can remove the paper easily. If the paper sticks, moisten it with water, and it will peel off without further trouble. Now turn the cake, shingle and all, over on the other shingle, spread it with custard, and proceed as before until the layers are placed. I find it most satisfactory to make but two layers. The cake may be set away on the shingle until needed for cutting. If made according to the recipes given above, these cakes will keep, even in summer, if set in a cool place, for over a week. When put away thus, it is well to cover them with oiled paper in order to keep in the moisture. They should always be made at least a day before using, as they improve even with two or three days' standing.

Now, I hope that all who may try these recipes may be as well satisfied with them as has been—CLARISSY ANN.

Recipes.

Now when eggs are abundant, and domestic fruit almost out of season, the daily dessert will depend largely upon milk, eggs, and farinaceous preparations. No simple dessert is more nutritious than a well-made custard, which is at once easy to make and economical, and, therefore, well suited for a frequent appearance upon the family table. For a plain custard use four eggs to a quart of milk, with four table-spoonfuls of sugar. Beat the eggs thoroughly, add the sugar, and stir, then a little of the milk, stirring until the sugar is entirely dissolved. Mix thoroughly, flavor to taste, and bake. The same proportions will serve for a boiled custard. Put the milk over a double boiler, add the sugar and eggs just before it comes to the boiling point, and stir until it thickens.

COFFEE CUSTARD.

A very rich and delicious compound is made by using a pint of milk, half a pint of rich cream, and half a pint of very strong coffee as the basis of the custard instead of a quart of milk. Orange and lemon custards may be made by first making a syrup, boiling half a cupful of sugar with a very little water, then adding the grated rind and juice of a lemon or an orange; let it boil up and strain it. Use this syrup instead of sugar, adding it last, and bake immediately.

ALMOND CUSTARD.

Put over a quart of milk (half cream is better) in a double boiler; when near boiling stir in the yolks of six eggs with the whites of two; a small cup of sugar, and six a pound of almonds, blanched and powdered to a paste, with four table-spoonfuls of rose water. Stir carefully until the custard thickens; then remove it from the fire and set to cool. When almost cold, stir thoroughly and pour into cups. Use the reserved whites of the eggs in making a meringue, flavor with bitter almond, and put a little heap on each cup. Coffee custard is very nice served in this way.

Ingle Nook Chats.

MY DEAR GUESTS,—

I have been playing "guest" myself, lately, and spent a few days in the city very pleasantly indeed, but returned to the dear old country home more than ever imbued with a sense of the numerous blessings we enjoy. It is true the city affords some advantages of which we would gladly avail ourselves. Opportunities of higher education, of hearing fine music and able lectures, of seeing rare works of art, are among the things that at first glance we appear to lack in country life. After some consideration, however, we must admit that many of these luxuries are within reach of almost all who desire to use them; in some cases their substitutes are above par. Our educational system has become so perfected that each, unless through negligence, may receive a good education—a foundation whereupon he may at leisure build a more pretentious structure—and high schools are plentiful enough to give ample scope for further advancement. Just here I might state that many of the most interesting conversationalists and well-read persons have never attended a high school, but have become so by their own efforts.

We may not hear great singers like Patti and Albani—such treats are beyond many who live in cities, being reserved for the rich—but in the country all may listen morn, noon and night to music such as seldom gladdens the ears of city people, the joyous warbling of the merry song-birds as they carol and trill for the sheer delight of living. All the greatest lectures appear in our newspapers, and frequently in pamphlet form, and may be ours for a trifle.

As to works of art, either in painting or sculpture, how far are they, even when most perfect, from equalling the animate objects all about us! What floral painting could justly depict the beauty of a field of

"Clover and cowslip cups,
like rival seas,
Meeting and parting as the
young spring breeze
Runs giddy races, playing
seek and hide."

Or a quiet woodland carpeted with ferns and shy violets? Oh no, let the city folks rave enthusiastically over their imitations, the real objects are good enough for plain country people. I cannot help a feeling of sorrow when I see a fine city square with its smooth-shaven lawn and prim flower-beds, with the inevitable placards, "Keep off the grass"; and little, hungry-eyed children walking demurely along the gravelled paths, when all the while they long to scamper over the inviting green and fill their hands with the forbidden fruits of the flower-beds. How they would revel in our simple lanes, where golden buttercups, snowy daisies, saucy black-eyed-susans and the sweet pink and white clover grows in wild profusion, smiling up into our faces and pleading to be gathered and petted!

And yet the average city resident has unbounded commiseration for just such poor benighted "hay-seeds" as you and I, my friends. One lady spoke to me of the narrowness of country life. Narrowness! When we have the broad blue dome of heaven in its changeable glory, and such wondrous vistas of field and woodland ever before our eyes, and they are hemmed in between high walls (what avails it that they be of brown stone?), with burning pavements and glaring glass. To foolishly imagine that the feeble works of finite man can approach the sublimity of God's own beautiful creation! Their sky can be gazed at only through a network of wires, and an unbroken view of a sunset is the privilege of the few. If, then, environment unconsciously leaves its impress upon all, where does the narrowness come in? I wonder if the speaker knows what it is to be able to say with the poet—

"My heart leaps up when I behold
A rainbow in the sky!"

Surely she cannot have found "tongues in trees, books in the running brooks, sermons in stones, and good in everything." And even were it true that (let me quote the speaker) "most country people have not an idea apart from their cows and butter-making," are they not as well employed as their more literary (?) friends whose stock-in-trade is too often the latest scandal, the dresses worn at the last fashionable function, or the merits of some recent frivolous novel of muskroom popularity?

OUR COMPETITION.

Contest X. had but few competitors. However, the prizes have been awarded to the following: "Nancy," Elderton, Ont.;

A. L. McDiarmid, Ormond, Ont., and Verne Rowell, Bryanston, Ont. In June 15th issue I announced a Memory Gem Contest, and I hope the result will prove an emphatic refutation of the calumny that we of the country have no ideas apart from our necessary duties. See last issue for particulars, and everybody send in a list.

"Morag"—I believe the answer to your query is twenty-two or twenty-three. Is that any better than at Sherbrooke?

THE HOSTESS.

Ingle Nook Chats, Pakenham, Ont.

Summer.

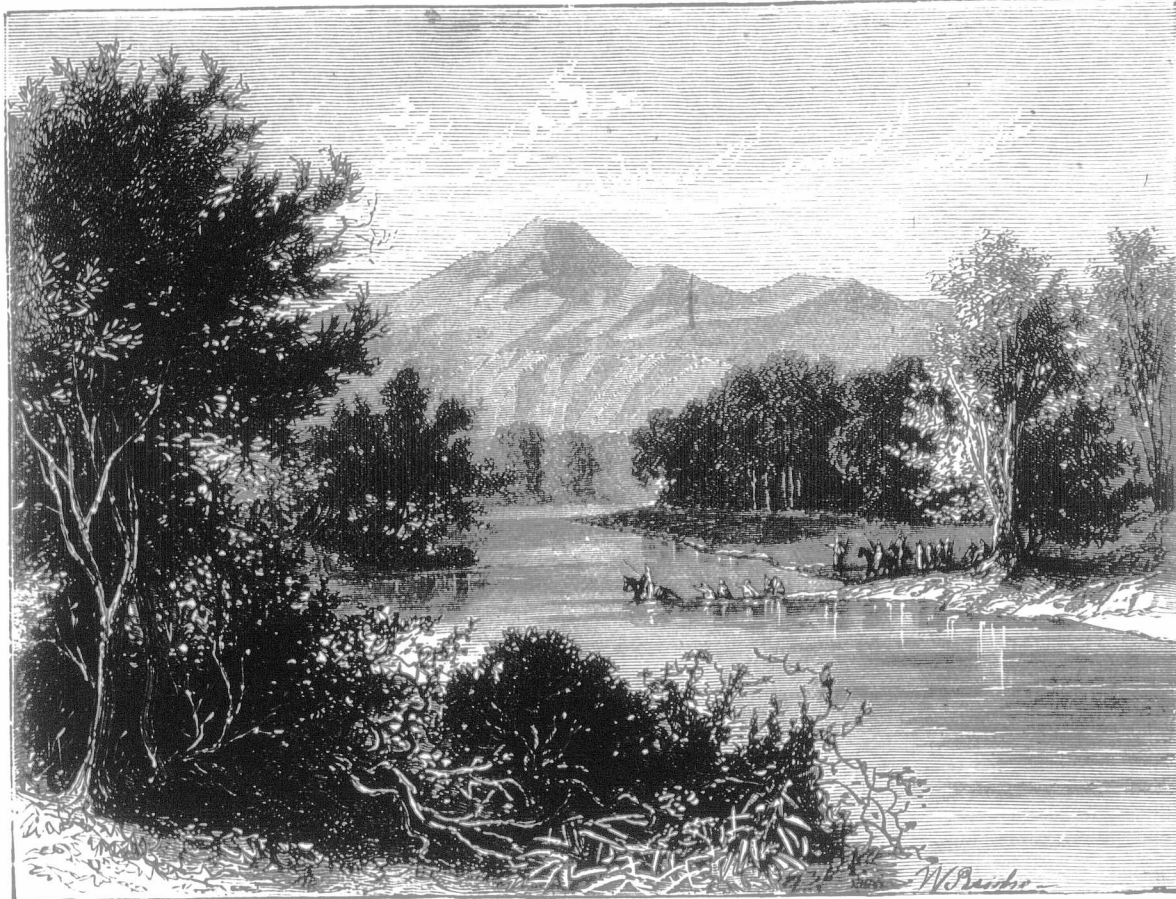
Oh! summer-time, of lovely flowers,
And gentle gales, of scented bowers—
Sweet perfume lingers everywhere!
In blossoms sweet, of fruits so fair;
The meadows, where the new-mown hay
Scents the air all through the day.

The sky, with clouds of azure blue,
Each day brings us beauties new.
Lovely river floating by,
Bears the breeze of summer nigh.
Birds of beauty, singing free,
Carol songs in joy and glee.

Lambs are skipping o'er the grass—
Pretty, playful as they pass.
The animals seek the shady dell,
And drink the water from the well.
Children, playful, dancing by,
Pick the flowers and berries nigh.

Insects, flies, and buzzing bee—
Lovely butterflies we see.
We shall seek the pleasant shade,
And praise our God, who all hath made.
Scents of summer, oh! so fair,
What shall now with it compare!

H. S. PICKETT.



SUMMER.

The Symbolism of Flowers.

It is strange what a powerful hold mythical stories and anecdotes of uncertain origin can take upon our minds, while solid history is forgotten. King Alfred's misadventure as a cook we well remember, while few of us can give the actual part played in history by that king. And now, "Bout knee-deep time in June," is not a bad time to run over the myths and stories of the origin of the floral emblems of some of the countries. One of the earliest uses, perhaps, of plants as symbolic of a kingdom was that taken by Athens of the violet and olive—

"The glorious old town,
Of immortal renown,
With the noble Ionian violet crown";

while Minerva bestowed the gift of the olive tree upon the city of Athens as the greatest boon she could offer. Then we read of the Egyptian lotus, which was dedicated to Isis, and it is evident that the Pharaohs and the people of the Nile Valley held it to be a national emblem, for the sculptors were never weary of producing representations of the grand and massive blossoms. Passing the dark ages, we shall glance at the age of chivalry, where we find the floral language surviving in the badges of heroes. Geoffrey of Anjou, when on a crusade, placed a sprig of broom (*Planta genista*) in his helmet as a token of his lowliness and Christian humility. His descendants adopted the badge, and thus came the family name of the Plantagenets, or wearers of the broom plant. France appears to have been one of the first of European nations to

adopt a national flower as a badge, in the flag bearing the "Fleur-de-lis," which has figured on many a well-fought field, and made a war-cry of chivalry.

"Now, by the lips of those you love, fair gentlemen of France,
Charge for the golden lilies now—Upon them with the lance!"

The four emblems of the United Kingdom all appear to be entitled to claim a respectable antiquity. The splendor of the blossom of the rose might well commend that flower to the good graces of that bold and haughty nation which has taken the lion as its emblem in the animal nature, but the special monarch who first introduced the emblem I do not know. After the historic quarrel in the Temple gardens between Richard Plantagenet, representative of the House of York, and the Earl of Somerset, representative of the House of Lancaster, the rose seems to have become a favorite badge with the royal houses. It was during that quarrel they adopted the white and red roses as their respective badges, which sent "a thousand souls to death and deadly night." Years after, the two were blended into the "Tudor rose," without a thorn, which shed only fragrance and blessing upon devastated England.

The thistle appears to have been adopted as a symbol of "Caledonia stern and wild" at a very early period of the middle ages. One dark night a band of Danish sea-rovers were marching to assail the encampment of a band of patriotic Scots, who were in arms to defend their native land. The invaders were close to the spot where the Scots were slumbering, when one of the barefooted Danes stepped on a thistle and set up a howl of agony. The Scots awoke and sprang to arms, drove off the Danes, and in gratitude to the thistle made it the national emblem of the "Land o' Lakes," with the appropriate motto of "Nobody injures me unscathed."

The origin of the adoption of the shamrock as the emblem of Ireland is placed in the century when St. Patrick was preaching to the Celts. In order to illustrate from nature the theological doctrine of the Trinity to his pagan hearers, St. Patrick bent down, and, plucking a piece of shamrock, held it up as symbolic of the Almighty "Three in One." If this story be not true, it is at least very prettily imagined.

In Japan, the chrysanthemum is highly esteemed as a symbolic flower, while Mexico has its cactus. Napoleon selected the violet as his favorite flower, and in England, upon each anniversary of the death of Lord Beaconsfield, a primrose blossom is worn by his admirers in his memory. So we find right through the world's history, flowers have held a very important place in romance, story and song. Here we must mention the pine badge of Roderick Ohn, whom the Highland boatmen greeted with

"Hail to the chief who in triumph advances,
Honor'd and blest be the evergreen pine!"

And last, but not least, our own beloved maple leaf, a symbol grand and true.

All over the world and into all ages, she has been wandering this time, has this—

ONE OF THE GIRLS.

The Virtues of Strawberries.

A medical writer says that the strawberry must be classed with the most wholesome production of the vegetable kingdom. It is recorded of Fontenelle that he attributed his longevity to them in consequence of their having regularly cooled a fever which he had every spring, and that he used to say—"If I can but reach the season of strawberries!" Boerhaave looked upon their continual use as one of the principal remedies in cases of obstruction and viscosity, and in putrid disorders. Hoffman furnished instances of obstinate disorders cured by them, even consumption, and Linnæus said that by eating plentifully of them he kept himself free from gout. They are good even for the teeth.

Two strangers were talking on the cars, and one was a portrait painter. After some time, the other inquired the painter's business.
"I am an artist," he replied modestly.
"Ah," said the other, "what do you draw?"
"Faces."
"And I am an artist," continued the other.
"Ah!" exclaimed the painter, with a smile of interest, "and, pray, may I ask what do you draw?"
"Teeth," said the other. "I am a dentist." Then the artist got up and left the seat.

THE CHILDREN'S CORNER.

Maggie's Ride.

Our darling pet, wee Maggie,
Came down from the city one day—
Shall I tell you, in rhyme,
What a jolly good time
She had with the dogs and old Tray?

For Tray was a fine old donkey,
Sweet tempered and gentle and good;
And Maggie would ride,
With the dogs at her side,
For hours through the fields and the wood.

Aunt Annie was ready to catch her,
If ever she happened to fall;
And sometimes, you see,
Gyp rode on her knee—
Which he didn't enjoy at all.

Poor Maggie cried sadly at parting,
"I want to stay here!" she declared.
But mother said "No,
We really must go!"
So back to the city they fared.

C. D.

Between Ourselves.

Very few papers have come in for our competition about interesting animals. What is the matter? I should think it would be a very easy subject to write about. Even creepy-crawly creatures, like snails, are very surprising when we come to study their habits. I don't want you to experiment on them, though, as some clever men have done, without considering their feelings. One man kept a snail without food for a year and a half. Another put some snails in a closed box, without light or food, and almost without air, and kept them there more than three years. Some of the unfortunate creatures lived through the experiment, but I am sure they didn't enjoy it very much. Snails are wonderfully strong, too.

No wonder they are able to drag their houses after them; for one dragged for ten minutes a stone that weighed sixty-seven times as much as itself. If you could do that you would be able to drag several thousand pounds after you. Multiply your weight by sixty-seven and see if I am not right. A snail goes into his house in the winter and fastens up the entrance with a sort of plaster. How would you like to have nothing to eat for months. Mr. Snail makes up for his long fast when the spring comes, for then he eats like an ogre.

Trapdoor spiders are very interesting, too. They make their houses in the ground, and cover the top with a round lid—just like a trapdoor with a hinge. I once saw one that had been dug up and dried. When the lid was shut down it fitted perfectly. There were no badly-fitting joints, and no one could see that there was a door there. A man in Australia once found one of these spider houses with a door made of a sixpence. The coin was covered on top with silk thread, and underneath it was coated with mud and silk. It must have been swept out of the tent with rubbish, and then found by the spider, who probably thought it was just the thing he wanted. Was that instinct or common sense, do you think? A house made of silver and silk must have been very grand; but I don't think it would be very comfortable to live in a house made entirely of hairpins, as did a Paris pigeon of which I once read, but they must have made rather a hard bed.

As this has been a chat about animals, perhaps I had better close with a description of some waterproof folk:

"I looked from my window,
And, dancing together,
I spied three queer people
Who love the wet weather.
The turtle, the frog, and the duck all joined hands
To caper so gayly upon the wet sands.

"The turtle was coated
In shell, to defy
The pattering rain-drops,
And keep him quite dry.
The frog in green jacket as gay as could be—
'My coat will shed water—just see it!' said he.

"The duck shook his web feet
And ruffled his feathers;
Cried he, 'Rain won't hurt me!
I'm dressed for all weathers.
And when I can see the clouds frown in the sky,
I oil my gray feathers and keep very dry!"

COUSIN DOROTHY.

A dentist may be a jolly good fellow, but he has a way of looking down in the mouth that is not nice.
A photographer has a way of taking things that would not be tolerated in any other line of business.

Travelling Notes.

I am afraid that I have seemed sadly to neglect my readers in the ADVOCATE, not having sent them any notes of travel for some time. The fact is, as my little message of the 22nd of May will already have told them, we two Canadians have been seeing and doing so much for the past two months that we have reached our temporary quarters at night too late and too utterly tired out to write two consecutive lines. The simple enumeration of the places we have visited since the date of my last notes will be our best plea for forgiveness: All galleries, and, of course, the Royal Academy; all sorts of museums and art collections, Hampton Court, Kew Gardens, Richmond on the River, churches, cathedrals, castles, general post office, Royal Mint and Royal Mews, Zoological and Royal Botanic Gardens, Hyde Park, Rotten Row, Madame Tussaud's Wax Works, Tattersall's Stables, the Crystal Palace, Royal Military Exhibition, Grand Opera, etc., etc., etc.

London is certainly the most wonderful city in the whole world, or so it seems to a simple Canadian whose pen cannot half express the impression it leaves upon her mind, and whose powers of description fail her when she desires to share with her friends in Canada the admiration with which she is inspired. Perhaps at first the strongest impression is that of a personal sense of one's own insignificance, one's incompleteness, one's educational shortcomings, one's sense of loss in that in earlier days one let opportunity after opportunity slip by of laying a good foundation for maturer years to build upon when chances of travel should come. Well, my chances have come, and instead of planting my feet, as it were, on familiar ground, on ground which early study had made my own, I feel as one who gropes, and who is glad of a stray twinkle of light here or a flash there to enable me to recognize the

on the Moor's Bank, and noted others evidently on pleasure bent, we wondered what threads they were weaving into the fabric of their lives, and how much the world would be the better or the worse for the glorious opportunities with which happy circumstances had endowed them.

After Oxford, my friend and I found ourselves once more numbered amongst the six millions or more of the inhabitants of England's metropolis, more people than we have all over Canada, from the Atlantic to the Pacific. Like the now famous microbes (the healthy species, of course), no one appeared to "mark us"; we were free to come and go to any part of the vast city, at any hour, or by any means of locomotion. The masses, the crowds, are so quietly disposed, so imperceptibly and wisely restrained, that we might have been walking through the streets of our own dear little Ontario city, so far as our sense of safety was concerned. We soon became familiar with the different modes of transportation, and after sampling every kind, including steam underground, electric underground and overground, automobiles, hansom cabs and 'busses, we are now generally content to sit on the top of a penny 'bus and take in the scene, in common with the swaying mass of humanity which shares with us the accommodation of that elevated position. A wonderful electric railroad, called the "tuppenny tube," is new since my last visit to London. It is 85 feet below the surface, and runs a distance of six miles through the heart of the city, from the Bank to Shepperd's Bush. You are carried up and down by lifts, and of course this is the fastest way of getting over the distance. It is called "two penny" (four cents), as that is the fare charged whether you go by it only a part or the whole or the way.

The last trip I will record is a run into Kent, where we spent a week pleasantly in Dickens' Land,

Rochester, Gravesend and Cobham. Rochester, a quaint little town, stands almost exactly where it did in the old Pickwickian time of 1827. Few, perhaps, know how much the place is bound up with the great writer and his works. Here is the old castle described by Jingle; Fort Pitt, where Winkle's duel took place; the old Bull Inn, scene of the ball; the Cathedral, Eastgate House, Minor Canon Row, all described in Edwin Drood; the terrace at Chatham, close by, where the Dickens family lived; the Seven Poor Travellers' hostelry; Gadshill, Cobham Hall, with its almshouses, gallery of pictures, Dickens' Chalet, and the old Leatherbottle Inn to which Mr. Tupham retired from the world,—a cluster of memorials of intense interest to all true Boz-zians.

The whole of England is one great park and flower-garden. The May is out and in full bloom, and so are white and pink horse-chestnut trees. The weather is perfect, although we are told that the farmers need rain badly, and they probably will have it long before you get my letter. Do not expect us home just yet. I am now at Eastbourne, within sound of the glorious sea, and I hope to get to the Glasgow Exhibition in August. With engagements three deep, I do not know how soon to promise that you shall have another letter from—
MOLLIE.

How Long Do You Sleep?

Natural sleep is something that can't be regulated by any formula. The body takes what it needs, be it much or little, and the necessary amount varies with the individual. In a general way, four hours is the minimum and ten hours the maximum for people in fair health. Either more or less is a pretty sure sign that something is out of gear—usually something in the brain.

Says a physician, "I have two patients who sleep only four hours and keep in tolerably good condition. Both are middle-aged men, and neither of them works very hard. Nature can repair its losses in four hours of unconsciousness. In many other people nearly three times as long is required. The nerve cells work more slowly; why, nobody knows."

"The queerest case that ever came under my personal observation was that of a bookkeeper who used to sleep two or three hours a night through the week, and on Sunday would catch up in a twenty-four hour nap. That is no exaggeration, but an actual fact well known to all his intimates. He seemed to be able to store away nervous energy as a camel stores water. His general health during the twelve or fifteen years I knew him was excellent."



MAGGIE'S RIDE.

Help One Another.

Do whatever you can to help every struggling soul, to add new strength to any staggering cause—the poor sick man that is by you, the poor wronged man whom your influence might vindicate, the poor boy in your shop that you may set with new hope upon the road of life that is beginning already to look dark to him. I cannot tell you what it is. You know your duty. No man ever looked for it and did not find it.—*Phillips Brooks.*

Humor, a Sweetener of Life.

Whilst I do not for one moment believe that amongst our readers are to be found many, or, indeed, any of those who are said "to go through life whining," yet there may be some so weighted by life's real cares and responsibilities, or so harassed by its petty worries, that they positively cannot realize that life has its humorous as well as its sad side. To them I would recommend the cultivation of humor as a sweetener of toil and as a panacea for many a trial. I would assure them, also, that it is a quality which can be cultivated and will reward cultivation. In humor we may find a bright and sunny pathway towards the solution of many of our problems, the magic key to unlock many a treasure-store of wit and wisdom, the "open sesame" to many hearts. Some may be "so resolutely bent upon being serious" that to them no humorous side of any question presents itself. So much the worse for themselves, but so long as they will let the rest of us have our little laugh sometimes, we shall be content to sit at their feet and at least try to temper our wit with their wisdom.

Life has its humorous as well as its serious aspects. Laughter is as human as tears, but whilst the tears may lead to despair, laughter, which is the daughter of hope, is much more likely to cheer the heart and strengthen the hands for the struggle against those ills which have caused the tears. It will win more able volunteers to aid in that struggle than could even the most heartrending cry of the despairing soul. Laughter is akin to tears; paths are blended with humor. They are as twin sisters and can present a dauntless front when hand is joined to hand in loving grasp to start on errands of mercy or to encounter the foe.

Mr. Edgar Wilson Nye, better known as Bill Nye, writing of a visit he had recently paid to Dean Hole, spoke of him as not being one of those who "think they are pious when they are only bilious." "I have always sort of wondered," wrote Mr. Nye, "why the children of a king should go mourning all their days, and I have often tried to settle in my own mind the question why the clergyman and the man who rides a bicycle should never smile. It seems to me that if I could be as good as many preachers appear to be, I would be radiant with gladness all the time. You have proved to me that a clergyman may have a good time, good health and long life without injury to his piety. It is fully as unjust to put down all clergymen as enemies to humor as it would be to assume that all humorists were destitute of religion. So you see, my dear friend, that the general public has a wrong idea of us both." I honestly believe that there is hardly any situation so hopeless but that, if not an actual remedy, yet an amelioration can be found for it when its humorous side is sought for. Even the dear old lady who had only two teeth in her head found her consolation in her little joke that although she had but two, they were "one top o' t'other, and so she 'might have been wuss off.'" Some of us, too, may recall poor Tom Hood's "Dear me, Fanny, that's a monstrous deal of mustard for a very little meat," when his sorrowing wife, upon whose face he sought to raise a smile, brought the big mustard poultice to lay upon his emaciated chest; flashes of merriment breaking forth even to the last moment of his life, in spite of almost unendurable physical pain and mental anguish. Of Hood's wit we are told "it was always kindly, gracious and sympathetic; never caustic, never coarse, and never tainted with distrust of the goodness of God."

I would submit that I know no factor more helpful in making the rough places smooth in our daily lives than a helpful and healthful sense of humor. It can act as did the bright sunshine in the well-worn old fable of the wind and the sun both trying to make the traveller cast off his cloak. The wind only made him hug it the tighter, whilst the merry sunbeams wooed him to cast it off from very lightness of heart. Where the most solemn protests fail, often a little playful remonstrance will gain the sought-for end; and of this I am convinced, that many a household hurricane has been averted by the comic vein of the offender or offended. Let us advocate on both sides the cheery, happy spirit which can turn a domestic calamity into a joke, and thus make it possible for even a hungry man to go minus a promised dainty without a scowl or without the administering of a scolding to the perhaps equally disappointed wife. Truly, humor between husband and wife is an inestimable boon, and its absence little short of a calamity. Try it, my friends, try it. H. A. B.

Ideas, Humorous and Serious.

It is a well-known fact that oil and water will not mix. If this were only true of milk and water how happy we would be.

Everything goes at a rapid pace these days. Even the dressmakers boldly assert that the colors are fast.

A slipper used judiciously will often make a dull child smart.

A man who tries to reform his life on the instalment plan, generally get behind in his payments.

A Pig in the Fence.

Didst never observe when a pig in the fence
Sends forth its most pitiful shout,
How all of his neighbors betake themselves there,
To punish him ere he gets out?
What a hubbub they raise, so that others afar
May know his condition and hence
Come running to join them in adding a scar
To the pig that is fast in the fence.

Well, swine are not all of the creatures that be,
Who find themselves sticking between
The rails of the fence, and who strive to get free
While the world is still shoving them in:
Who find that the favor they meet with depends
Not on words, but on dollars and cents;
And that 'tis but few who will prove themselves friends
To the pig that is fast in the fence.

Shuffle-shoon and Amber Locks.

Shuffle-shoon and Amber locks,
Sit together, building blocks;
Shuffle-shoon is old and gray,
Amber locks a little child,
But together at their play
Age and youth are reconciled,
And with sympathetic glee
Build their castles fair to see.

"When I grow to be a man"
(So the wee one's prattle ran)
"I shall build a castle so—
With a gateway broad and grand;
Here a pretty vine will grow,
There a soldier guard shall stand;
And the tower shall be so high
Folks will wonder, by and by!"

Shuffle-shoon is old and gray:
"Thus I builded long ago;
Here a gate and there a wall,
Here a window, there a door,
Here a steeple, wondrous tall,
Rising ever more and more!
But the years have leveled low
What I builded long ago."

So they gossip at their play,
Headless of the fleeting day;
One speaks of the long ago,
Where his dead hopes buried lie;
One with chubby cheeks aglow,
Prattling of the by and by,
Side by side they build their blocks,
Shuffle-shoon and Amber locks.

Eugene Field.

Harmonies in Color.

Black and white.
Blue and gold.
Blue and orange.
Blue and salmon.
Blue and maize.
Blue and brown.
Blue and black.
Blue, scarlet and lilac.
Blue, orange and black.
Blue, brown, crimson and gold.
Blue, orange, black and white.
Red and gold.
Red, gold and black.
Scarlet and purple.
Scarlet, black and white.
Crimson and orange.
Yellow and purple.
Green and gold.
Green, crimson, turquoise and gold.
Green, orange and red.
Purple and gold.
Purple, scarlet and gold.
Lilac and gold.
Lilac, scarlet and white or black.
Lilac, gold, scarlet and white.
Lilac and black.
Pink and black.
Black, with white or yellow and crimson.

Buying Fame.

"The only capital needed to embark in the profession of literature is a bottle of ink and a versatile pen."

She had read the words and pondered over them more deeply than usual, knitting her white brow until the golden curls on her forehead peeked down into her eyes to see what it all meant. Visions of a future spangled with plaudits and bright with fame rose before her.

Yes, she would adopt this fourth profession.

Putting on a love of a hat and a dear, dainty little wrap that hugged her close, she started out to purchase the necessary outfit. Reaching the bookstore, she looked out from under her drooping plumes and coquettishly asked for a bottle of the very best ink. When placed on the counter before her it was like an elixir, so many grand possibilities flashed through her head.

"And now I want a pen." On being asked if there was any make she preferred, she hesitated and then said:

"Yes, but I must forget what it is. It's like vermicelli, or varioloid. No, that isn't it. Could it be verdigris or verdancy, now?"

"Really, I don't know," replied the puzzled clerk. "You must be looking for something quite rare."

"Yes, I am; but I've got money to buy it if I only knew what it was."

"By the way," questioned the inspired clerk, "could it be versatile?"

"Yes, that's it. I knew I'd find it. A versatile pen is what I'm looking for."

"I am sorry, miss, but we have none in stock. They are very rare and we have little call for them, as only geniuses use them. You see, the points are all dipped in gray matter and attic salt, and—"

"Gray! Well, then, I don't want one. Gray isn't becoming. I never have it near me." And turning, she walked away, unconscious that she was robbing the world of a literary gem.—*Detroit Press Press.*

The Dawn Fairy.

This morning a wonderful white little fairy
Came glimmering, shimmering up to our lawn,
While Arthur and Ellen and Lucy and Mary
Lay still in their beds with the curtains all drawn.
She rode in a boat on the crest of the waters
That ripple all day at the foot of the wall;
O wee bonny baby and dear little daughters,
To think you were sleeping and missing it all!

The ripples grew bright with a radiant wonder;
The clouds turned to crimson and gold overhead,
And round her boat's keel, and above it, and under,
The sun made a path for the fairy to tread.
The wind o'er the water came laughing and kissed her;
The woods waved "Good-by!" when she went from the shore.
To think you were sleeping, my dearies, and missed her!
And what if she never should come any more?

Now, Arthur, and Ellen, and Lucy, and Mary—
(Come close to my knee, and look up in my eyes)—
If ever you want to be sure of the fairy,
You must wake when the sunrise is lighting the skies;
Look out of our window, and over the water,
And watch where the sun makes a glimmering track,
And then you will see the bright pathway that brought her,
And maybe the sails of her boat going back.—*Mabel Earle.*

Facts that Few People Know.

"Cups that cheer but not inebriate" are first mentioned by Cowper in "The Task." The allusion is to teacups.

"Facts are stubborn things" is an aphorism first used by Le Sage in "Gil Blas." It has since become proverbial.

The expression to "rain cats and dogs," indicating a severe shower, is found in Dean Swift. It is supposed to be of proverbial origin, and much older than his time.

"Fiasco" means a bottle or flask. When the Italian glass-blowers detected flaws in the vase they were blowing, they made an ordinary bottle of the failure, and hence the name.

The phrase "to die in the last ditch" was first used by William, Prince of Orange, who, during the war with France, was asked what he would do in case the troops of Holland were defeated in the field, and who replied: "I will die in the last ditch."

"To put one's foot in it" is a country saying. The milk is drawn from the cows into buckets, and it is an easy matter for a clumsy fellow to put his foot in the bucket while it is standing on the ground.

The most common of all quotations, "Fresh fields and pastures new," comes from Milton's "Lycidas"—or rather in its correct form it does. "Fresh woods and pastures new" is what Milton wrote.

To "pile on agony" is popularly supposed to be an Americanism. It is found, however, in one of the letters of Charlotte Brontë.

"In the same boat," an expression often given by English authorities as an Americanism, really dates back to the first century, when it was used by Clement I., Bishop of Rome, about the year 100, in a letter to the Church of Corinth.

To "face the music" is a metaphor borrowed from the stage, where the player comes to the front and faces the orchestra.

To "take the cake" is an expression which seems to have originated among the colored people of the Southern American States. Cake-walks, or promenades, in which cakes were offered as a reward for grace of demeanor, were formerly common in the Southern States, and are even now known in many localities.

Success Won by Determined Men.

In a recent book, Orison Swett Marden gives the following instances of the power of determination, backed by hard work, to bring success:

"Do you know," asked Balzac's father, "that in literature a man must be either a king or a beggar?" "Very well," replied his son, "I will be a king." After ten years of struggle with hardship and poverty he won success as an author.

"Why do you repair that magistrate's bench with such great care?" asked a bystander of a carpenter who was taking unusual pains.

"Because I wish to make it easy against the time when I come to sit on it myself," replied the other. He did sit on that bench as a magistrate a few years later.

"There is so much power in faith," says Bulwer, "even when faith is applied but to things human and earthly, that let a man but be firmly persuaded that he is born to do some day what at the moment seems impossible, and it is fifty to one but that he does it before he dies."

The author, continuing on the same subject, says: "There is about as much chance of idleness and incapacity winning real success, or a high position in life, as there would be in producing Paradise Lost by shaking up promiscuously the separate words of Webster's dictionary and letting them fall at random on the floor. Fortune smiles on those who roll up their sleeves and put their shoulders to the wheel; upon men who are not afraid of dreary, irksome drudgery, men of nerve and grit who do not turn aside for dirt and detail."

"Circumstances," says Milton, "have rarely favored famous men. They have fought their way to triumph through all sorts of opposing obstacles."

"We have a half-belief," said Emerson, "that the person is possible who can counterpoise all other persons. We believe that there may be a man who is a match for events—one who never found his match against whom other men, being dashed, are broken—one who can give you any odds and still beat you in the race."

Chicago Markets.

Chicago, June 26.—Cattle—Receipts, 20,000; choice steady; others weak. Good to prime steers, \$5.40 to \$6.40; poor to medium, \$4.30 to \$5.30; stockers and feeders, \$3.90 to \$4.75; cows, \$3.75 to \$4.90; heifers, \$2.75 to \$5.10; canners, \$2 to \$2.75; bulls, \$2.75 to \$4.60; calves, \$4 to \$6; Texas-fed steers, \$4.35 to \$5.40; Texas bulls, \$2.75 to \$3.75.

Toronto Markets.

The receipts of live stock at the cattle market here to-day were light—29 carloads, all told, composed of 448 cattle, 331 hogs, 396 sheep and lambs, with 98 calves. The quotations for fat cattle are for stall-fed, unless otherwise stated.

Spring Lambs.—Prices steady, at \$2.50 to \$4 each. Hogs.—Best select bacon hogs, not less than 160 nor more than 200 lbs. each, unfed and unwatered, off cars, sold at \$7; light, \$6.624, and fats, \$6.624. Unculled car lots of hogs sold at about \$6.90.

Table with columns for commodity (Export cattle, Butchers' cattle, Feeder, Stockers, etc.) and price ranges.

Table with columns for commodity (Export cattle, Butchers' cattle, Feeder, Stockers, etc.) and price ranges, including extreme comparative prices.

Receipts of farm produce were 700 bushels of grain, 30 loads of hay, 4 of straw, about 50 dressed hogs, and a few loads of potatoes.

Wheat.—Four hundred bushels sold as follows: Red, 100 bushels at 68c; goose, 200 bushels at 61c; spring, 100 bushels at 67c to 68c.

Oats.—Three hundred bushels at 34c to 35c. Hay.—Thirty loads sold at \$10 to \$12.50 per ton. Straw.—Four loads sold at \$8 to \$9 per ton.

Dressed Hogs.—Fifty dressed hogs sold at \$8.75 to \$9.25 per cwt.

Potatoes.—Prices were about steady at 35c to 50c per bag, the bulk of sales being at 40c per bag.

Dairy Produce.—Butter, pound rolls, 15c to 17c; eggs, new-laid, per doz., 13c to 15c.

Hides and Wool.—Hides, No. 1 green, 6c per lb.; No. 2 green, 5c; No. 1 green steers, 7c per lb.; No. 2 green steers, 6c; wool, fleece, 13c to 14c; wool, unwashed, fleece, 8c to 9c.

Toronto, June 25th.

Buffalo Market.

East Buffalo, June 25.—Cattle.—For choice fat stock the prospects are fairly steady. The offerings of veals were very light, and there was no change in the basis of the market.

Sheep and Lambs.—Offerings light; about 7 loads left over from yesterday. Spring lambs, \$5.75 to \$6; fair to good, \$5 to \$5.65; yearling lambs, choice to extra, \$5.15 to \$5.25; fair to good, \$4.90 to \$5.10; heavy export lambs, \$4.75 to \$4.85; handy wethers, \$4 to \$4.25; choice to extra mixed, \$3.75 to \$3.90. The close was quiet.

Montreal Markets.

Montreal, June 27.—There were about 600 head of butchers' cattle, 200 calves and 500 sheep and lambs offered for sale at the East End Abattoir to-day. Prime beefs were rather scarce, and sold at from 5c to 5 1/2c per lb. Pretty good stock sold at from 4c to 4 1/2c, and the rough, half-fatted boasts at from 3c to 3 1/2c per lb. Calves sold at from \$2 to \$3 each. Three superior veals brought \$35. Shippers paid 3c per lb. for good large sheep, and the butchers paid from 3c to 3 1/2c per lb. for the others. Spring lambs sold at from \$2.50 to \$5, only a few bringing over \$4.25. Fat hogs sold at from 6c to 7c per lb.

Our Farmer's Library

A RECENT bulletin prepared by Prof. J. B. Reynolds, of the Ontario Agricultural College, gives a list of meritorious books on Agriculture, Live Stock, Dairying, and Fruit Growing, from which we have made a selection and added a few others. How to obtain, see below:

SOIL AND CROP.

- THE FERTILITY OF THE LAND.—Roberts. 372 pages. \$1.25. A BOOK ON SILAGE.—Woll. 185 pages. \$1.00. SOILS AND CROPS.—Morrow & Hunt. \$1.00. FORAGE CROPS.—Thos. Shaw. \$1.00. SOILING, ENSILAGE, AND BARN CONSTRUCTION.—F. S. Peer. 247 pages. \$1.00

LIVE STOCK.

- VETERINARY ELEMENTS.—A. G. Hopkins, B. Agr., D. V. M. \$1.50. A practical book for stockmen and agricultural students. THE STUDY OF BREEDS (CATTLE, SHEEP, AND SWINE).—Prof. Shaw. 400 pages; 60 engravings. \$1.50. HORSE BREEDING.—Sanders. 422 pages. \$1.50. LIGHT HORSES—BREEDS AND MANAGEMENT. 226 pages. \$1.00. HEAVY HORSES—BREEDS AND MANAGEMENT. 219 pages. \$1.00. CATTLE—BREEDS AND MANAGEMENT. 270 pages. \$1.00. SHEEP—BREEDS AND MANAGEMENT. 232 pages. \$1.00. CATTLE BREEDING.—Warfield. 386 pages. \$2.00. THE DOMESTIC SHEEP.—Stewart. 371 pages. \$1.75. THE SHEEP.—Rushworth. 496 pages. \$1.50. PIGS—BREEDS AND MANAGEMENT.—Sanders Spencer. 175 pages. \$1.00. FEEDS AND FEEDING.—Henry. 600 pages. \$2.00. PONIES—PAST AND PRESENT. 50 cents.

GENERAL AGRICULTURE.

- AGRICULTURE.—C. C. James. 200 pages. 30 cents. FIRST PRINCIPLES OF AGRICULTURE.—Voorhees. 207 pages. \$1.00. AGRICULTURE.—Storer. 1,875 pages, in three volumes. \$6.00. CHEMISTRY OF THE FARM.—Warrington. 183 pages. 90 cents. FARMYARD MANURE.—Aikman. 65 pages. 50 cents. IRRIGATION AND DRAINAGE.—King. 502 pages. \$1.50. IRRIGATION FOR THE FARM GARDEN AND ORCHARD.—Henry Stewart. \$1.00. SUCCESSFUL FARMING.—Rennie. 300 pages. \$1.50, postpaid.

DAIRYING.

- AMERICAN DAIRYING.—H. B. Gurler. 252 pages. \$1.00. THE BOOK OF THE DAIRY.—Fleischmann. 330 pages. \$2.75. MILK AND ITS PRODUCTS.—Wing. 230 pages. \$1.00. TESTING MILK AND ITS PRODUCTS.—Farrington & Woll. 255 pages. \$1.00. DAIRYING FOR PROFIT.—Mrs. E. M. Jones. 50 cents.

HOW TO OBTAIN THESE BOOKS:

We will furnish present subscribers any of the above books for cash or as premiums for obtaining new yearly subscribers to the FARMER'S ADVOCATE at \$1.00 each, according to the following scale:

Table with columns for 'Books valued at from' and 'for 1 new subscriber'.

We can furnish any of the above books at the regular retail price, which is given opposite the title of the book. By a careful study of the above list, any farmer can choose a select list of books suited to his needs, and for a small outlay in cash, or effort in obtaining new subscribers for the ADVOCATE, secure the nucleus of a useful library.

Cash to accompany names in every case. Subscriptions credited a year in advance from date received.

The WILLIAM WELD CO., Ltd., LONDON, ONT.

GOSSIP.

Fairview Stock Farm, near Woodville, Ont., on which stands the 1st-prize farmhouse, as well as beautiful, well-ordered outbuildings, is the home of Mr. John Campbell, the owner of one of the choicest flocks of imported and home-bred Shropshire sheep in America. These sheep are from Mansell and Williams strains, and, as may be expected, are as near perfection as money, a long experience and careful attention can make them.

MR. HUDSON USHER'S SHORTHORN SALE.

A large company of farmers and breeders from Western Ontario, and a few from the States, attended the dispersion sale, on June 19th, of the Queenston Heights Shorthorn herd of Mr. Usher, at Queenston, Ont., and considering that the cattle had had no special preparation for sale, and were only in moderate condition, and some of them really thin, the prices realized were fairly satisfactory. No high prices were expected, and none were realized, but buyers got good value, and the seller had no cause for complaint, and had none to make, though in some instances the prices were not up to his expectations. Yet in others they were exceeded, and the average was fairly good.

Cows and Heifers.

Table listing cows and heifers with names and prices.

Bulls.

Table listing bulls with names and prices.

Modern Method of Saving Corn.

Within recent years the method of handling the corn crop has changed radically. Formerly the work of gathering and husking corn was done by hand; now it is done by machinery. The old, out-of-date method of pulling the ears by hand was not only slow and tedious, but it was wasteful. The up-to-date corn grower now cuts his corn with a corn harvester, which cuts and binds the corn into bundles, which are discharged from the machine in bunches and in rows, ready for shocking. A corn harvester does the work easier, cleaner and more satisfactorily in every way than the old hand method. The corn husker and shredder separates the ears from the stalks and shucks them, and converts the fodder into stover, which for feeding purposes is conceded to be about equal to hay. By the old method, the corn-grower secured only the ears, and the remainder of the crop wasted in the fields. By using modern corn machinery, the corn-grower saves the entire crop—ears, fodder, stalks and all—and thus doubles the value of his corn crop. It is interesting to note in this connection that the company which gave the world the first successful machine for harvesting small grain also gave the world the first successful corn binder, which was followed soon after by the first successful modern corn husker and shredder. This company is McCormick's. "King Corn" is the title of a new book published by the McCormick Harvesting Machine Co., Chicago, and it explains in detail how to save the corn crop and get the full value out of this important cereal. The book is prettily illustrated with half-tone engravings, showing the McCormick machines at work in the fields, and it will be mailed free to anyone interested in growing corn.



Western Canada's Industrial FAIR
Great **WINNIPEG.**
JULY 29-AUG. 2. 1901.

\$35,000.00 IN PRIZES AND ATTRACTIONS.

COMPETITION OPEN TO THE WORLD.

For Prize List and other Information
 F. W. THOMPSON, President. - APPLY TO - F. W. HEUBACH, General Manager.
WINNIPEG, - MANITOBA.

GOSSIP.

At a combination sale of Aberdeen-Angus cattle, held at Chicago, 11th and 12th inst., the cow, Queen Mary Bell 7th, sold for \$1,000 to D. R. Perry, Columbus, Ind., and 71 head made an average of \$257.81 each.

From the commencement of the South African war till May 1st, 172,985 horses and 80,723 mules were sent there for British Army purposes, or a total of 253,708. On May 11th there were with the forces 185,000 horses and mules together. These figures will give the reader an idea of the tremendous drain of the war on horses and mules.

The past season in New Zealand, according to the *Auckland Weekly News*, has been a profitable one for sheepfarmers in the colony, in consequence of the satisfactory condition of the frozen-mutton trade. Dealers have been running after farmers, instead of the latter having a difficulty in disposing of their sheep, as has sometimes been the case. A cross that is rapidly becoming popular, it is added, is the Romney-Lincoln or Romney-Leicester, strong-constitutioned hoggets being obtained by such a cross. The wool clip in the colony has proved a heavy one.

HON. JOHN DRYDEN'S SHORTHORNS AND SHROPSHIRE.

On the occasion of a recent visit to Maple Shade, the farm home of Hon. John Dryden, at Brooklin, Ont., the Shorthorn herd was found in fine condition, the female portion comprising excellent representatives of such highly esteemed Cruickshank families as Orange Blossoms, Clippers, Brawith Buds, Lavenders, Victorias, Duchesses of Gloster and Easthorpes, bred straight from importations made by the owner, and their produce sired by high-class Scotch-bred bulls of the best type, among which may be named such noted imported Scotch-bred sires as Royal Barmpton, Lord Glamis, Sussex Vengarth, Conqueror, Earl of March, and Revenue. The principal sire at present in service is the grand red Duthie-bred three-year-old, Collynie Archer—28860—a son of the great sire, Scottish Archer, and his dam an Uppermill Missie by the noted William of Orange. He is royally bred, and is a straight, thick, low-set and well-proportioned bull, with great constitution, a good, masculine head, superior quality, and is proving a capital sire, the young stock by him being uniformly of fine form, flesh and type. His lieutenant in service is the handsome, symmetrical, thick-fleshed and substantial red yearling, Prince Gloster, of the favorite Cruickshank Duchess of Gloster family on his dam's side, while his sire is a Sittyton Victoria of richest breeding. The heifers and calves of the herd are of fine character and quality, and are being judiciously fed and handled to bring out their best possibilities as breeding animals. The flock of Shropshires ranks among the best on the continent, being bred direct from first-class importations from the flocks of such eminent breeders as Buttar, Bowen-Jones, Mansell, and Evans, while the last two imported rams in service were the Mansell-bred Bonnie Royal and Royal Dreamer, the latter a sheep of grand character, low-down, thick-set, lengthly and strong-boned. The yearlings and lambs are of the same type, combining size with quality, and standing well on strong, straight, well-set legs.

British Columbia.

Anyone thinking of farming in British Columbia should write for descriptive pamphlet of farms for sale in the Lower Fraser Valley—the garden spot of the Province.

We have compiled the largest and most complete list of farms, orchards, cattle-grazing and garden lands, and fishermen's atomtoms, in the Province. It has been very carefully selected, and we have a personal knowledge of every property described. Prices range from \$3.00 per acre to \$250.00 per acre, and in extent from 1 acre to 1,000 acres.

In the Lower Fraser Valley, and on the coast lands around Vancouver, we rarely have more than a month of frost and snow at outside, and the thermometer has only sunk to twice in ten years.

WRITE

HOPE, GRAVELEY & CO.,

536 Hastings St. VANCOUVER, B. C.

L. BURNETT, GREENBANK, ONT.

BREEDER OF

Clydesdale horses, Shorthorn cattle, and Shropshire sheep.

Four bulls from 12 to 14 mos. old, bred from imp. Cruickshank blood, for immediate sale.

Read this, Advocate readers:

Hersee's Reliable Insect Killer does the work you want it to do, and that's what you want. It's your friend. Ask your dealer for it, or send 25c. for 1-lb. box. Valuable book free.

EDWIN HERSEE, MANUFACTURER, WOODSTOCK, ONT.

FOR SALE.

CLYDESDALE stallions, mares and fillies, representing the best blood in Scotland—Prince of Wales, Darnly, Macgregor and Lord Lyon—including the great sweepstakes winner, The Marquis (1182), a grandson of Prince of Wales and Macgregor; also the first-prize 3-year-old at Ottawa this season.

THOS. GOOD,

Richmond P. O., Ont.

R. R. Station, Stittville, C.P.R.

A ROYAL HORSE SALE.

King Edward VII. held a sale of Hackney harness and saddle horses in June at his stud farm at Wolferton. This sale included horses, and the mares and foals will be sold in September. Henceforth the farm will be restricted to a small stud of breeding animals. Fifty-three animals were sold for 5,416 guineas, an average of about 103 guineas each. The animals were quite worth the money they brought. Among the distinguished buyers were Sir Redvers Buller, who bought two pairs; Sir Ernest Cassel, Count Zboronki, Sir Walter Gilby, Sir Charles Gilmour, Sir E. Bradford, Sir A. Mackenzie, and Sir Francis Laking. One regrettable feature of the sale is that the King is not again likely to breed Hackneys.

GOSSIP.

His Majesty the King has given a donation of 250 guineas towards the fund for the purchase, as a permanent site for the English Royal Show, of 100 acres freehold property, between Willesden and Ealing. All together, £30,000 is required for the scheme. He also sends a letter, heartily commending the scheme and wishing it success.

The stock Shorthorn bull offered for sale by Wm. Thom, Lyndoch, Ont., is a rare good animal, both for stock and show purposes. Mr. Thom has daughters from him that are at breeding age, so that it is necessary to replace the old bull, and as he is too valuable to turn off for beef, he should be secured to still further perpetuate his kind in some good herd needing fresh blood.

J. H. Patrick, Iderton, Ont., recently called at our office to change his advertisement, and expressed his regret that while the sheep trade is at present somewhat dull, on account of the low price of wool, he has recently shipped three carloads of Lincoln ewes and rams to the Western States trade. Two loads went to Idaho and one to Oregon. This spring's crop of lambs was an increase of 140 per cent., and all are doing remarkably well. All last year's show ewes, with one exception, have lambs at foot. A good percentage of them came early and are well advanced. Their show flock, consisting largely of last year's importation, is wonderfully well forward. A good importation is expected to arrive from England about August 1st, and will consist chiefly of breeding stock. See Mr. Patrick's changed advertisement in this issue.

Wm. Howe, of North Bruce, Ont., is one of the most successful breeders of Yorkshire hogs in this country. He keeps a large stock on hand, and his sales, now very large, are continually increasing, from the fact that his stock is right and his dealings square. His present stock boar is Oak Lodge Justice 4822, bred by J. E. Brothour, and sired by Oak Lodge Swell (imp.) 3043; dam Oak Lodge Julia 5th 2194. This boar has extra length, with very deep sides, and is a successful sire of the right sort. Among the dams is North Bruce Pride 4810, sired by Oak Lodge Royal King (imp.) 3044. Another is Oak Lodge Pride 3693, sired by Oak Lodge Emigrant 1308. Yet another is Oak Lodge Baroness 4th 5533, sired by Oak Lodge Conqueror 2475, a sweepstakes. These dams, with others not mentioned, are a choice lot of fashionable breeding and conformation, and their produce are eagerly sought after.

Mr. T. Mercer, of Markdale, Ont., is the happy owner of a number of very fine Shorthorn cattle. At all the leading northern shows last year Mr. Mercer swept the board, and the fact that Mr. Mercer cannot supply more than half the orders he receives is abundant evidence as to the quality of stock bred on his farm. The present stock bull is one of the up-to-date kind, short-legged, deep, long body, square as a board, and his stock are showing the same characteristics. He is sired by his noted Abbotsford and is Village-bred on his dam's side. Among the numerous dams are representatives from the Fashion's Fancies, Ingrams, Indian Chiefs, Matchless, War Ministers, Aberdeens, etc. These dams are mostly heavy milkers, and, as a natural result, the youngsters are in fine condition.

TWO NOTABLE LINCOLN FLOCK DISPERSIONS.

In August, also in September, extraordinary opportunities will be afforded for securing choice Lincoln sheep from their native home, by auction, as per advertisements in this issue. On August 8th, one of the leading large flocks in England will be dispersed; owing to the demise of the proprietor, Mr. Hestletine. On Sept. 4th, the Biscathorpe flock of a thousand and a half will be dispersed. Lincolns are growing more and more popular on the Western ranges, especially on crossing on the smaller, fine-wooled flocks, on account of their excellent wool and mutton and early-maturing qualities. There is room for several more Lincoln flocks in Canada than we now have, and the dispersion of these two notable flocks, that are over a century old, affords an unusual opportunity of commencing where these masters of their craft finished. While it would afford a present or prospective Lincoln sheep breeder a treat and teach him much to attend these sales, animals can be secured by advising the FARMER'S ADVOCATE representative in England, Mr. W. W. Chapman, whose address appears in Mr. Hestletine's advertisement.

Annual Meeting of the Holstein-Friesian Association of America.

The sixteenth annual meeting of the Holstein-Friesian Association of America was held at Syracuse, N. Y., June 5th, 1901. The meeting was called to order by President W. A. Matteson, Utica, N. Y. Ninety-four members were personally present, and three hundred and six were represented by proxy, making the largest attendance in many years. The report of the treasurer, Wing R. Smith, of Syracuse, N. Y., showed a cash balance on hand, \$18,063.92. The report of the superintendent of Advanced Registry showed a total of 361 entries, the largest number since the inauguration of the official tests. The report of the secretary showed one hundred and twelve new members added to the roll. Nearly 10,000 certificates of registry were issued—a large increase over last year, and double that of three years ago. Article 4, section 10, was amended, compelling a record of all transfers of registered animals to be made upon the records of the Association. Article 4, section 2, was amended, making it a crime to commit fraud, misrepresentation or unfair dealing in connection with Holstein-Friesian cattle. Election of officers: President, W. J. Gillett, Rosendale, Wis.; W. A. Matteson, first vice-president; A. A. Cortelyou, Neshanic, N. J., second vice-president; J. H. Coadige, Galesburg, Ill., third vice-president; George F. Gregory, Syracuse, N. Y., fourth vice-president; D. H. Burrell, Little Falls, N. Y.; Eldon F. Smith, Columbus, Ohio, and Henry Stevens, Lacona, N. Y., were re-elected directors, to serve two years. Wing R. Smith, Syracuse, N. Y., was re-elected as treasurer; Mr. Hoxie, of Yorkville, N. Y., was re-elected as superintendent of Advanced Registry; and F. L. Houghton, of Putney, Vt., was re-elected secretary. **FREDERICK L. HOUGHTON, Secretary.**

You Can Cure It.

A New Cure for Catarrh in Tablet Form.

The old-time treatment for catarrh was in the form of douches or sprays. Later on, internal remedies were given with great success; but, being in liquid or powdered form, were inconvenient, and were open to the same objection to all liquid remedies—that is, that they lose whatever medicinal power they may have had on exposure to the air.

The tablet is the ideal form in which to administer medication, but until recently no successful catarrh tablet had ever been attempted.

At this writing, however, a most excellent and palatable remedy for catarrh has been placed before the public and sold by druggists, called Stuart's Catarrh Tablets, composed of the most recent discoveries in medicines for the cure of catarrh, and results from their use have been highly gratifying.

Stuart's Catarrh Tablets contain principally highly-concentrated antiseptics, which kill the catarrh germs in the blood and mucous membranes, and in this respect are strictly scientific and modern, as it has been known for some years past by the ablest physicians that the most successful catarrh treatment was by inhaling or spraying antiseptics.

The use of inhalers, douches and sprays, however, is a nuisance and inconvenience, and, moreover, can in no wise compare with the same remedies given in tablet form, either in efficacy or convenience.



A clerk in a prominent insurance office in Pittsburgh relates his experience with Stuart's Catarrh Tablets, in a few words, but to the point. He says:

"Catarrh has been almost constantly with me for eight years; in this climate it seems impossible to get rid of it. I awoke every morning stuffed up, and for the first half-hour it was cough, gag, expectorate and sneeze before I could square myself for my day's work; no appetite, and a foul breath which annoyed me exceedingly.

"I used Stuart's Catarrh Tablets for two months, and found them not only pleasant to take, but they did the business, and I can sincerely recommend them to all catarrh sufferers."

Druggists sell Stuart's Catarrh Tablets at 50 cents for full-sized package. They can be carried in the vest pocket and used at any time and as often as necessary. Guaranteed free from cocaine, mercury or any mineral poison; absolutely safe.—Advt. —om

WM. SMITH, COLUMBUS, ONT.,

IMPORTER AND BREEDER OF
Clydesdale Horses & Shorthorn Cattle

W. G. HOWDEN, COLUMBUS, ONT.,

BREEDER OF
CLYDESDALE HORSES, SHORTHORN CATTLE

FOR SALE:

Clydesdales and Shorthorns.

Young stallions and fillies bred from imported sires and dams. Also a choice bunch of Shorthorns, of both sexes and all ages, including a few extra choice young red and roan heifers and bulls.

ONTARIO COUNTY JOHN BRIGHT,
 Myrtle, Ontario.

Wm. Brash, Ashburn, Ont.,

BREEDER OF
CLYDESDALE HORSES and SHORTHORN CATTLE.

NEWTON'S HEAVE, COUGH, DIS-
TEMPER AND INDIGESTION CURE



Guaranteed A veterinary specific for WIND, THROAT & STOMACH TROUBLES. Strong recommends. \$1.00 per can. Death to Heaves. Dealers or direct.

Newton Horse Remedy Co. (D), Toledo, O. Trade supplied by Lyman Bros. & Co., Toronto.

Clydesdales and Ayrshires

Imported and home-bred. Also Dorset Horned sheep, and the leading varieties of poultry.

ROBERT NESS & SONS, Howick, Que.

4 Imp. Clydesdale Stallions

From such well-known sires as Sir Everard (5353), Prince Roberts 7135, Prince Alexander 8899.

2 Imp. Shorthorn Bulls,

4 Bulls Imp. in Dams.

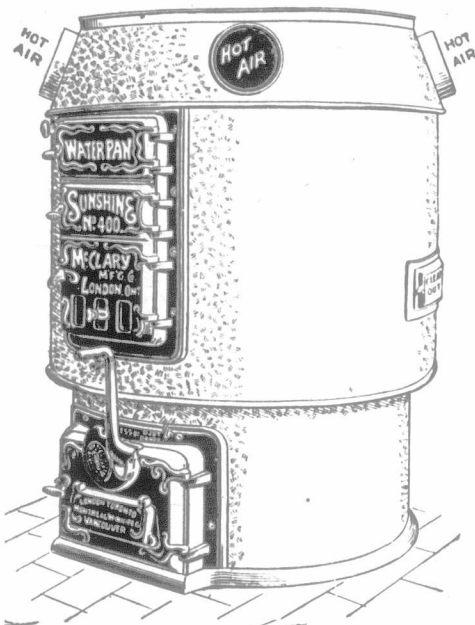
2 Canadian bred Bulls.

21 Imp. Cows and Heifers.

7 Canadian-bred Cows and Heifers
GEO. ISAAC & BROS., BOMANTON, ONT.
 COBBOURG STATION, O. T. E.

THE "SUNSHINE,"

A FARM FURNACE.



Feed-doors large enough to admit rough blocks of wood.

Large ash-pan catches every pick.

Parts which come in contact with fire are made extra heavy.

Has self-acting gas damper.

Made in three sizes.

Burns coal, coke or wood.

A reliable, up-to-date furnace, at a reasonable price.

Estimates and full information free from our local agent or nearest house.

THE McCLARY MFG. CO'Y.

London, Toronto, Montreal, Winnipeg, Vancouver; St. John, N. B.

MAPLEWOOD HACKNEY STUD.

PROPERTY OF FREDERICK C. STEVENS, ATTICA, NEW YORK.

Champions of two continents.

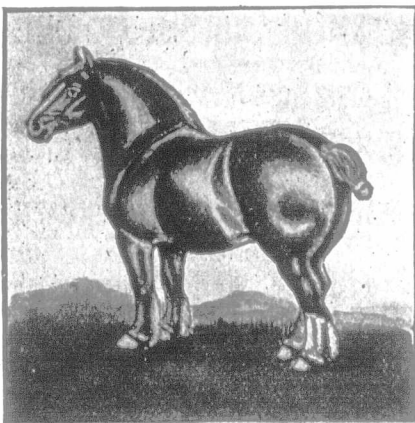
The magnificent **LANGTON PERFORMER**, the peerless **CLIFTON 2nd**, and the sensational **FANDANGO**, all in service for the coming season.

Magnificent young Stallions and Mares for Foundation Stock,

sired by the above champions, and out of mares equally famous, now offered for sale. MAPLEWOOD is truly "THE HOME OF THE CHAMPIONS."

FOR FURTHER PARTICULARS, ADDRESS:

E. T. Gay, Manager, Attica, N. Y.



LATELY IMPORTED A FRESH LOT OF

Glydesdale Stallions,

Comprising sons and grandsons of many of the most noted Scotch showyard winners and sires, all in the pink of condition without surplus flesh, and personally selected to meet the best Canadian markets, having, without exception, the best of bone, hair, feet, and action, coupled with true Clyde character.

I will make further importations as the times demand. Inspection invited.

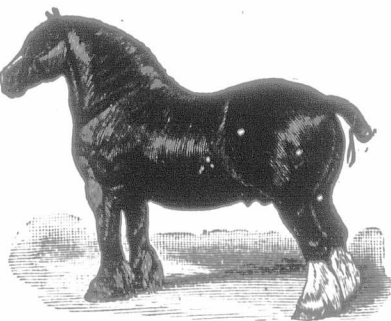
Prices consistent with quality.

ROBERT GRAHAM,

Ringwood P. O., Ont.

Stouffville Station, G. T. R., and telegraph office.

GLYDESDALE STALLIONS ALL SOLD.



Our importations are always

WELL-BRED BIG GOOD ONES.

The winner for two years at the Canadian Horse Show, Toronto, was imported by us. Early in July we will sail for Great Britain for a new lot, and will earnestly endeavor to make satisfactory selections of mares and stallions for persons who will inform us just what they want.

DALGETY BROS.,
London, Ontario.

Metal Roofing. So long as wooden shingles can be had some people will use them, because they were brought up that way. That, however, is not a justified reason for doing so when such a roofing can be secured at a reasonable price as that manufactured by the Pedlar People at Oshawa, Ont. It is not only cleaner, neater and more enduring than wooden shingles, but it is fireproof as well. Metal roofing reduces the cost of insurance, because it reduces the risk of fire. Write the Pedlar People for their catalogue, which will astonish you with the beauty of designs in their ceilings, wall decorations, etc.

Volume X. of the Canadian Ayrshire Herd-book has been issued from the office of the Association, Parliament Buildings, Toronto, by the secretary and registrar, Mr. H. Wade. The frontispiece is a portrait of Mr. A. Kains, of Byron, Ont., president of the Association for 1900, opposite which appears that of Mr. Wade. It contains a list of officers, owners and members, by-laws, scale of points, prizewinners at the Toronto Industrial (1899), pedigrees (bulls and cows arranged together) from 16388 to 13110, list of transfers and index to animals. It is a well-printed, 330-page volume, with engravings of several noteworthy animals.

NOTICES.

A Wonderful Implement.—We learn from Massey-Harris Co. that they are receiving a great number of orders for their No. 10 mower. This machine is similar in form of construction to their No. 7 mower, though enlarged and strengthened, and having larger and broader-faced driving wheels, and longer cutting apparatus, in keeping with the big, strong frame that carries it. The Massey-Harris No. 10 mower is specially designed for farmers who have large areas of hay to secure. It is very light in draft, and the application of the roller and ball bearings is mechanically correct. The No. 10 mower is made in three sizes, cutting swaths 6 ft., 6 ft. 6 in., and 7 ft. wide, respectively. The trouble with the majority of mowers made for cutting wide swaths is that the increased width of track is obtained by merely increasing the width of the axle. This is not the case with the Massey-Harris mower, but the whole frame is of special size and design, with a view to constructing a perfectly-balanced machine. The farmer who has a large area of hay to cut ought certainly to have a Massey-Harris No. 10 mower this season.—Advt.

"All About Canada."—From Alfred Hewett, publisher, Toronto, we have received a copy of "The Canadian Yearbook" for 1901, being the fourth year of publication. The work is steadily improving. It contains the customs tariff, list of post offices in Canada, members of the Dominion and Provincial Parliaments and Governments, militia lists, sporting records in very complete form, banks and branches, besides statistical and other data. Paper bound; 330 pages. Price, 25c.

GOSSIP.

Geo. Harding & Son, Waukesha, Wis., have recently purchased the entire Shorthorn herd of E. B. Mitchell & Son, Danvers, Ill., and will sell the best of them at Chicago on August 7th, together with selections from their own herd and a number of high-class imported and home-bred cattle, lately purchased in Canada from Messrs. Cargill & Son and others.

The Jersey heifer, Gul Bahar 147713, portrayed from photograph on page 134, this issue, calved May 21st, at seventeen months old. She is sired by Sir Wilfred St. Lambert 56193, and out of Primrose Park's Pride 30475, sold by Mr. W. J. Craig, London, to the Dominion Government for the Pan-American dairy test, where she is now standing at the head of the Jerseys in profitable production of butter, being only a few cents per week below the highest producer in any breed. The heifer is now giving over twenty pounds of milk and about one pound of butter per day. She is large for her age, handsome, and promises to excel her dam, who is a great cow, having a record of 543 pounds butter in 12 months.

Mr. W. N. Haskett, of Markdale, Ont., is offering for sale a few choice bred Jerseys. The cow, Melba of Brampton, is out of the famous herd of B. H. Bull & Sons, and is a really nice specimen of that most popular dairy breed. She is a light fawn, 5 years old, with a large, perfectly-formed udder, and is a very heavy and persistent milker. She is sired by Massena Butter Boy 30609, a bull of more than ordinary merit as a producer. Her dam is Rose of Ingledale, one of Mr. Bull's extra choice females. Mr. Haskett is also offering a very nice bull 17 months old, out of this cow, sired by Prince of Markdale, who was bred by Wm. Ralph, of Markham. Besides these, there are for sale two bull calves and one heifer calf. Parties wanting any of the above lines will best consult their own interests by writing Mr. Haskett, Avan Mawr, which, by the way, is the name of Mr. Haskett's beautiful residence in Markdale, and is also the home of a choice selection of poultry. The present specialties are B. and W. Plymouth Rocks, G. and S. Wyandottes, Light Brahmas, and Black Minorcas, also Pekin ducks.

JAMES DOUGLASS' SHORTHORNS.

Perhaps never before was that invincible law of breeding, that like begets like, more aptly illustrated than in the case of the youngsters to be seen on Willow Bank Stock Farm, the beautiful and excellently-appointed home of James Douglass, near Caledonia, Ont. The stock bull, Christopher (imp.) 28859, is about as near perfection as it is possible to get, being very long, very deep, very smooth, exceptionally well filled in back of shoulders, with enormous breast and quarters, on very short legs, and as quiet as a kitten. He is sired by Emancipation 65447, dam Fairy Girl, Vol. 39, P. 263, by Gravesend 1461, and bred by J. Stephen, Lethenty, Inverurie, Scotland, and imported by H. Cargill & Son. He is Scotch topped, on Booth foundation. The young stock are simply living images of this great sire, sweet, smooth, straight-backed. No wonder Mr. Douglass reports an active demand. A young bull sold a few days ago to Mr. M. W. Moran, of Annprior, Ont., is one that will surely win laurels in the prize-ring, as it is hard indeed to fault him. The many really excellent dams on this farm are nearly all of the famous Bates and Booth families. The herd numbers some 100 head, and it is well-nigh impossible to specify any particular one as the best. The cow, Milliner 16th, deserves special mention, as she is certainly a beautiful type of modern Shorthorn. She is sired by Isabella's Heir 19650, a grandson of Imp. Lady Isabel, a cow that swept the board for a number of years at all the leading shows. Her dam is Milliner 12th 23433, by Earl of Goodness 263. Another dam from the same sire is British Lady, dam Victoria 8th 16080. Perhaps special mention should be made of the yearling heifer out of this cow, and sired by the stock bull, Christopher. She is a roan, of very even proportions and symmetrical make-up, and will make things interesting at the coming fall shows. This farm is also the home of some 70 odd very superior Leicester sheep, founded on Bow Park importations, and the highest standard of excellence has always been Mr. Douglass' aim in his selection of sires, and the result of 45 years' experience in breeding and improving his flock is, that here can be seen the beautiful Leicester in all its glory and perfection.

IT PAYS TO ADVERTISE IN
THE FARMER'S ADVOCATE.

A Good Complexion

Depends on Good Digestion.

This is almost an axiom, although usually we are apt to think that cosmetics, face powders, lotions, fancy soaps, etc., are the secrets for securing a clear complexion. But all these are simply superficial assistants.



It is impossible to have a good complexion unless the digestive organs perform their work properly. Unless the stomach, by properly digesting the food taken into it, furnishes an abundance of pure blood, a good complexion is impossible.

This is the reason so many ladies are using Stuart's Dyspepsia Tablets, because they promptly cure any stomach trouble, and they have found out that perfect digestion means a perfect complexion and one that does not require cosmetics and powders to enhance its beauty.

Many ladies diet themselves or deny themselves many articles of food solely in order to keep their complexion clear. When Stuart's Dyspepsia Tablets are used, no such dieting is necessary. Take these tablets and eat all the good wholesome food you want, and you need have no fear of indigestion, nor the sallow, dull complexion which nine women out of ten have, solely because they are suffering from some form of indigestion.

Bear in mind that beauty proceeds from good health, good health results from perfect digestion, and we have advanced the best argument to induce every man and woman to give this splendid remedy a trial.

Stuart's Dyspepsia Tablets can be found in drug stores, and cost but 50 cents per package.

If there is any derangement of the stomach or bowels, they will remove it, and the resultant effects are good digestion, good health, and a clear, bright complexion.—Advt.

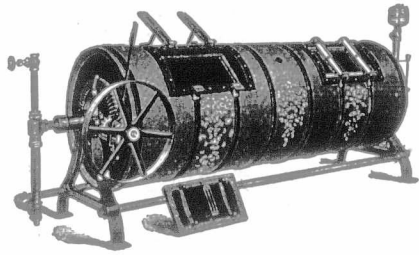
Mrs. E. M. Jones, Brockville, Ont., long since established her reputation as a breeder of high-class Jerseys. Just now she has a few choice young bulls and one heifer of the desirable sort for sale. The breeding of these young things, as well as the price, are given in our advertising columns.

In Yorkshire hogs, Mr. F. G. Green, Greenwood, Ont., is showing a large stock. His stock boar is Oak Lodge Imperial 2nd 3388, sired by the imported boar, Ruddington Lad 3572, which was bred by P. L. Mills, Ruddington Hall, Eng. Oak Lodge Imperial's dam is Oak Lodge Minnie 2nd 2310. His conformation and breeding stamp him at once a sire of the first rank. Among Mr. Green's sows is one that immediately attracts the attention of the visitor. She is Oak Lodge Girl 2nd, sired by Oak Lodge Conqueror 2475; dam Oak Lodge Girl 2761. This sow is a remarkably fine type of the breed. There are at present in the pens some 30 odd head, of both sexes, and all ages. A number of young sows are in pig to Oak Lodge Imperial, and parties requiring a brood sow or stock boar will find these animals all that can be desired, both in conformation and breeding. In poultry, Mr. Green's specialties are Banded Plymouth Rocks, Light Brahmas, and Bronze turkeys. The pens of each contain some very choice fowls. Mr. Green can fill orders for pairs, trios or larger numbers. Correspondence is solicited.

In Holstein-Friesians, Mr. R. W. Walker, of Utica P. O., South Ontario Co., near Manchester, on the Whitby & Port Perry Railway, is showing a choice herd of some 25, beautifully marked, symmetrically built, with large, well-developed and even udders. Among the earlier dams was Diploma 3rd 461, sired by Bonnie Queen's Last Boy 239; dam Diploma, Bonnie Queen, the dam of Bonnie Queen's Last Boy, was a prizetaker and sweepstake winner, having a record of 72 lbs. of milk in 24 hours, and 10,000 lbs. in six months, taking first prize and sweepstakes as best dairy cow over all breeds at district shows. Diploma is also the dam of Sykje (imp.), whose record is 78 lbs. in 24 hours. Another extra nice dam is Madame B 651, sired by Sir Westwood; dam, Madame Dot. This cow is a very heavy and persistent milker, with a large, perfectly-formed udder. The present stock bull is Forest Prince Abbe-kirk 1838, Vol. 5; sired by Forest Prince; dam Ida Abbe-kirk 1813. He is a very lengthy, nicely-formed animal, of good substance, and has proven his worth as a sire. Among the young bulls are two extra good ones, Ridge Dale Butter Boy 1902, sired by Madam B's Butter Boy 1221; dam Ridge Dale Maid 1345, a granddaughter of Aaltje Posch 4th, the noted sweepstakes cow at the Provincial Dairy Show at London, with a record of 146 lbs. of milk in 48 hours. Colanthus Prince is another young bull of sterling merit, sired by Father Tensen 984; dam Lady Colanthus Abbe-kirk 1028. These young bulls are for sale, and from their excellent make-up and superior breeding should prove a profitable investment to any one wanting a sire of this great dairy breed.

WIDE - AWAKE

Creamery people know the importance of scientific cream-ripening. You are among this class, and possibly have had difficulty in carrying out your ideas on account of lack of opportunities in which to do the work. One of the important features of



The Farrington Cream Ripener

is that it furnishes an opportunity for every buttermaker to develop his own process. We are not selling a process. We are willing to furnish the best obtainable information on ripening free of charge. With the Farrington Ripener it is a simple matter to secure uniform results. It will pay you to equip your creamery with a ripener before the hot, muggy weather comes on. Write for prices.

BOILERS AND ENGINES. AUSTRALIAN BOXES. REFRIGERATING MACHINES. HANSON'S BUTTER AND CHEESE COLOR. RENNET EXTRACTS. WELLS, RICHARDSON & CO.'S IMPROVED BUTTER COLOR. SPRUCE TUBS. STEARNS' STYLE SPRUCE TUBS. LUSTED PRINTERS. CLIMAX HEATERS. FARRINGTON RIPENERS. POTTS PASTEURIZERS. PARCHMENT PAPER, ETC.

Creamery Package Manufacturing Company, Limited, Cowansville, Quebec.



FIRE PROOF BUILDINGS

are rented far more quickly than others. Besides the insurance premium is brought down to the lowest possible figure. Metal ceilings and wall decorations render the interior of your building fire-proof. They also add a beauty and attractiveness which wood and plaster fail to give. The expense and annoyance of constant repairing is done away with. Our catalogue will interest you. It's yours for the asking.

THE PEDLAR PEOPLE, Oshawa, Ontario.

Eastern Branch: 22 Victoria Square, Montreal.

J. & W. B. Watt, SALEM, ONT., BREEDERS OF (Post and Telegraph Office.)

Clydesdale horses, Scotch Shorthorn cattle, Leicester and Oxford sheep, Berkshire pigs.

Our SHORTHORN herd was founded over 30 years ago, and contains such tribes as the Village Buds, Matchless, Misses, Mildreds, Stamfords and English Lady, upon which we have employed such bulls as *Barnpton Hero* 324, *Young Abbotsburn* 6236, *Challenge* 2833, *Perfection* 9100, *Lord Lansdowne* (imp.) 2712, *Clan Stuart* 14381, *Canada* 19536, *Sittytown Chief* 17060, *Royal Sailor* (imp.) 18959, *Royal George* 28513, *Clipper King* 16293 and *Judge* 23419, all of which have been first-prize winners wherever shown. *Royal Victor* 34681 and *Royal Wonder* 34682, by *Royal Sailor* (imp.), and out of English Lady and Mildred dams, now head the herd, assisted by *Roan Cloud* 31317, by *Lord Gloster* 26995, and out of *Melody* 21992, a descendant of the Buckingham family. We are now offering young bulls, cows and heifers for sale, of Scotch type.

Farm 2 miles from Elora Station, G. T. R. and C. P. R., 15 miles north of Guelph.

HILLHURST SHORTHORNS

THREE COLLYNIE-BRED BULLS IN SERVICE:

Scottish Hero, Joy of Morning, Scottish Beau, By Scottish Archer. By Pride of Morning. By Silver Plate.

The herd comprises straight Scotch, Cumberland, Gloucestershire, and Canadian strains; bred to produce the best and most economical MEAT and MILK MAKERS.

Shropshire and Hampshire Down Sheep.

M. H. COCHRANE, COMPTON CO., P. Q.,

G.T.R., 117 MILES EAST OF MONTREAL. om HILLHURST STATION.

Queenston Cement

The demand for our cement in 1900 justified us in adding largely to the capacity of our cement works. The indications are that this year's business will be still greater. We start the new century with an equipment which for the manufacture of natural rock cement is not excelled in America.

We shall be glad to assist you in making plans for new farm buildings or for remodelling old ones. Our experience should be of value to you. It will pay you to investigate our system of ventilation.

Write us for prices or for estimate of cost of any kind of concrete work.

Isaac Usher, Proprietor, QUEENSTON, ONT.

6 imp. Bulls, 14 months to 2 years. 20 imp. Heifers, 2 and 3 years old. Safe in calf. 2 Home-bred Bulls, 12 and 16 months old. 10 Home-bred Heifers, Scotch topped. 25 Choice Yearling Ewes, from imp. Ram. om Catalogues on application. **W. G. PETTIT & SON, Freeman P. O., Ontario.**

SHORTHORNS, COTSWOLDS AND BERKSHIRES FOR SALE.

One yearling bull; 9 bull calves; cows, heifers and heifer calves; 7 yearling rams; 20 ram lambs; ewes and ewe lambs; young pigs, from 6 weeks to 2 months old. om **F. BONNYCASTLE & SONS, Campbellford P. O., Ont.**

FOR SALE:

SHORTHORN BULLS AND HEIFERS from such sires as Mariner (imp.), Royal Judd 17499, Sultan Selam (imp.), Grenadier 28251, and Roseville Abott 30874, on a Victoria foundation. Also one extra Kinellar Stamp 10-mos. red bull. Come or write. **THOS. CUDMORE & SON, Hurondale, Ontario.**

LIDLAW'S CONCENTRATED TOBACCO POWDER



Sheep Dip.

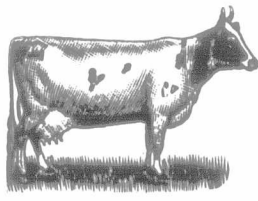
Contains correct proportion of sulphur, all mixed and ready for bath. For thirty years Laidlaw's Tobacco Powder Dip has had steadily increasing sale. Many hundred millions of sheep have been dipped with it. Non-poisonous; no injury possible to sheep or wool. For full particulars and prices, write—

ROBERT MARR, WALKERTON, ONT.

Sole manufacturers: Laidlaw, Mackill & Co., Limited, Richmond, Va. om

FOR SALE:

Three Guernsey bulls, 5, 9, 18 mos. old, sired by Masher (imp.). Six Ayrshire bulls, 1 year and under, sired by Matchless, Shropshire lambs, sired by Canadian Flag-staff (imported direct). Address—



ISALEIGH GRANGE FARM, J. N. GREENSHIELDS, Prop. o Danville, Que.

90 HEAD

High quality, Early-maturing

Herefords

Prizewinners, Young bulls, cows, heifers.



The blood of "Corrector," "Eureka," "Ancient Briton," and "Rupert," on an "Anxiety" foundation. Send for illustrated catalogue. om

H. D. SMITH, COMPTON, QUE.

IT PAYS TO ADVERTISE IN THE FARMER'S ADVOCATE.

ARTHUR JOHNSTON

Greenwood, Ontario, Canada.

HIGH-CLASS SCOTCH SHORTHORNS

(First Importation Made in 1874.)

(My recent importation of 30 head has just arrived home from quarantine. Herd now numbers over 120 head.)

OFFERS FOR SALE

- 40 Imported Cows and Heifers,
- 40 Home-bred Cows and Heifers,
- 11 Imported Bulls and Bull Calves,
- 13 Home-bred Bulls and Bull Calves.

Railway stations—Pickering, on main line of Grand Trunk Railway, 22 miles east of Toronto, and Claremont, 23 miles east of Toronto, on the C. P. Railway. Catalogues on application. om

Standard Sheep Dip (OIL OF TAR.)

Non-poisonous, cheap and effective. Destroys Scab, Lice, Ticks, Foot Rot, etc.

Write for Testimonials and Circulars.

Manufacturers: **The West Chemical Company, TORONTO, ONT.**

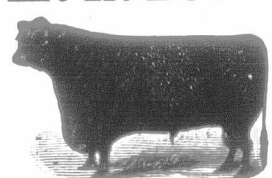
For Contagious Abortion use West's Fluid.

W. R. Bowman, Mt. Forest, Ont.

OFFERS FOR SALE

3 Polled Angus bulls (choice ones); 1 Short-horn bull, 11 mos.; Yorkshire pigs, 6 weeks, at \$6.00; Plymouth Rock eggs, 5 settings for \$2. om

PLEASE MENTION FARMER'S ADVOCATE.



SHORTHORNS

SCOTCH IMPORTED.

Young imported cows with calves at foot for sale. A number of the calves are imported in dam.

Some of the families represented in the herd are as follows:

160
Head

AUGUSTAS
CLARAS
NECTARS
GOLDIES
JENNY LINDS -
VICTORIAS
MATILDAS
BESSIES
CROCUSES

ROSEBUDS
BRAWITH BUDS
LANCASTERS
MAYFLOWERS
AMARANTHS
BUTTERFLYS
CLIPPERS
EMMAS
BROADHOOKS

MEDORAS
MINAS
VILLAGE MAIDS
BEAUTYS
MISS RAMSDENS
FLORAS
RAGLANS
LUSTRES
GEMS OF THE VALE

160
Head

Herd headed by the Imported Bulls, GOLDEN DROP VICTOR and PRINCE BOSQUET.

IF INTERESTED, COME AND SEE US, OR WRITE

H. CARGILL & SON,

CATALOGUE FREE.

CARGILL, ONTARIO, CANADA.

TROUT CREEK HERD OF SHORTHORNS.

Since our Chicago sale we have imported sixty-two head, including some Royal winners; they were pronounced in Scotland superior to past importations. We try to import the best, believing that this is one of the ways to assist in improving the breed on this side of the water. Being thoroughly convinced, also, that a bull of the right sort is even more than half the herd, we have decided to keep the following choice ones:

Imp. Lord Banff,

Bred by A. Watson; of the Campbell Bessie family.

Imp. Consul.

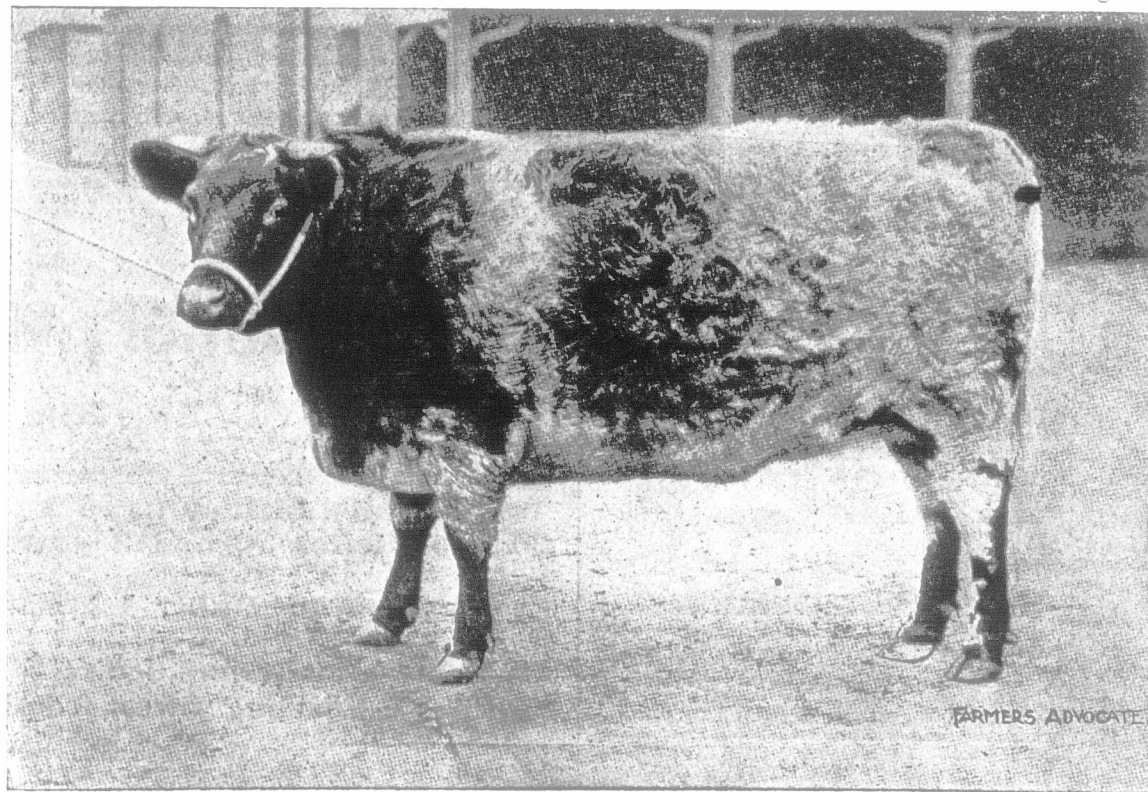
Bred by J. D. Fletcher; of the Campbell Claret family. Consul was awarded first at Edinburgh, first and champion at Provincial Union, first and champion at Creiff, and second at the Highland. His sire, Watchword, bred by Wm. Duthie, was first at the Highland in 1895 and 1896, and got by Scottish Archer. Watchfire, by Watchword, was first at the Highland, 1897. Consul is the highest-priced bull imported to Canada.

Hamilton is a city of over 50,000 inhabitants, located on main line of Grand Trunk Railway, between Chicago and Buffalo; also connected by Canadian Pacific Railway and Michigan Central Railway—branch lines.

We have at present for sale the red yearling bull, Singapore, by Golden Star, 1st and champion at Royal Northern last year. We have also a good Canadian-bred bull for sale, fit for service.

W. D. FLATT, 378 HESS ST. SOUTH, HAMILTON, ONT.

JAS. SMITH, MANAGER.



CICELY.

Bred by Her late Majesty the Queen; undefeated in her class and many times champion; imported by W. D. Flatt.

Imp. Silver Mist.

Bred by Wm. Duthie; of the famous Missie family. He had many friends for first choice at Messrs. Marr and Duthie's sale. Mr. Beck, representing the Prince of Wales, made next to last bid.

Imp. Wanderer's Last.

Bred by W. S. Marr; also of the Missie family. Is the last calf got by that renowned Cruickshank bull, Wanderer. Mr. Marr considers this youngster very promising.

We keep in our herd a choice lot of both imported and Canadian cattle, of both sexes, from which to make selections. Personal inspection invited. Parties desiring to see the herd will be met on arrival of trains at Hamilton if notice is given. Visitors always welcome.

"WATERLOO" Threshing Machinery

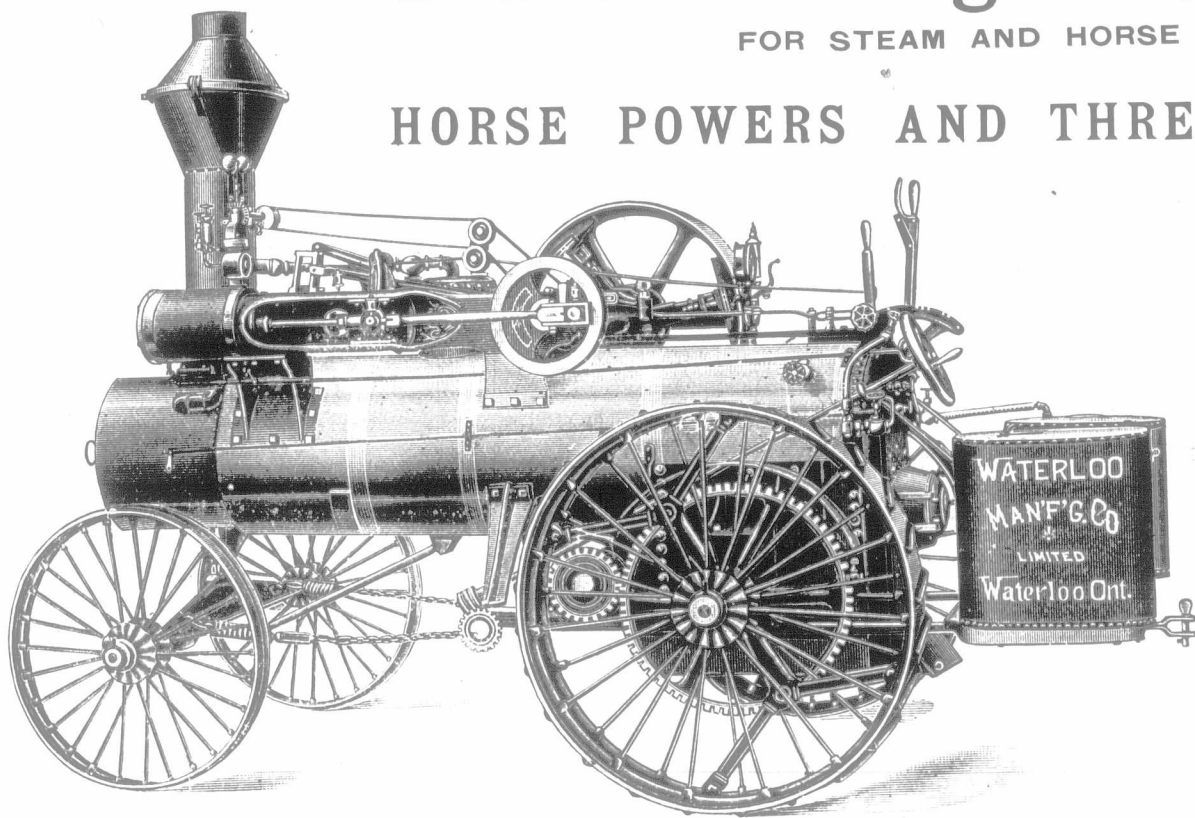
PLAIN OR PORTABLE ENGINES.



Traction Engines, Threshers

FOR STEAM AND HORSE POWER,

HORSE POWERS AND THRESHERS' SUPPLIES.



ALL STRICTLY

HIGH-CLASS GOODS

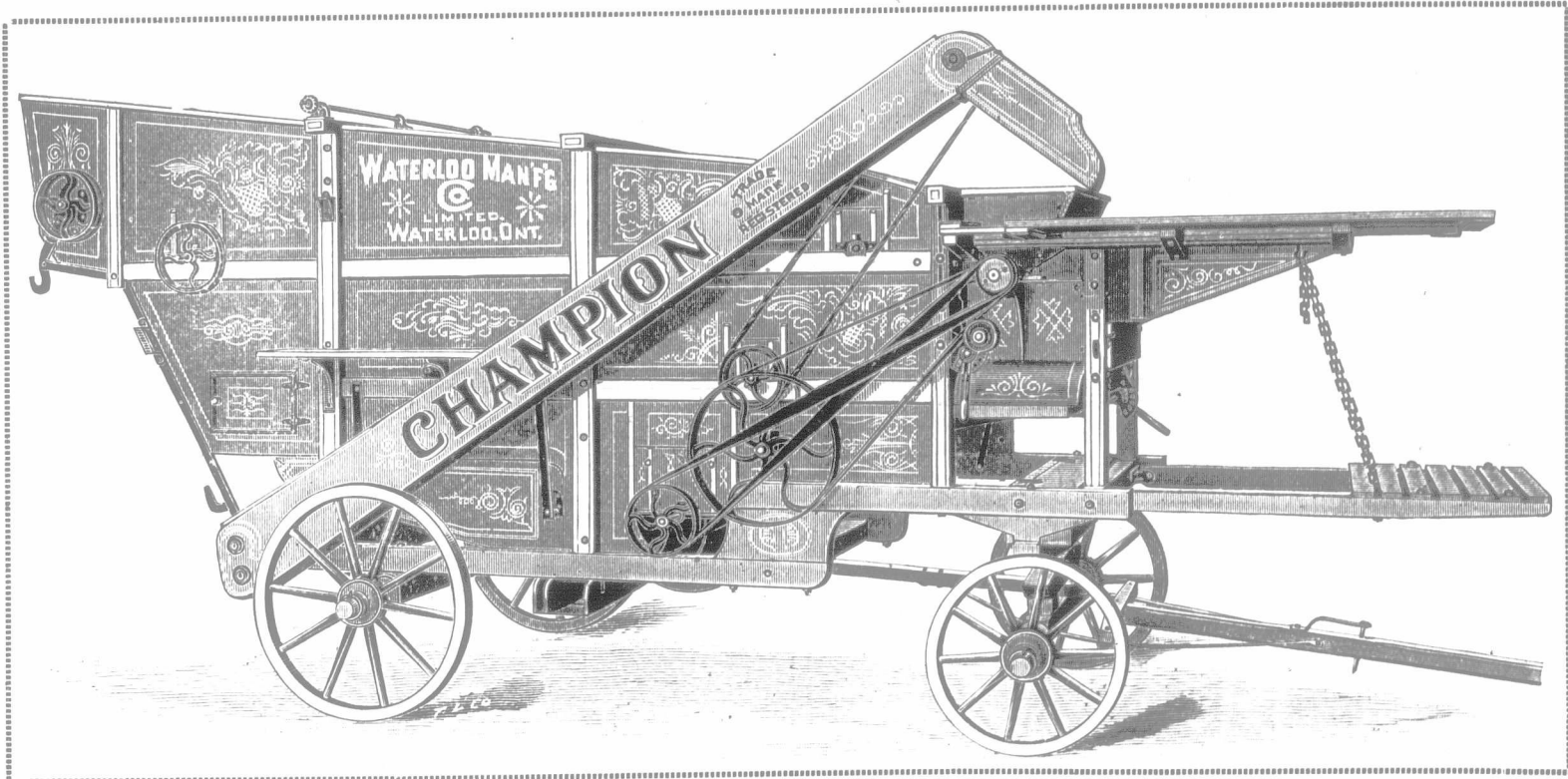
EVERY MACHINE

GUARANTEED TO GIVE SATISFACTION.

The Most Efficient, Most Convenient and Most Economical **TRACTION** on the Canadian Market.

The Traveling Speed is Changed in an Instant by the Simple Use of a Lever.

A Thoroughly Up-to-date Traction.



The **"CHAMPION" THRESHER** A Perfect Thresher, Separator and Cleaner. Simple, Durable, and Easily Handled.

AN ILLUSTRATED AND DESCRIPTIVE CATALOGUE MAILED ON APPLICATION.

THE WATERLOO MANFG. CO., Ltd., WATERLOO, ONTARIO.

MILK FEVER IN COWS.

Symptoms, cause, and treatment by the Schmidt system explained by
DR. WILLIAM MOLE, M. R. C. V. S.,
 Price 25c. 443 Bathurst St., Toronto.

For Sale: 3 Shorthorn bulls of first-class breeding, sired by such noted bulls as Scotland's Fame (imp.) and Bold Britain, bred by John Isaac, Markham. Also some choice cows and heifers. **F. A. GARDNER, Britannia, Ont.**
 PERL COUNTY.

BONNIE BURN STOCK FARM
 40 rods north of Stouffville Station, Ont., offers two strong, lusty **SHORTHORN BULLS**, fit for service. Also two year-old heifers with calf. Shropshire sheep all ages and kind.
D. H. RUSSELL, Stouffville, Ont.

For Sale: Two choice-bred **SHORTHORN BULLS**, 12 and 18 months; also cows and heifers, with calves at foot and bred again to imported Red Duke = 36984 = (77585). 54 head to select from. **DAVID MILNE & SON, Ethel, Ont.**

SHORTHORNS: We are offering for sale 8 bulls, from 8 months to 3 years old, by Mungo 2nd and Scottish Bard. Also a few cows bred to Baron's Heir.
ROBT. GLEN, Owen Sound, Ontario.

Shorthorns FOR SALE:

8 Yearling and two-year-old Shorthorn heifers, in calf to imp. bull.
 PRICES MODERATE.
G. A. BRODIE, Bethesda, Ont.
 Stouffville Station.

CENTRE WELLINGTON SHORTHORNS
 Herd consists of Scotch and Scotch-topped females, with Lord Stanley 4th = 22678 = at the head. Stock all ages for sale. Farm adjoins the town.
Box 66. H. B. WEBSTER, Fergus, Ont.

Shorthorns and Leicesters.

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

R. Mitchell & Son,

Burlington Jct. Station, Nelson, Ontario.
 Large herd of Scotch and Scotch-topped Shorthorns of the most popular Aberdeenshire tribes, including 4 imp. bulls, 12 imp. cows and heifers. Also a number of home-bred yearling and two-year-old heifers, and 7 good, thrifty home-bred bulls, from twelve to fifteen months old. Write for catalogue.

Live Stock Labels
 Send for circular and price list.
R. W. James, Bowmanville, Ont.

YOUNG SHORTHORNS FOR SALE

Our present offering includes several choice young bulls fit for service, sired by "Scotland Yet," and out of Warfare (imp.) dams; also bull calves, from Blue Ribbon (imp.), and out of Royal George cows. Inspection and correspondence solicited.
A. & D. BROWN, IONA, ONTARIO.
 M. O. RAILWAY.

WOODSLEE STOCK FARM.

FOR SALE: 3 Shorthorn bulls, 15 months old, two reds and one roan. Well developed, healthy, and thick fleshed.
S. G. LITTLE, Hagerman, Ont.
 W. PATTON, Manager.
 Unionville Station, G. T. R.

RIG. CASTRATION.

DR. J. WILSON, V. S., WINGHAM, ONT.,
 Specialist in the castration of ringedlings. Terms and testimonials on application.

SHORTHORNS.

FOR SALE:—Bulls: Two 1 year old and one 8 months. A few heifers of choice breeding and superior quality. **AMOS SMITH, Trowbridge P. O., Listowel Stn. Ont.**

SHORTHORN BULLS AND HEIFERS FOR SALE.

Choice quality and best Scotch breeding. Imported and home bred. Imported Knuckle Duster (72793) and imp. Royal Prince head the herd, which has furnished the Provincial Fat Stock Show champion three out of the last five years. Catalogues on application.
H. SMITH, HAY, ONT.
 Exeter Station on G. T. R., half a mile from farm.

SHORTHORN CATTLE AND LINCOLN SHEEP.

Imp. Prime Minister at head of herd. Seven young bulls for sale—good ones. Also a few females. Stud rams all imported from H. Dudding, Esq.; the same blood as the 1000-guinea ram.
J. T. GIBSON, DENFIELD, ONT.

NEWCASTLE HERD OF Shorthorns and Tamworths.

One choice 2-year-old heifer. About a dozen boars, ranging from 2 to 4 months old; also a few nice young sows—all from Toronto prize stock. Be sure to write for prices. **COLWILL BROS., Newcastle, Ont.**

GEO. RAIKES, BARRIE, ONT., BREEDER OF SHORTHORNS & SHROPSHIRE'S. YOUNG STOCK FOR SALE.

SHORTHORNS.

We are offering three choice-bred young bulls, 1 yr. old, two 8 months old—heavy-milking strain. **JAMES BROWN, NORVAL STN. and P. O.**

SPRINGFIELD FARM HERD OF Shorthorns, Oxfords, AND Berkshires.

Young bulls and Heifers on hand. Also a few choice Berkshires.
CHAS. RANKIN, Wyebridge, Ont. SIMCOE CO.



T. DOUGLAS & SONS, STRATHROY, ONT., BREEDERS OF SCOTCH SHORTHORNS.

100 HEAD TO SELECT FROM.
 Offer for sale 8 young bulls, and cows and heifers of all ages, of the most approved breeding, bred to (imp.) Diamond Jubilee = 28861 =, at head of herd. Farm one mile north of town.
SPRING GROVE STOCK FARM

SHORTHORN CATTLE AND LINCOLN SHEEP.

Herd prize and sweepstake at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by the Marr Missie bull, Imp. Wanderer's Last, last of the get of the great sire, Wanderer, of the Cruickshank Brawith Bud tribe. High-class Shorthorns of all ages for sale. Also prizewinning Lincolns. Apply
T. E. ROBSON, ILBERTON, ONT.



High-class Shorthorns and Yorkshire Pigs.

Just now three 10-months bulls, got by imp. Sirius 15281, great big massive fellows with lots of flesh and quality—away above the average. Also a few superior young cows in calf, and 5 or 6 heifers. We are booking orders now for the spring trade. Can ship some in six weeks.
JAS. McARTHUR, GOBLE'S, ONT.
 Goble's Station, G. T. R., 10 miles east of Woodstock, 2 miles from farm. Visitors met.

JOHN DRYDEN, BROOKLIN, ONTARIO, BREEDER OF CRUICKSHANK'S SHORTHORNS AND CHOICE SHROPSHIRE SHEEP.

Fifty superior yearling rams ready for August delivery.
SPRINGBANK FARM.
 Shorthorn Cattle, Oxford Sheep, and Bronze Turkeys. Young bulls for sale.
JAS. TOLTON, WALKERTON, ONT.

SHORTHORNS.

6 choice young heifers, 4 imported cows. Also 16-months-old home-bred bull.
A. P. ALTON & SON, Burlington Junction Station. Appleby P. O.

SHORTHORNS (imported)

3 BULLS: 1 two-year-old, 2 one-year-olds. A few cows and heifers.
THOS. RUSSELL, EXETER P. O.

Maple Lodge Stock Farm ESTABLISHED 1854.

SHORTHORNS—Grand young bulls and heifers for sale. We have the first-prize milking strains. Imported Knuckle Duster and Imported Sir Wilfred in service.
LEICESTERS—First-prize flock of Canada for past six years. Imported and home-bred for sale.
ALEX. W. SMITH, MAPLE LODGE P. O., ONT.

HAWTHORN HERD OF DEEP-MILKING SHORTHORNS.

We are offering 8 young bulls for sale, of first-class quality, and A1 breeding.
Wm. Grainger & Son, - Lonsdale, Ont.

SHORTHORNS:

We are offering 3 extra choice yearling bulls, all from imported sires, straight Cruickshank, with Lavendar and Miss Ramsden dams.
THOS. ALLIN & BROS., Oshawa, Ont.

J. R. McCallum, Iona Station, Ont.

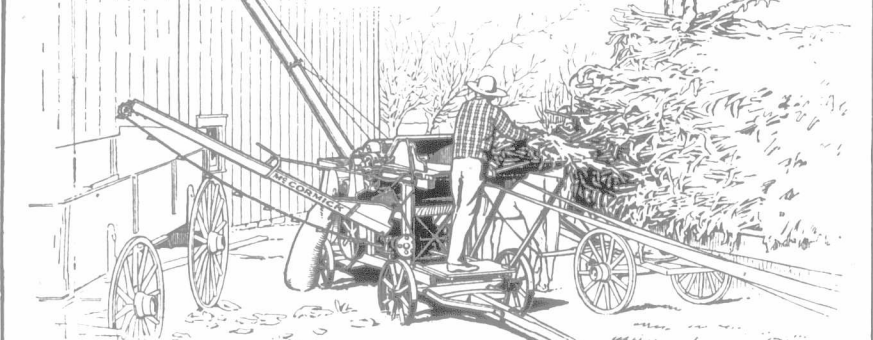
Offers young **SHORTHORN BULLS** and **HEIFERS**, of choice breeding, at reasonable prices. Iona Stn. on M.C.R., half a mile from farm.

DOUBLE THE VALUE OF YOUR CORN CROP.



Use the **McCORMICK CORN BINDER** and the **McCORMICK HUSKER and SHREDDER**. These machines pay for themselves. They are the best, most modern and most durable machines for handling your corn crop. With the **McCORMICK CORN BINDER** you can cut your corn when it ought to be cut and save it in the best possible condition.

The **McCORMICK HUSKER and SHREDDER** shucks the ears and separates them from the stalks, and converts both the fodder and stalks into stover which is better than hay.



DOUBLE THE VALUE OF YOUR CORN CROP.

Write for "King Corn" a beautiful illustrated catalogue—all about corn machines.

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Mr. H. B. Gurler is well deserving of the title the dairying public has come to affectionately give him—"The Dean of American Dairying." No man has given more unselfishly of his time and energies to the advancement of practical dairying, and no man's judgment of any feature of modern dairy practice or creamery operation can be more unreservedly accepted by everyone, than that of Mr. Gurler. His opinion is simply the highest attainable.

[Copy.]
 Clover Farm, DeKalb, Ill., March 9, 1901.
 The De Laval Separator Co., New York:
 Gentlemen,—It is now ten years since I made the acquaintance of the "Alpha" De Laval Separator at the Wisconsin Dairy School. I was convinced at that time that it was the leader in the race, and this opinion has been reinforced from year to year as I have had more experience with it. With me the "Alpha" is first and the others "nowhere."
 Respectfully yours,
H. B. GURLER.

New 1901 20th Century De Laval Catalogues—"Creamery or Dairy"—are now ready, and may be had for the asking.
 GENERAL AGENTS FOR EASTERN CANADA:
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We beg to call your attention to a new and indispensable article in

Barclay's Patent Attachment

FOR THE CURE OF BALKING AND KICKING HORSES.

Will control any vice known to a horse. Invaluable for breaking in colts. Can be adjusted in two minutes, and used with any harness, vehicle or implement. Sent, charges paid, to any part of Canada, with full directions for use, on receipt of price, \$5. Reliable representatives wanted. For further information, address

THE BARCLAY MFG. CO., Brougham, Ont.

Rapids Farm Ayrshires.

REINFORCED BY A RECENT IMPORTATION of 20 cows, 2 bulls, and a number of calves, selected from noted Scotch herds, and including the male and female champions at leading Scottish shows this year. Representatives of this herd won the first herd prize at the exhibitions at—

Toronto, London, and Ottawa, in 1900.

Come and see or write for prices. Young Bulls and Heifers for Sale, bred from High-class Imported Stock.

Robert Hunter, Manager
 for W. W. Ogilvie Co., Lachine Rapids, Quebec.

YORKSHIRES
Headed by Oak Lodge Prince 5071. Litters 15 weeks, either sex: 2 sows to farrow.

WM. TEASDALE, Dollar, Ont.
Northern branch G.T.R., 15 miles from Toronto. om

4 HOLSTEIN BULLS 4
FOR SALE: From 4 to 7 months old, having sires in their pedigrees from such strains as Inka, Netherland, Royal Aggie, and Tritonia Prince, and out of imported females that have proven their worth at the pail. THOS. B. CARLAW & SON, Warkworth.

HOLSTEINS
FOR SALE.

I am now offering Holstein calves of both sexes, out of such cows as Panarista Pauline, Inka Dirkeness 3rd's Jessie DeKol, DeDicker's DeKol, Belle Burke Mechthilde, Pietertje Hartog DeKol, and others, all closely related to DeKol 2nd and Netherland Hengerveid, the greatest of Holstein cows.

J. A. CASKEY, Madoc, Ont.

SPRING BROOK
Holsteins, Tamworths & B. P. Rocks.

2 choice De Kol bull calves, 1 cow, 2 heifer calves— all De Kols. Tamworths: One boar, 9 months; a few sows. Orders booked for spring litters.

A. C. HALLMAN, Waterloo Co. New Dundee, Ont.

BROOKBANK

Is headquarters for Holstein bulls. They are going fast; be quick if you want one. In writing, state age, etc., preferred.

GEO. RICE, Currie's Crossing, Ont. Oxford Co.

Riverside Holsteins.

2 BULLS 7 months old, sired by Victor DeKol Pietertje, imp. Dams: Woodland Molly DeKol (imp.) and Gemina Wayne.

M. RICHARDSON & SON, Haldimand Co. Caledonia, Ont.

WHERE ARE THE BEST HOLSTEINS?

Have you read of Lalith Pauline DeKol's wonderful record? Her sire was bred here. Have you read of Susie DeKol's record? She was sired by a son of our great cow, DeKol 2nd. We can give our customers more of the blood of the greatest producers than can be found in any other herd. Look over official reports and see where the sires of the great producers were bred. We have over 30 young bulls for sale, and a large number of females. Animals shipped to Canada are accompanied by certificate of health, and are subject to no duties or quarantine. If you want the best, write or visit—

BROOKSIDE HERD, H. Stevens & Sons, Lacona, Oswego Co., N.Y.

Maple Glen Stock Farm.

SPECIAL OFFERING: A bull calf born Aug., 1900, a grandson of Inka Sylva, the sweepstakes prize and test winner last season. Also one year old; dam a full sister of the great Carmen Sylva. A choice cow due to calve 1st July.

C. J. GILROY & SON, Brockville, on C.P.R. or G.T.R. Glen Buell, Ont.

UNADILLA FARM.

F. L. GREEN, GREENWOOD, ONTARIO, BREEDER OF

St. Lambert Jersey Cattle and Yorkshire Pigs.

My Jerseys are bred for business. Both sexes for sale. I offer an extra choice bull, dropped Feb. 27th, 1901, for sale, a son of Queen May of Greenwood, who made 18 lbs. butter in 7 days, and is at Pan-American now. A lot of very choice Yorkshires on hand. Also Barred Rocks, Light Brahmas, and Bronze turkeys. Prices right.

Jersey Calves

From large, deep-milking cows, who have given 7,000 lbs. each of 1/2 per cent. milk during the past year; good colors, and from two to six months old.

For description and prices write

W. C. SHEARER, - BRIGHT, ONT.

FOR SALE:

Bull calf, A. J. C. C., dropped Mar. 6th, 1901; sired by a son of Two Hundred Per Cent; dam by Perfect Combination; solid color, black points.

E. B. HINMAN & SONS, GRAFTON, ONT.

LIVE STOCK AUCTIONEER.

The undersigned is prepared to conduct pure-bred auction sales. 20 years' experience. References: John I. Hobson and Alfred Stone, Guelph; Jas. Hunter, Alma, and Mossom Boyd, Bobcaygeon. THOS. INGRAM, care Mercury Office, GUELPH, ONT.

SPLENDID
Jerseys for Sale.

Two bull calves and two heifer calves that will equal anything I know of; age, 1 to 3 months; price, \$24 to \$60. One yearling heifer, blood of old Massena, 900 pounds butter in one year, \$100. One yearling bull, extra breeding, \$80. All registered, graded and put on express car.

MRS. E. M. JONES, Box 324, BROCKVILLE, ONT., CAN.

Bargains for Threshermen



Every thresher and every owner of an engine should have our large catalogue, which gives net prices on all kinds of engines, supplies. Here are some sample prices: Grate bars, all kinds, 3c. per lb.; 3-inch 4-tone chime whistle, \$6; complete set of rasps for Monitor Jr. clover huller, \$15; best 2-inch wire-lined suction hose, 33c. per foot; 120 feet 6-inch 4-ply Veteran canvas drive belt, \$23.01. Send for our catalogue, and if not interested, tell your thresherman about us.

WINDSOR SUPPLY CO., 160 Ouelette Ave., Windsor, Ont.

Farmers:

Hers'e's Reliable Stock Food will sell your horse, colt, cow or calf. It is doing it for others, and it will do it for you. Perfectly harmless and cheap to use. A trial will convince. Put up in 7-lb. bags, 50c. Ask your druggist or seedsman for it. Stock book free. EDWIN HERSEK, M.F.S., WOODSTOCK, ONT.

BRAMPTON JERSEY HERD.

For sale: 2 yearling bulls; 8 bull calves, sired by Brampton's Monarch (imp.), and out of first-class cows. A number of cows and heifers in calf. Also some unregistered cows and heifers, fresh-calved and springers—grand family cows.

B. H. BULL & SON, BRAMPTON, ONT.

GLEN ROUGE JERSEYS.

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

CHOICE JERSEYS.

Am offering 1 cow, 4 yrs. old (very choice); 1 bull 17 mos. old; 2 bull and 1 heifer calves.

W. N. HASKETT, "Avon Manor," Markdale, Ont.

FOR SALE:

THREE BULL CALVES, from 4 to 10 mos. old, from choice Ayrshires of deep-milking strains. Prices reasonable. Come, or write to Carr's Crossing, G.T.R. W. F. STEPHEN, Brook Hill Farm, Trout River, Que.

FOR SALE:

High-class IMPORTED AND HOME-BRED AYRSHIRES, including cows, heifers and young bulls out of our prize and sweepstakes cows. Foundation selected with due regard to quality and productiveness. Come or write. WM. WYLIE, - HOWICK, QUEBEC.

Maple Cliff Dairy and Stock Farm.

BREEDERS OF AYRSHIRE CATTLE, IMPROVED BERKSHIRE AND TAMWORTH PIGS.

FOR SALE: 5 bull calves, a few heifers; young pigs, pairs not skin; 2 boars, 4 months old; young pigs. Farm adjoins Central Experimental Farm, Ottawa. R. REID & CO., Hintonburg, Ont.

TREDINNOCK AYRSHIRES

Imported bulls at head of herd: Glencairn 3rd, Napoleon of Auchinbrain, and Lord Dudley. Forty imported females, selected from leading Scotch herds, and their produce from above-named bulls. Size combined with quality and style, well-formed udders, good-sized teats, and capacity for large milk production. Bull calves for sale; also a few young cows and heifers. For prices and particulars, address JAMES BODEN, Mgr., St. Anne de Bellevue, Quebec.

Farm close to St. Anne Station, 20 miles west of Montreal. G.T.R. & C.P.R.

CHOICE AYRSHIRE BULLS.

I OFFER: Five bull calves, one dropped in each of the months of August, November, December, January, and April. Good individuals, and from deep-milking strains.

W. W. BALLANTYNE, STRATFORD, ONT.

"Neidpath Farm" adjoins city, on main line G. T. R.

Spring Burn Stock Farm.

BREEDERS OF Ayrshire cattle, Oxford Down sheep, Berkshire pigs, and Black Java fowls.

FOR SALE: 1 bull, 11 months old; females any age; 6 choice ram lambs. Also young pigs and fowls. WINCHESTER, MORRISBURG, C. P. R. G. T. R.

AYRSHIRES AND LEICESTERS

We breed for milk and quality, and employ only the best sires. Are now offering young Ayrshires of both sexes. DONALD CUMMING & SONS, Lancaster, Ont.

DAVID A. McFARLANE,

Breeder of high-class KELS0, P. Q. AYRSHIRES.

Young stock for sale from imported and home-bred foundation. Prices reasonable.

Stock Barn of Mr. John D. Ferguson, in the township of Yarmouth. Basement walls and floors built almost entirely with

THOROLD CEMENT



Stock barn of Mr. John D. Ferguson, in the township of Yarmouth. Dimensions of the building, 80 x 48 feet; foundations of concrete, 2 1/2 feet deep. Floors and root cellar all of Thorold Cement.

ESTATE OF JOHN BATTLE: ST. THOMAS, APRIL 18TH, 1901. Dear Sirs,—Having used a large amount of your cement during the last five years in the County of Elgin, I can truthfully say that the farmers have not the slightest fault to find with it, and they say they would not use any other as long as they can procure yours for the money. EDWARD GROVES.

THE ESTATE OF JOHN BATTLE, THOROLD, ONT.

The National Cream Separator,



Cream Separator,
MANUFACTURED BY THE Raymond Mfg. Co. of Guelph, Can.

ALSO MAKERS OF THE CELEBRATED "Raymond Sewing Machine."

REPORT FROM WATERLOO COUNTY.

TO THE RAYMOND MFG. CO., Guelph, Ont.: GENTLEMEN,—I wish to make a statement that should be of some encouragement to your firm just at this time when your Company is investing a large amount of capital in shops and machinery for the purpose of manufacturing the "National" Cream Separators. I bought a "National" in December, 1898, and received some practical instructions at the O. A. College, Guelph, in the way of making good butter and putting it in neat form for market. The first year I had nine cows and sold \$45.00 worth of butter from each cow, besides keeping the house in butter and having the skim milk fresh, sweet and warm for the calves. In 1900 I received higher prices for the butter, and made \$52.00 per cow from 12 cows, or a total of \$625 73. I market my butter in Toronto and Woodstock, and can find ready sale for more than I can make. Although I am a farmer, I have sold 93 "National" Cream Separators since I got my own, two years ago. The "National" is profitable to a farmer, whether he makes the butter at home or sends the cream to the creamery. I use a Babcock tester, and find the "National" cannot be beat at close skimming. Wishing you success, and hoping you will be able to supply your agents with machines as fast as we need them, I am, Respectfully yours, CHAS. I. ZEHR.

"NATIONAL" NO. 1 HAND POWER. Capacity, 330 to 350 lbs. per hour. THE Creamery Supply Co. GUELPH, ONT.

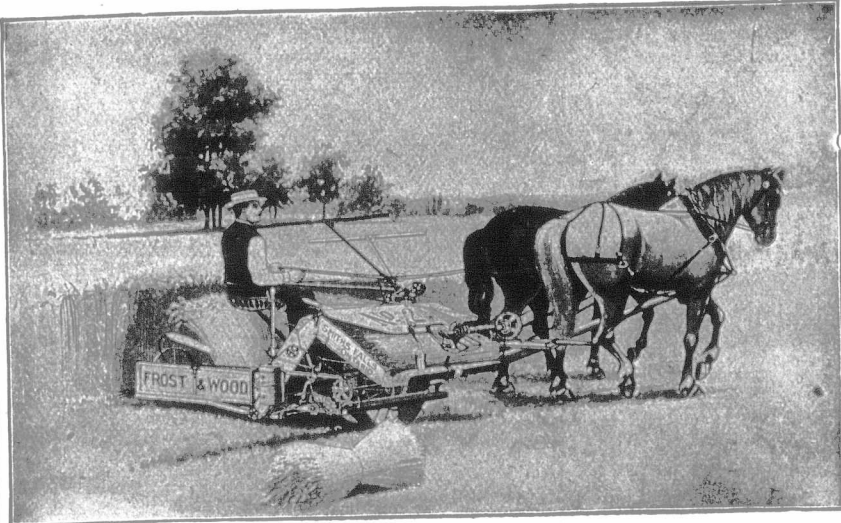
General Agents for Ontario. Please Mention The Farmer's Advocate.

Does Quality Count With You?
If so, We Can Interest You . . .

THREE LEADERS FOR 1901:

F. & W. "WINDSOR" DISC HARROW
F. & W. No. 8 MOWER
F. & W. No. 2 BINDER

These Machines will Save You TIME and MONEY.



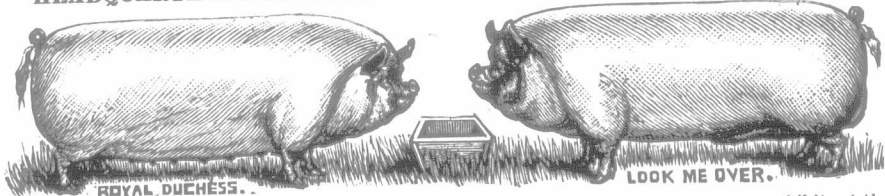
THE LITTLE MACHINE THAT CUTS THE BIG STUFF. NO BINDER WAS EVER MADE THAT WILL DO BETTER WORK OR MORE OF IT.

Don't forget that we also manufacture a full line of Light Single Reapers, Steel Plows, Horse Rakes, Corn Cultivators, Spring-tooth Harrows, Potato Scufflers. A post card, with your name and address, to any of our branches will bring you one of our new 1901 illustrated catalogues, now ready. It will pay you to get one.

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Head Office and Works: Smith's Falls, Ontario

BRANCH OFFICES: Toronto, London, Winnipeg, Montreal, Quebec; St. John, N. B.; Truro, N. S.

Summer Hill Herd
HEADQUARTERS FOR THE IDEAL BACON HOG AND EASY FEEDERS.



The largest herd of imported and Canadian-bred Yorkshires in America. Out of 121 exhibits at the leading shows in '99 and 1900, including Toronto and London, we gained 116 awards. Expert judges both at London and Toronto were unanimous in pronouncing our herd far superior to that of our strongest competitors. Won most of the best prizes offered, including first prize for best pen of pure-bred bacon hogs, also grand sweepstakes over all breeds in a class of 13 entries. The foundation of our herd was laid by personally selecting the choicest stock from the most noted breeders in England and Scotland. We have the ideal bacon type—size without coarseness, and easy feeders. Pigs of all ages for sale at moderate prices. Write us for particulars, Telephone, Millgrove, Ont. Telegraph 254 Bay St. S., Hamilton, Ont.

D. C. Flatt & Son, Millgrove, Ont.

LARGE ENGLISH FOR SALE.
YOUNG boars and sows carrying the blood of Baron Lee 4th, Bright Star (imp.), Enterprise and Highclere, on Bow Park, Teasdale and Snell females, with Allandale Boy 5875 and Royal Lad 3rd 4307 heading the herd.
S. DYMONT, BARRIE, ONT.

Large English Berkshires
Only a few young sows left, from 4 to 7 months old, bred direct from imp. stock. B. P. Rock eggs, \$1 per setting of 15, remainder of season, from our prizewinning birds.
H. BENNETT & SON, St. Williams, Ont.

English Berkshires.
FOR SALE: Choice Apl. and May pigs of the Highclere family. One good, lengthy yearling boar. Prices reasonable.
JOHN RACEY, JR., Lennoxville, Que.

BERKSHIRES
A specialty. Can supply pairs and trios not akin. Various ages.
MAC. CAMPBELL, NORTHWOOD, ONT.

Tams. for Sale. Stock boar, Defiance, 2nd prize, Toronto. First-prize boar, six months; boars, sows, 5 months. Prices right.
JOHN HORD & SON, Parkhill, Ont.

HOLWELL MANOR STOCK FARM.
IMPROVED YORKSHIRES FOR SALE.
Young boars and sows carrying the blood of Oak Lodge Conqueror and Oak Lodge Royal King (imp.). Write for prices. Satisfaction guaranteed.
D. G. GANTON, ELMVALE, ONT. BOX 18.

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

YORKSHIRES A SPECIALTY
OF THE IDEAL BACON TYPE.
Boars and sows from 2 to 3 months old, from large, matured stock. Have only one young sow left, safe in pig, for sale—a choice one.
Write—
JAS. A. RUSSELL, Precious Corners, Ont.

PLEASE MENTION FARMER'S ADVOCATE.

NORTH BRUCE HERD OF YORKSHIRES

Boars fit for service, and young stock of both sexes on hand and for sale.
WILLIAM HOWE, BRUCE CO. NORTH BRUCE, ONT.

YORKSHIRES and POULTRY.
Eggs for hatching reduced to 75c. per setting for balance of season. We are offering a number of choice pigs, bred direct from imported stock. Prices reasonable.
A. B. ARMSTRONG, CODRINGTON, ONT.

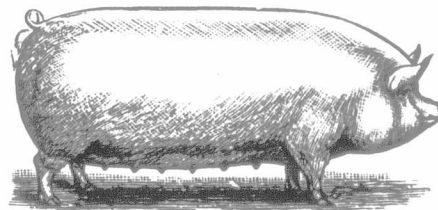
Improved Yorkshires FOR SALE.
of the most popular families. All ages and both sexes now ready for immediate shipment. Write for what you want. Prices reasonable—consistent with quality.
E. DOOL, Hartington, Ont.

JOS. FEATHERSTON & SON.
IMPORTERS AND BREEDERS OF Improved Large Yorkshire and Essex Swine
STREETSVILLE, ONTARIO.

We have some fine young pigs to sell, from imp. sows and by the celebrated boar, Whitton Star. He took first prize at Toronto and London fairs in 1899 and 1900. We have some more imported sows to farrow, bred to him, and have some nice young pigs from our home-bred sows, and got by the imp. boar, Nottingham Monarch, a sire of great promise.

OAK LODGE YORKSHIRES

ARE THE CORRECT TYPE TO BRING THE GREATEST PROFIT.



We breed our winners, and we win more prizes than all other herds combined at Toronto, London, and other large shows. Sweepstakes in bacon classes over all other breeds in dressed carcass competition, also on foot, for two years in succession. Championship carcass in bacon class at Chicago, 1900. First-prize herd at Toronto Industrial for nine years. Write for prices.

Brethour & Saunders, Burford, Ont., Can.

Canada's Winners. EGGS FOR HATCHING.

Silver Gray and colored Dorkings, Indian Games, Houdans, Minorcas, Hamburgs, Leghorns, Poland, Ducks and turkeys. Our birds win at Boston, New York, Toronto, London, Kingston, Ottawa, Montreal. Also Ayshires (bulls and females). For full particulars, write WM. STEWART & SON, Menie P. O., Ont.

EGGS FOR HATCHING.
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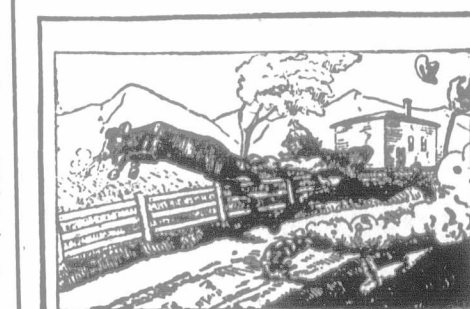
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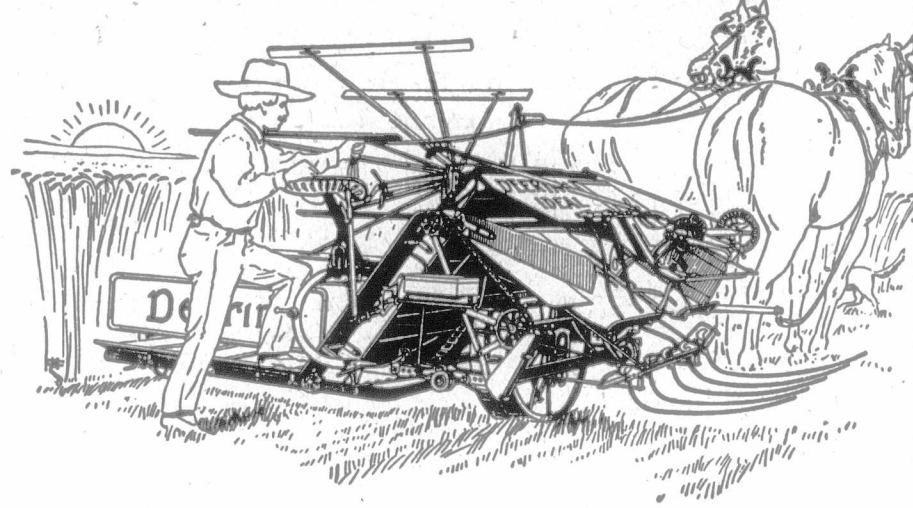
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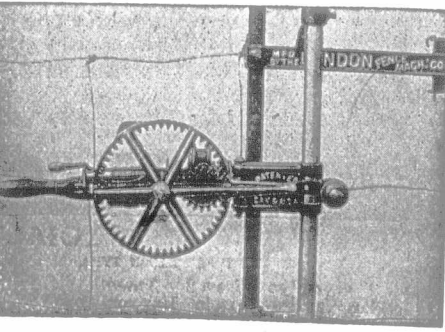
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