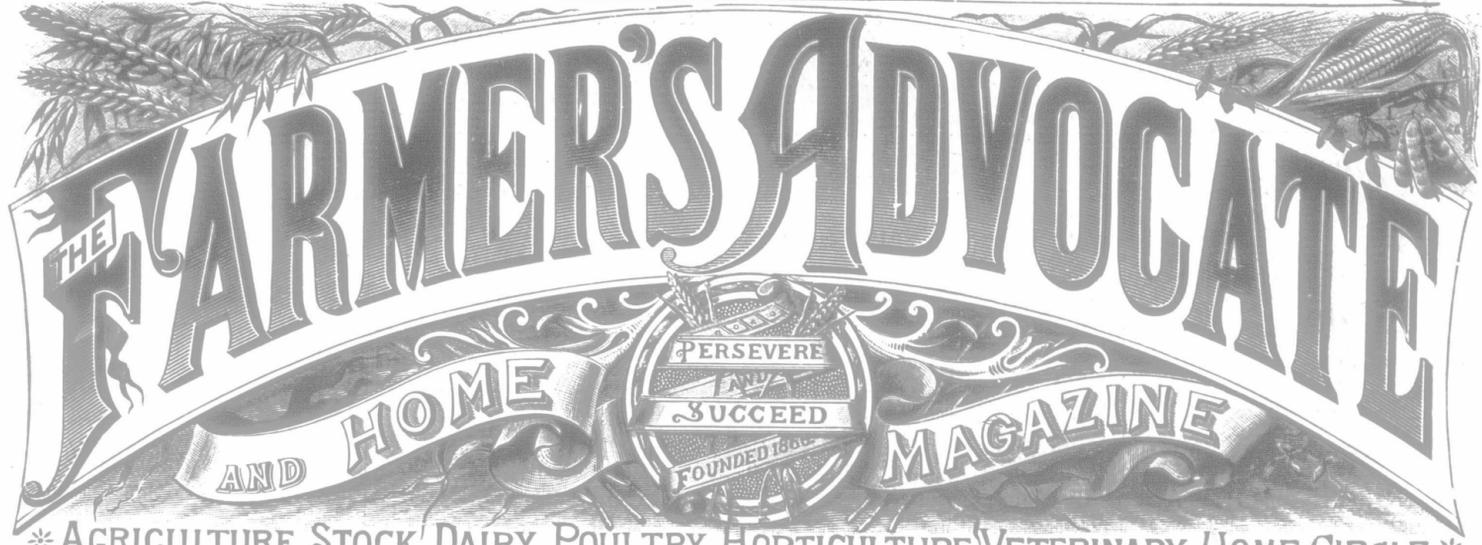


CANADIAN HORSE SHOW REPORT.

MANITOBA AND WESTERN EDITION



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

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Vol. XXXV. LONDON, ONTARIO. MAY 5, 1900. WINNIPEG, MANITOBA. No. 501

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VOL. XXXV.

LONDON, ONT., AND WINNIPEG, MAN., MAY 5, 1900.

No. 501

Now the Summer-fallow.

Not in the annals of the agricultural history of the West has there been a season so favorable for seeding operations; in fact, it would seem impossible to have seed go into the ground under more favorable conditions. The rains of last autumn left the cultivated land well moistened when the winter set in, and although there was little snow during the winter, still, the fine surface soil mulch created by the mellowing influence of freezing and thawing has retained a good share of the soil moisture; while for horse and man and machine, the condition of the soil for spring work has been well-nigh perfect up to date of writing. No one should allow these unusually favorable circumstances to tempt him to crop land that should be summer-fallowed or seeded down to grass, simply because it is so much easier to put in a crop. Due consideration should be given to the harvesting, which is a much more serious matter than the seeding, present indications pointing toward a probable scarcity of labor throughout the rush season.

Moisture is unquestionably the most important element required for successful plant growth in this prairie country. With sufficient rainfall during the growing season, our crop is, generally speaking, assured. It is quite possible to have even an excessive rainfall during any one year, and yet if it does not come at the proper season, a crop failure may result. This, of course, would depend largely upon the ability of the soil to take up and retain moisture. Soils differ largely in this respect; but much depends, upon the cultivation given, and here is where a little "book farming" may come in useful.

Plants take a large portion of their food in a liquid form through their roots; the liquid thus taken from the soil passes up through the stems to the leaves, where it is digested; the water being mostly given off into the atmosphere, while the nutriment is retained to build up the plant tissue, flowers and fruit; thus every plant acts as a pump, drawing the moisture from the soil and giving it to the atmosphere. The difference in the amount of moisture in the soil of a well-worked summer-fallow and an adjoining grain field is an excellent illustration of this. It is the custom of some to allow weeds to make a good growth before plowing the summer-fallow, under the impression that the green crop thus turned under will be of manurial benefit to the soil, but as the benefit thus derived is exceedingly questionable, and an immense amount of moisture is pumped from the soil by the growing weeds, the loss is greater than the gain. The moisture that could be saved to the soil by early plowing would do more towards the succeeding crop, and at the same time, time would be gained in the germinating and destroying of more weed seeds while the growing season was still on.

Moisture will evaporate very rapidly from a bare fallow that is not protected by a well-worked soil mulch. Everybody knows this, but there are sometimes great difficulties in the way of providing the soil mulch, the greatest of which is the increased tendency of the finely-worked surface soil to drift. The fact that soils drift is evidence that they are lacking in root fiber or humus, which can most readily be supplied in this country by seeding down to grass. Each year the area sown to grass is increasing; this year the increase will be very greatly in excess of any previous year in the country's history, and it is well.

A very few years ago a common remark in the wheat sections was, "My land is too good for growing stock," but this did not prevent the wind from blowing it away, and to get it back into proper mechanical condition to prevent drifting and to conserve moisture, it must be put down to grass. Live stock will follow the grass in natural order, and then who can doubt but that the best wheat sections will also be the best stock sections, with a corresponding increase in prosperity and also in land values.

The Importation of Nursery Stock.

As announced in our last issue, the authorities at Ottawa have amended the San José Scale Act so as to permit the importation of nursery stock from the United States upon its being subjected to fumigation with hydrocyanic acid gas, under the supervision of a qualified official. A fumigating station has been established at Winnipeg, which is the port of entry for all Western Canada. It seems unfortunate that the amendment and preparations for treating the stock could not have been put through a little earlier, as we fear the concession will have been of little benefit this season. It was near the middle of April before the arrangements were made known, and about the 25th of the month before the fumigating station at Winnipeg was ready, while May 1st was the time limit for receiving the stock, as the treatment to which it is subjected kills the stock after it has budded out.

We understand it is intended to allow the importation of stock again in the fall, but it may be difficult to get stock from the south that is matured and dormant through in time to have it heeled in before winter's frost sets in, and in spring shipments there is always danger of a few warm days bursting the buds, when under the existing regulations a total loss would ensue. The following extract is from the order-in-council:

"As it is well known that well-matured and thoroughly dormant nursery stock may be safely treated, but that there is danger of serious injury to the trees if fumigated in the autumn before the buds are thoroughly dormant, or in the spring after the buds have begun to unfold, all stock which when received is immature or too far advanced for safe treatment will be refused entry and held at the risk of the shipper."

Would it not be possible, in view of the great importance to the West of being able to import from Minnesota, to have a competent Government official appointed to inspect for the scale all stock imported, and fumigate or destroy any affected stock. In this way, stock immature or too far advanced that was not affected with the scale would not be lost.

Care for the Foal.

The colts are now coming on the farms, and will continue to come for two months, and the profit in them will depend very largely on the welcome they get when coming into the world. We think the first duty of every farmer to his colt when he first sees it, after allowing it a draught of nature's fountain, is to catch it and hold it. Put the left arm around its neck and the right about its hips until it quits struggling. In this way you convey to the youngster the idea that man is omnipotent, a being not to be resisted. It henceforth regards man as its god, and if he will show it kindness as well as power, he will give it to understand that he does not mean to hurt it; it will in a colt's way worship him in the future and render him obedience.

The next thing is to see that its bowels are kept open and regular, and that it gets started in right. If it has not been well born, or, rather, well bred, it is the owner's fault and loss. The well-bred colt always receives more kindness and is happier than the misbegotten.

The next thing is to teach it to stay at home when its dam has business on the farm. This can be done by confining it where it can not get out or hurt itself, and all the better if in company with another colt or horse; and as soon as it is able to nibble at grain, it should have some clean oats or bran with which to stay the gnawings of hunger. In its earlier weeks it should have nourishment between meals if the mare is at work in the field, and as soon as it is able to eat it should have a side table whether the mare is at work or not.

The first summer and winter lay the foundation of the frame and determine largely the future usefulness of the horse, and one of the main things is for it to have plenty of good feed. The proper development of the plan of the breeder cannot otherwise be secured. *Wallace Farmer.*

Alfalfa That May Suit Manitoba.

Prof. Hausen, of South Dakota Experiment Station, visited northern Russia a few years ago at the instigation of the Secretary of the United States Department of Agriculture, with instructions to look for some leguminous fodder plant that would likely be suitable for the droughty districts of the Western States. Below we reproduce a portion of Prof. Hausen's report of his finding Turkestan alfalfa and its success so far in America.

"At the Experiment Station at Brookings, S. D., with a minimum temperature last winter of 40 degrees below zero with the ground bare, common alfalfa was killed, while this alfalfa from the heart of Asia came through unharmed. One of the main instructions of Secretary Wilson in sending the writer on this trip in '97-'98, of nearly ten months, was to secure, if possible, a hardy, drought-resisting leguminous forage plant from the elevated table-lands of Asia. Upon reaching Russia, the Government agricultural authorities at Moscow and St. Petersburg told me of this plant. It is distinct from common alfalfa, which has come to us largely from Spain. Botanically, the difference is expressed by Russian authorities in naming Turkestan alfalfa *Medicago Sativa Turkestanica*, while common alfalfa is called *Medicago Sativa*. I learned, especially from Prince Massalski, of the Department of Agriculture at St. Petersburg, that it had been found in parallel experiments east of the Caspian Sea in the Merv oases in Russian Turkestan that the native alfalfa was vastly superior to the common alfalfa, especially where there was a lack of water, as it was able to give satisfactory crops with a minimum supply of water so small that the European (common) alfalfa perished from drought.

"Along the Volga River at the dry-region experiment stations of eastern European Russia I found this plant doing well, and when I got to the desert and semi-desert regions of Turcomania, Bokhara, and the Semirechnisk province of Russian Turkestan, all east of the Caspian Sea, I made careful study of the plant. Here were camels by the thousands, and clouds of dust often so thick that a wet sponge was found essential for relative comfort in breathing. I was so pleased with what was seen of this plant that I did not stop until fully 18,000 pounds of the seed was secured, chiefly from the cotton-growing sections among the Sarts, or native Mohammedans. The main reason for making the overland journey of over 2,000 miles (1,300 by wagon, 700 by sleigh) from Tashkent, the capital of Russian Turkestan, to Omsk, in Siberia, via Kuldja, in western China, was to trace this plant to its northern limits, which was found to be near Kopal, in Siberia (lat. 45 degrees 10 minutes, long. 79 degrees east of Greenwich). Kuldja, in Sargaria, western China, is in lat. 43 degrees 50 minutes, long. 81 degrees 20 minutes east, and was the farthest point reached in my journey (about half way around the globe). Seed was secured from eight different sources, but, of course, only small lots could be obtained from the places visited in the overland journey. The interesting, and to me the most surprising, fact is that the alfalfa which proved so hardy at Brookings was from the cotton section of Turkestan, so that the plant stands cold as well as drought. This indicates that in this plant we have an alfalfa that will be hardy to our northern borders and probably north into Canada."

Moose Jaw Spring Show.

Spring Stallion Show was held on April 17th by the Moose Jaw Agricultural Society. The attendance was good, but the entries not numerous. Prizewinners were: Heavy draught stallion—(1) G. M. Annable's "Atlas," (2) Alex. Thompson's "Young Ringleader." General purpose stallion—(1) G. M. Annable's "Lord Roberts," (2) G. M. Annable's "Roving Prince." Thoroughbred stallion—(1) R. S. Fulton's "Rumpus." Roaster—Battle Bros. "Fleetmont." Shorthorn bull (yearling)—F. W. Green's "Strathallen Pioneer," 1st, and "Duke of Boharm," 2nd. Shorthorn bull (aged)—F. W. Green's "Strathallen Hero," 1st, and "Pioneer of Gloster," 2nd.

Russell Stallion Show.

A Spring Stallion Show was held at Russell on April 20th. There were six entries in the heavy draft class, first and second prizes being awarded to the first two on the list in the order mentioned: Ireland's Prince, owned by the Syndicate; Poteath, owned by Alex. Forsyth; Aberdeen, owned by Bennie Bros.; What's Wanted, owned by H. McDonald; General Marcia, owned by D'Arcy Johnston.

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WINNIPEG, MANITOBA.

An Acknowledged Leader.

G. W. CLEMONS, Secretary Holstein-Friesian Association of Canada:—"Your beautiful premium picture, 'Canada's Ideal,' is admired by all who have seen it. Good as it is, it merely reflects the worth of the FARMER'S ADVOCATE, which is freely acknowledged to be the leading agricultural paper in the Dominion."

Faithful Portraits.

F. G. BOYER, P. E. Island:—"Canada's Ideal' is of itself an education in stock-breeding, being a faithful portraiture of real living animals which are types of their fellows in many Canadian Short-horn herds. Pity it is that such cattle are not the reality in all parts of Canada. The prepotency of the Shorthorn bull is so great that his use with common cows will, in one or two crosses, give results almost equal in looks to the sire."

A Perfect Library.

D. HILL, Perth Co., Ont.:—"Canada's Ideal' is perfection. It is a library in itself, and should have a place in every stockman's home. All inferior Shorthorn pictures should be thrown aside and 'Canada's Ideal' be the daily counsellor of all who desire the most reliable information. I would like to see it in the sitting or living room of all the homes in Canada, where it could be easily referred to by all members of the household, where its presence would say to all: 'Come and consult me, my treasures are for you.'"

The active demand for horses, both for heavy draft and for saddle and carriage purposes, and the good prices being paid, with a good prospect of the trade continuing, should lead farmers to make careful selection of the sires they breed from, and to breed with a clearly defined purpose in view. It costs as much to raise a "plug" as a "seller."

The Western Stock Growers' Meeting.

SPECIAL CORRESPONDENT.

The fourth annual general meeting of the Western Stock Growers' Association, held in Medicine Hat on the 13th, 14th and 15th of April, was the largest in the history of the corporation, the most important yet held, and in every way a most representative gathering, including the following members:

Calgary—D. W. Marsh (president), G. Lane, P. Burns, A. C. Sparrow, A. E. Cross, M. L. A., W. R. Hull.

Macleod—A. J. McLean, R. G. Mathews (secretary), W. Stewart, E. H. Maunsell, W. F. Cochrane, Jas. Cowdry, W. Metcalf, J. Johnston, J. Wilson, R. N. Wilson.

Medicine Hat—J. H. G. Bray, Thos. Tweed, W. F. Finlay, A. Gordon, Henry Brice, Geo. Jenkins, R. Scott, J. C. Hargrave, Jas. Hargrave, L. B. Cochrane, C. R. Mitchell, F. Bassett, F. G. Foster, Alex. Middleton, F. O. Sisson.

Josephsburg—John Reid, Lawrence Sexton.

Maple Creek—D. J. Wylie, H. H. Faquier, W. Pollock, H. Parsons, G. W. Quick, W. W. Wilson.

Pincher Creek—Chas. Kettles, R. Duthie, A. M. Morden, H. M. Halford.

Crane Lake—R. Needham, F. W. Craig, C. Chaston, E. Williams, R. Dalgleish.

Stair—John Ellis.

Carberry—G. B. Murphy.

Lethbridge—H. Harris.

New Oxley—A. P. Springett, W. L. Watt, G. E. M. Leeds.

Sheep Creek—J. Rodgers.

High River—F. Steinson, G. Emerson, H. Smith.

Regina—Premier Haultain, Hon. G. H. V. Bulyear, Dr. De Vebber, M. L. A., Benj. Prince, M. L. A.

Ottawa—F. W. Hodson, Dominion Live Stock Commissioner.

Montreal—Dr. D. McEachran, Dominion Chief Veterinary Inspector.

Winnipeg—G. Harcourt, Manitoba and N.-W. T. Horse Breeders' Association.

With a large attendance of local stockmen.

The first day (Wednesday) was taken up by the President, Secretary and Committee of Management, preparing and submitting reports, etc. On Thursday morning proceedings were opened by the President's address and report of Committee of Management, Secretary-Treasurer's report and financial statement, when the election of officers for the ensuing year took place, and resulted as follows:

President, D. H. Andrews, Crane Lake.

1st Vice-President, A. R. Springett, New Oxley.

2nd Vice-President, F. W. Cochrane, Macleod.

Secretary-Treasurer, R. G. Mathews, Macleod.

Board of Management—Bow River, R. W. Cowan; Jas. Rodgers, Sheep Creek; W. J. Wylie, Maple Creek; R. Porter, Medicine Hat; H. Harris, Lethbridge; C. Kettles, R. Duthie, Pincher Creek; F. S. Stinson, H. Smith, High River; A. B. McDonald, B. Warnock, Willow Creek.

The range question was discussed at considerable length, and many differing opinions expressed, the following resolution being finally passed:

That the Government be asked, after consultation with the Association, to order a general round-up and have all infected cattle dipped, and that a mounted policeman accompany each round-up to see the law enforced.

The following resolutions were carried:

That the Government take steps to keep American cattle from straying into Canadian ranges.

That the Territories Legislature be asked to amend the stock inspection ordinance by providing that stock inspectors examine all stock slaughtered on Indian reserves before slaughtering.

That inspection be made of all cattle rounded up by American cattlemen on the Canadian side of the line.

That instruction be given to stock inspectors to inspect all hides slaughtered by butchers, and that the Legislature be asked to amend the law accordingly, as the present law is very unsatisfactory.

That the season for keeping the bulls up be between the first day of January and the 1st of July, as heretofore.

That legislation be asked for requiring the tuberculin test for all thoroughbred cattle imported into the Northwest Territories.

That the minimum value of horses for importation through the customs be raised to \$50.

That the wolf bounty be increased to \$10 for full-grown bitches, \$5 for grown dogs, and \$3 for pups; also a bounty of \$25 on coyotes, and \$12 on coyote pups, bounty not to exceed \$1,000.

That the bounty be only paid to Half-breeds and Indians.

That squeezers be built in shipping corrals, so that animals with indistinct brands may be closely examined, and that the expenses do not exceed \$100.

The suggestion made at the Manitoba horse breeders' annual meeting, urging the Dominion Government to take some action to induce the Imperial Government to establish cavalry remount stations in Manitoba and the Territories, was, after full discussion, heartily approved of.

That in view of Col. Steele's approval of the horses purchased for Strathcona's Horse, the Association consider the action of the Calgary Board of Trade as unnecessary and unadvisable.

That this Association endorse the action of the Manitoba Horse Breeders' Association in drawing the attention of the Dominion Government to the very inferior type of stallions in use among the

Indians in the Territories, and are of the opinion that it is advisable that the standard be raised.

That the Association protest against the Indian Department charging fees for cattle straying on Indian reserves.

The next annual meeting will be held in Calgary.

Entomology in Alberta.

(Continued from page 215.)

CABBAGE MAGGOT.

Another frequent trespasser in our garden is the cabbage maggot. Just as we are congratulating ourselves that at any rate the unknown has not got our cabbages, we notice they quite suddenly begin to droop and die. Their leaves have not been attacked, so we must look for the trouble in the roots. On removing a little of the soil, we find a number of white maggots eating the stem just above the true root. Now, as we are too late for the use of preventive measures, we must try the "active" ones. Two simple ones are recommended by Dr. Fletcher, one being kerosene emulsion, and the other a mixture of 4 ozs. of white hellebore, 4 ozs. of kaint, and 2½ gals. of water. As soon as the damage is discovered, remove the earth round the roots about two inches from the surface with your left hand, palm downwards, and two fingers on each side of the stem, and pour in half a teaspoonful of the kerosene emulsion or hellebore mixture. The kerosene emulsion should be diluted with water added in the proportion of 9 parts of water to 1 of emulsion. Kaint acts as a good fertilizer to enable the plant to recover from the injury. The fly, a little gray fly, lays its eggs about the middle of June around the stem of the plant, just below the surface, so that if the earth about this time is kept hoed up to the collar, it will keep the fly from getting down to lay its eggs. Either of the above remedies, applied early in June, and repeated once or twice, will keep the fly away.

PREPARATION AND USE OF KEROSENE EMULSION.

So standard a remedy as kerosene emulsion should be known to everyone. It is a mixture of 1 gal. of kerosene or coal oil with hot soapsuds made of ½ gal. of water (rain water preferred) and ¼ lb. of soap, and all being thoroughly churned together till it will adhere to the surface of glass without oiliness. This will keep any length of time, but when required for use, be sure to dilute it by adding from 9 to 15 times its measure of warm water. Kerosene emulsion, diluted by adding 9 parts of water to 1 part of the emulsion, is the standard remedy against the cabbage and turnip aphid. In the case of plants which have tender foliage, a decoction of tobacco and soap water (1 lb. of cheap factory tobacco mixed with 5 gals. of soap suds) should be used instead of kerosene emulsion. All lice (aphides, etc.) are suckers through tubes.

WARBLES IN CATTLE.

I referred a short time ago to the ox bot-fly. I suppose every cattle farmer is pretty well acquainted with this fly, but it is a trouble that is too apt to be treated as of not a very serious nature, and as not preventable. Now, this is a great mistake, and I want to show how much of a mistake. In the first place, the bot maggot or warble so damages the hides that grubby hides sell for one-third less than sound ones, and the importance of this is apparent when we consider that the bulk of our hides are now being shipped to England and elsewhere instead of being retained in the Territories. But the beef of the animal infested by the grub is itself rendered so inferior that buyers of the highest class of meat, who supply hotels, etc., will not, on any account, buy carcasses showing traces of warble attack. Such beef has therefore to be sold at a lessened price below that obtainable for good beef, the reduction ranging from \$2 to \$5 per carcass. The producer, therefore, not only suffers a loss, but in view of the large and increasing exports of beef (cold stored) to England, it again becomes important to see that the reputation of the Territories is sustained by keeping stock free from this pest. Dairy farming is extensively carried on in many parts of the Territories, and it is well to know to what extent warbles are able to affect the dairy in countries infested by them. There is the loss in quantity of flow of milk as well as deterioration in quality, resulting from the annoyance of the animals by the flies when depositing their eggs, and later by the grubs. The shrinkage in the milk is estimated at 10 per cent., and the deterioration in quality at the same rate, making a total of 20 per cent. The milk from warbled cows, moreover, is liable to introduce the warble into the human being. Mr. Gregson here read to the meeting a few particulars relating to several stock-raising States of Mississippi Valley, showing how serious the warble pest could become. In districts that are known to be subject to the warble, it is, therefore, surely worth while to persevere with preventive measures. The history of the warble is a strange one. It is understood to be, shortly, as follows: In the months of summer the fly lays its eggs on various parts of the animal's body, and in licking its coat the animal swallows a number of the eggs or young hatched larvae. About Xmas time the larva in its wanderings in the animal's body has worked its way through the tissues of the skin of the back, where it is then found (but underneath the skin). The maggot then bores through the skin, caudal end first, in which position it remains till fully grown. It breathes through this hole in the hide by means of two spiracles situate not on each side of its body, but at its anal extremity, hence a little grease will

easily kill it. As soon as the warble is fully grown it forces its way out through the breathing hole and drops to the ground, in which in a few weeks' time it transforms into the perfect ox bot-fly. We see, then, by the time the warbles are discovered the mischief is done. It is far better to protect the animal against the fly, and this can be done by smearing the animal's body, especially the parts which it can reach with its tongue, with strong-smelling oils, such as train oil, fish oil, kerosene emulsion diluted, or rancid butter.

NATURAL ENEMIES.

Remedies are, after all, but the weights used to overcome the balance of nature. Insects, myriads as they are, have many enemies, parasites and other insects, birds, toads, fungi, drought, wet, etc., which serve to keep the balance level, but so long as man grows their food supply, so long will he be subject to attacks by noxious insects, unless he adopt corresponding measures to control them. Insects' enemies do no more than maintain the equilibrium, and if we, as we are all doing every year, grow their food, or, in ignorance, destroy any of their enemies, by so much do we increase the power of the noxious insects, and here again we see the value of entomology, because it teaches us how to recognize the enemies of insects. Take once more the cutworm as an illustration: There is a common beetle in our gardens called the fiery ground beetle, so named because on its wing-cases, which are shiny black, are six rows of glistening coppery color. (A specimen of this insect was handed round the meeting for inspection.) This beetle appears in June, and in both its stages of beetle and larva it fiercely attacks and devours cutworms. The grub has a terrible looking appearance, and is exceedingly agile. It is flattened and of a black color, with a pair of sharp hook-like jaws projecting in front of its head. This fierce-looking grub pursues the worms in their retreats underground, and seizes them wherever it comes in contact with them, clinging to the worm like a bulldog through all its writhings and twistings, till at last the worm succumbs exhausted, and the conqueror bites two or three holes in its skin and proceeds to suck out its juices. Then in our gardens also is another common beetle, which is fiercer even than the fiery ground beetle. It is called the tiger beetle, and has three whitish irregular stripes on each side of its back. (A specimen of this insect was also handed round for inspection.) The female lays its eggs in the spring in some favorable spot where the young grub will be able to procure food. The egg is hatched, and a hideous-looking grub comes out. His head is large and flat and horny, and is surmounted by two tremendous curved jaws. This grub is very voracious, and devours immense quantities of insects. We have seen how the grub of the fiery ground beetle pursues the cutworm; but that is a mild way compared with the plan adopted by the grub of the tiger beetle. The grub digs a hole in the ground about a foot deep and about as large as a lead pencil in diameter. To do this it hoists itself round, and loads on its broad flat head as much dirt as it can carry, and deposits it around the mouth of the hole in a fine powder. When the hole is deep enough, the grub climbs to the top of it, covers its head with soil and waits. By and by some poor cutworm taking an evening walk steps upon the living trapdoor. Instantly he is seized by the terrible jaws of the grub, and dragged down the awful pit, and there torn to pieces and eaten. The perfect tiger beetle is just as voracious as its grub, but it hunts down its victims in the face of day. There are very many other beetles that are beneficial. In fact, it is safe to say that with the exception of the "click" beetles and May beetles, which all farmers know, it would be better to allow all beetles we notice running about the ground to live, if there is any doubt about them. Take another illustration, the Colorado potato beetle. There is a little fly like a small house fly, but with a silver-white face. This fly deposits its eggs in the actual body of the living grub of the potato-beetle and the tiny maggots hatch there and eat out its vitals. The pretty little beetle called the ladybird is another deadly enemy of such noxious insects as plant lice, as well as of the potato beetle. It lays its eggs among those of the potato bug, and when the young larva hatch, they live on the young of the potato bug. But our most powerful allies are found in the insect-eating birds. Thousands of wire-worms, grubs, etc., fall annual victims to them. The number of insects consumed by birds may be inferred from watching a pair feeding their young. Watch a nest of say five young jays. Each of these birds while yet very young will consume at least 20 grubs of an average of sizes in one day. Each of the parents will consume say 50, so that the pair and family will devour 200 every day. This in three months amounts to 20,000 in one season. The harm that birds do to the grain is more than offset by the good they do in keeping down noxious insects. I find I have with me another beetle which is a deadly enemy of the cutworm. It is called the murky ground beetle. I will pass it round for inspection. Mr. Gregson then instanced how a very simple knowledge of the life habits of insects can often be utilized as a means of circumventing them by teaching us to secure our property at the critical period, such as by timing seeding operations. He illustrated the turnip flea beetle as an example. This little beetle hatches late in May, and if we defer sowing our swedes till June, they will have hatched and disappeared to native cruciferous plants before the young turnips are up. An

"active" remedy for this pest, recommended by Dr. James Fletcher, is to dust the young turnips with dry Paris green and land plaster, or sifted ashes, when the dew is on the young turnips.

INSECTS LIKELY TO INCREASE.

A close observation of facts regarding insects will also be of material value in many ways. The large immigration from the East is almost certain to bring in pernicious insects—indeed cultivation of the land alone always induces the arrival of insects, so I would like every farmer to take note this year of the relative abundance of insects of various kinds and the exact nature and extent of their depredations, and to carefully notice the birds, insects, etc., which are beneficial, and, if possible, always to secure actual living specimens of the insects. The entomologist works for the farmer. The farmer is, as it were, his constituent, and hundreds of thousands of dollars are saved every year to this continent by the carrying out of his recommendations. The aim of the entomologist is not to exterminate injurious insects, or any particular kind, for that would be to attempt an impossibility, but we aim to control them, by imparting information as to habits and preventive and remedial measures, so that accurate information given to him by the farmer will always result to the farmer's benefit.

THE ENTOMOLOGIST A BENEFACTOR.

It is my privilege to be President of the Northwest Entomological Society, a society which was called into existence to show the farmer, as far as possible, that his crops and cattle can be protected and preserved by aid of the entomologist. Every member of the Society is working for the benefit of the farmer, and although none of us here assembled have this year sustained any ruinous injury to our crops, there is always a heavy percentage of loss through insects which every farmer can avoid by following the simple remedies recommended. Dr. Fletcher estimates that there is no crop grown which is not diminished by an average of one-tenth, and this loss in some years runs up to one-fourth or one-half of the whole crop, and I think, for the sake of our fellow farmers, and of all the new settlers, there should be a cordial support to the entomologist. The Innisfail Agricultural Society have honored me with this invitation to speak, and I should be glad if at the end of this year I could report that they respond with perseverance to the efforts of the entomologist. And we must also remember that even though we ourselves may know how to deal with insects (both friends and foes), there are hundreds of immigrants now settling around us who have never heard of any remedies for insect troubles. These will have just the same insects to contend with as we have, or may have, and it is our duty to see that they are made acquainted with all tested remedies and methods of dealing with them, if only for the reason that unless the new settlers do so deal with them their farms will become breeding grounds for propagation of insects to our own injury. No law that has ever been passed against insects has been effective in compelling one's neighbor to protect his crops. The only way to accomplish this is to enlist the common sentiment of the locality and rely on the coercion of neighborhood opinion, and to do this it is the endeavor of the entomologist to make the results of his discoveries so simple and popular that the farmer will at once be interested and appreciate their importance so far as his own crops are concerned. He will then be anxious to have his neighbor take at least preventive measures against noxious insects.

Farmers came from long distances to attend the meeting and participate in a lively and helpful discussion. A unanimous vote of thanks was tendered Mr. Gregson for his valuable address.

British Army Remounts from Canada.

As a result of communications between the British War Office and Mr. T. C. Patterson, Postmaster of Toronto, whose long and personal interest in Canadian live-stock matters is well known, it was proposed to the latter by cable that he should purchase 1,500 horses for remounts. That he could not undertake to do, and the next message informed him that Major Dent would be sent over, and he arrived by the steamer Campania about two weeks ago, and soon after made a contract with Mr. W. H. Smith, of Grand's Repository, Toronto, Ont., to look up the supply of horses. Mr. Patterson states that it is a matter of much congratulation that so thoroughly competent a man as Major Dent, who is not a stranger to Canada, should have been selected. He is a County Magistrate in Yorkshire, for many years Master of the Bedale Hunt, an ex-officer of Dragoons, and one of the best-known judges of horses at the principal English shows. He is accompanied by a Veterinary-Major who has had great experience in his profession, and Ontario is at last likely to have full justice done to her capabilities as a field for the advantageous purchase of horses for the English army. Seeding time is not by any means the most favorable for our farmers to be approached by Mr. Smith's emissaries; but, nevertheless, there is every confidence that he will be able to fulfil his contract. Major Dent will not be found unreasonable in the matter of rejections. Fanciful or capricious objections, applicable to the horsing of an army on a peace footing, as it was in General Ravenhill's case, are presumably less likely to prevail when that army is in the field.

Technical Education.

To the Editor FARMER'S ADVOCATE:

The young men of this country need to be awakened to the value of technical education. Great inventions and the successful completion of vast engineering projects form the greater part of the permanent history of this century, and for years to come the greatest triumphs of men will be the mastery of the forces of nature and their subjection to the service of the race. Who will fill the responsible positions resulting from this development? They must be men of practical experience and technical education. The answer is, they will be men who now grasp every opportunity for acquiring knowledge and of educating themselves.

In every engineering profession there is room at the top for any young man with fair natural ability and the capacity for study and work. Many young men complain that they cannot afford to go to college, and bewailing their fate they never get above their present positions. In a technical university (for example, McGill, Montreal) is an excellent place to obtain a technical education, but it is not the only place. Watt learned chemistry and mathematics while working at his trade as an instrument maker, and George Stevenson learned arithmetic while running a steam engine, night shifts. He educated himself and did much of his best work during his spare moments. Longfellow wrote his translation of "The Inferno" by working in snatches of ten minutes while waiting for his coffee to boil. The man is yet unborn who realizes the value and the possibilities of a single hour, but those who place the greatest value on it and make the greatest efforts to improve it are the men who are filling the highest positions in the land to-day. Few men ever think of the possibilities of the hour after tea-time or the half-hour at noon. Wiseacres tell us that a change is as good as a rest, and that after a day's physical work one is in a position to use his brains. Personally, the writer has not found it so, but he has found it possible to study an hour and a half each day when working from five in the morning till eight at night, with half an hour spare time after dinner. The dinner hour is a good time to study, because one is not too tired; but it pays to go to bed an hour earlier at night and get up in the morning in time to study an hour before beginning work.

Most workmen feel their need of education. The fact that the demand for skilled and intelligent labor is greater than the supply, is proof that they need education in the theory of their work to enable them to better perform their duties and secure higher positions. Few men are satisfied with what they have in life; the majority are reaching out for something better. In the race of life, the man who depends solely on the strength of his arm is the one generally left behind. Two men working side by side each do the same amount of work, the one with much less exertion than the other. One knows the theory of mechanical forces and applies these forces to assist him. The man who has the most knowledge, and not the man who puts forth the most strength, is the most profitable workman. General education is a good thing, but it will not help a man with his work—it has no bread-and-butter value. The great need of our young men to-day is the need of technical education, and technical education is within the reach of every young man who will devote his spare time to study. ROTARY.

Dominion Incorporation for Live Stock Record Association.

The Dominion Minister of Agriculture, Hon. Mr. Fisher, has introduced a bill at Ottawa, making provision for the incorporation as an association, under the authority of the Dominion Department of Agriculture, of any five or more persons so desiring, for the purpose of keeping a record of pure-bred live stock of any distinct breed, or several records of a distinct breed. Not more than one association for each distinct breed of horses, cattle, sheep, and swine shall be incorporated under the proposed Act. Provision is required for constitution, rules, by-laws, etc., governing registration, meetings, election of officers, etc. All alterations or amendments are subject to the approval of the Minister of Agriculture. The associations will consist of annual and life members; the membership fees to be fixed at the annual meeting, or a meeting called for the purpose.

The liability of each member shall be limited to the amount of his membership fees due. The penalty clause is as follows:

"Any person who signs a false pedigree intended for registration, or who presents or causes another person to present a false pedigree for registration by the association, shall, upon summary conviction, upon information laid within two years from the commission of the offence, be liable to a penalty not less than one hundred dollars and not exceeding five hundred dollars for each false pedigree so signed or presented, together with the costs of prosecution."

The pure-bred records of Canada were instituted under the old Agriculture and Arts Act of Ontario, and in that regard were provincial in character, though patronized by Canadian breeders generally, and having their head offices at Toronto, latterly in the new Ontario Parliament Buildings. In the matter of presenting false pedigrees for registration, incorporation under the new Act would doubtless facilitate prosecutions for offences occurring in any of the other Provinces of Canada.

The Rising Tide of Prices.

The rapidly rising scale of prices made for pure-bred cattle at auction sales in the United States in the last three months reached a point which cool-headed Canadians would call fever heat at Chicago on April 17th, the occasion being the dispersion of the Hereford herd of Mr. F. A. Nave, of Attica, Indiana, when a bull is reported as selling for \$7,500, two cows for \$3,000 each, and 96 head of cattle at an average of \$671, as indicated in our Chicago market report and in the "Gossip" columns in this issue. In February, a draft of 50 Missouri Herefords were sold at Kansas City, making an average of \$454, one bull reaching \$5,100. In March, a Missouri herd of 72 Aberdeen-Angus cattle scored an average of \$579. On April 3rd, a new mark in prices of Shorthorns was set when a draft from an Iowa herd sold for an average of \$421. The week following came the announcement that a Shorthorn bull had been purchased in England for a United States citizen at \$6,000, and the Hereford men evidently felt bound to wipe out that score, as they did at the Nave sale at Chicago by putting theirs up to \$7,500 for a bull. Yet, we are gravely assured by leading United States stock papers that there is a total lack of anything like a boom in all these events, but that a perfectly healthy tone prevails. It would be interesting to know just where the line is drawn between a healthy tone and a boom, and let us hope it will not be passed, as there is, we believe, a general agreement that a boom is not the best thing for any industry, owing to the possibility of a reaction later on. Seven thousand five hundred dollars, or even \$5,000, is a big price for a bull, and for some bulls to some men either price would be a dangerous venture, as the men might not be able to manage them so as to avoid a loss. As someone has said, "It simply means that a boat should not try to carry more sail than its ballast justifies," or that men to make a success of large ventures must have judgment and means to match, and should be in such a position that to them such a contingency as the loss of one animal even at the record price would not mean disaster. It has also been said that "the bull is half the herd," and that "any breeder is justified in paying, if necessary, as much for such a bull as he has paid for all his females put together, less a reasonable reduction to cover the contingency of the death of the bull at any time." Whether this doctrine be sound or not doubtless depends largely on the character of the bull, as his impress for good or ill survives him, and the individuality he stamps on the herd, be it good or bad, lasts for many years. We are glad to know that in so far as Canada is concerned, the live-stock industry is in a healthy state, and that if sensational prices are not being obtained, a good, steady and safe business is being done at paying prices, some of the advertisers in the *ADVOCATE* having reported sales of from 50 to 70 head of pedigreed cattle by private contract from their herds in the last six months, and others, who make no pretensions to being large breeders, having sold from 20 to 40 head in that time.

If our breeders are not getting as high prices as those made under the excitement of the sale-ring on the other side of the line, there is good reason to believe that our prices in private sales average fully as good as theirs, and, as we know we have better cattle as a rule, there is no good reason why our breeders may not mark their best goods a trifle higher in view of the general prosperity prevailing all over this continent.

Value of Pure Seed.

BROME GRASS.

From a circular on Brome grass (*Bromus inermis*) seed, recently issued by the Agricultural Department at Washington, the following interesting paragraph is taken, which illustrates the importance of pure seed. The standard weight of Brome grass seed is 14 lbs. per bushel, but some Oregon-grown samples tested by the Department of Agriculture weighed as high as 20 lbs. per bushel. We do not know that any tests have been made of the weight of seed grown in Manitoba or the Territories:

"The amount of seed recommended per acre varies from 12 to 40 pounds, but 15 to 20 pounds is usually thought to be sufficient. This difference in opinion is doubtless due to the great difference in the quality of the seed, since poor seed must be sown more thickly than good seed to produce similar results. If it is found that 15 pounds of pure and germinable seed are needed for an acre, it will be possible to tell how much of a given commercial sample to use when one has ascertained the percentage of good seed it contains.

"A comparison of two samples sold this year will serve to illustrate: Sample No. 1 was Oregon-grown, and sample No. 2 was imported. Sample No. 1 had 96 per cent. pure seed and 91 per cent. of this germinated. The amount of pure and germinable seed was then 91 per cent. of 96 per cent., or 87.3 per cent. In other words, in every 100 pounds purchased there was 87.3 pounds of good seed. To get 15 pounds of good seed on his land the farmer would therefore have to use more than 17 pounds of sample No. 1. Sample No. 2 had 52 per cent. pure seed, of which 80 per cent. germinated. There was therefore 41.6 per cent. of good seed, and the farmer needed 36 pounds of sample No. 2 in order to sow 15 pounds of good seed. This is more than twice as much as would be needed if sample No. 1 were used. Sample No. 2 was worth to the farmer less than half as much as sample No. 1."

San Jose Scale Legislation.

At Toronto (Ontario) and Ottawa, Provincial and Dominion legislators have respectively been getting after the San José scale by Act of Parliament. In the former, the plan of campaign now is to encourage and stimulate the fruit-grower whose trees are infested to treat them by spraying, washing or fumigation on their own account, instead of the original drastic procedure tried last year of chopping down and burning trees in orchards found infested with scale by the Government Inspectors. Some of the latter still entertain the idea that had their hands not been stayed by the "powers that be" in Toronto, they could have stamped out the pest. Such is the strength of official optimism! Last year, however, the protests against this process and certain characteristics of the work of inspection grew so frequent and so loud that the Minister of Agriculture called a halt and sent out a Royal Commission to look into the whole trouble. They collected a mass of valuable testimony, and, as might be expected from the nature of the scale and the results of experiments at extermination tried elsewhere, they reported in favor of a modified procedure so far as the Government was concerned. What the latter proposes now is to furnish whale-oil soap at 50% of the cost, the fruit-grower performing the labor. The burden of responsibility is to be thrown where it ought to rest, viz., upon the particular persons interested.

Now, as to the remedy which fruit-growers are to be aided in using: whale-oil caustic potash soap is extensively used in Ohio, where it is thoroughly applied on peach trees as late as possible before the buds open (it is said not to injure the flower buds on other kinds of trees); the incidental advantage through the cleaning up and invigorating of the trees being sufficient to commend it, even if the scale were not there.

New York and Maryland fruit-growers favor the 20% mechanical mixture of kerosene oil and water, and they claim that it goes farther and actually costs less per gallon than crude petroleum, which, has proved so eminently successful in the series of experiments carried on in New Jersey, where it is now the favorite remedy, being remarkably efficacious. It is said to remain effective against scale life on the trees for a couple of months, but should not be applied after the foliage appears. Sprayed on as late as possible before the buds open, it is said to kill the cankerworm, tent caterpillars, aphids, psylla, and other insects appearing with the opening of the leaves, together with the oyster-shell bark louse, etc. So far as we can learn, the cost, including labor, of the whale-oil soap treatment, is some fifteen cents per full-grown peach tree for each application; 20% kerosene mixture, 9 cents per tree; and the crude-petroleum emulsion, 5 cents. We understand that further experiments with these remedies are under way in Ontario, and cannot see why the proposed Government aid should be in favor of the more expensive remedy. Anyhow, sooner or later the fruit-grower will have to work out his own salvation in this matter, and it will be a case of the survival of the fittest.

In the Province of Ontario, under the San José Scale Amendment Act of 1899 regulations were prescribed by the Lieut.-Governor-in-Council prohibiting the importation, sale or exchange of scale-infested plants, and it is imperative that all nursery stock, except evergreens, strawberry plants, bulbs and bedding plants, must be fumigated with hydrocyanic acid, in accordance with the regulations of the Inspector of Fumigation Work, Prof. Lochhead, of the Ontario Agricultural College, and every package of nursery stock sent out must be accompanied by a certificate to that effect. We understand this Act is being rigidly enforced this season at every nursery in the Province, no exception being made in favor of nurseries declared free from scale by the scale inspectors, for, while inspection is good so far as it goes, it does not furnish an absolute guarantee of the presence or absence of the pest. There is said to be no truth whatever in the statement that fumigation was the cause of many deaths to nursery stock. Many experiments go to show that if this operation is carried out according to the regulations, there is no such danger to the trees.

At Ottawa the original legislation took the form of an Act prohibiting nursery stock from the United States, Australia, Japan, and the Hawaiian Islands. Incidentally, this was a sweeping protective measure, from the standpoint of the Canadian nurserymen, some of whom profited immensely by it, we are told; while serious disappointment and losses fell upon some a year ago who had spent the winter getting orders in Canada for American-grown trees, shrubs, etc., as the Act was put in force in time to shut out importations for spring planting. In Manitoba and the Northwest it was found to be a grievous hardship, and there involved the absurdity of excluding the people from getting hardy fruit trees, etc., from Minnesota, where the scale is said not to exist; but allowing them to import from Ontario, where it does. After one year's experience with the Scale Act, Hon. Mr. Fisher, Dominion Minister of Agriculture, has introduced an amendment giving the Governor-in-Council the power to name certain parts of which "trees, shrubs, plants, vines, grafts, cuttings or buds, commonly called nursery stock," may be imported, and on April 7th an order was issued naming St. John, N. B., and St. John's, P. Q.; Niagara Falls and Windsor, Ont., and Winnipeg,

Man., at which points nursery stock coming in must be thoroughly fumigated with hydrocyanic acid gas by a competent Government official in accordance with the most approved methods. All shipments are entirely at risk of shippers or consignees. At the same time, the order states that as there is danger of serious injury to trees if fumigated in autumn before the buds are thoroughly dormant or in spring after the buds have begun to unfold; all stock which when received is immature or too far advanced for safe treatment will be held at the risk of the shipper. This order-in-council opened the ports of entry from its date, April 7th, till May 1st only, so that unless in the case of some speculative nurseryman who had orders which he could supply at a profit by a prompt importation from the United States, it would be of little practical service to Canadians this season. An Ottawa dispatch states that the Minister of Agriculture announces that there will be an open season again next fall, when American nursery stock may be imported into Canada under similar restrictions. No port was opened this spring in British Columbia, there being no stock on the coast that had not started to grow, but one will be designated next fall. For the future, it seems to us that the people should have ample notice of the ports and periods of entry, the latter being of sufficient length of time so that they can take advantage, if they so desire, of the privilege of obtaining stock from across the lines.

For a Dominion Exhibition.

A large and influential deputation of representative officers of the various Dominion Live Stock Associations, Dairymen's Associations, and Manufacturers' Associations recently waited upon the Dominion Government at Ottawa, asking for a substantial money grant towards the holding of a Dominion Exhibition on the Toronto Exhibition grounds in 1901, under the direction of the Industrial Exhibition Association and representatives of the various other organizations above mentioned. It is held to be an opportune time to hold such an exposition of Canadian live stock, farm and dairy products, and manufactures, during the time of the holding of the Pan-American Exhibition at Buffalo next year. It is understood that the live stock will be required to remain at Buffalo only a week or ten days, and that Canadian exhibits in these classes will be free to return to Toronto at about the usual time for exhibition there. Such an arrangement, we feel sure, would meet the approval of the great majority of Canadian exhibitors of stock. Taking place at the time when the largest crowds will be visiting the Buffalo Exposition, it will be certain to attract large numbers of those visitors who will gladly make the pleasant trip across the lake or avail themselves of the excellent railway service to see the Queen City of Canada and its widely-celebrated exhibition, vastly extended because of its Dominion character, should the Government see its way to grant the subsidy, which there seems good reason to hope they will. An appropriation of \$100,000 is asked for, to be expended not on buildings, as it is understood the City of Toronto will provide the necessary extra accommodation, but solely in affording wide-spreading competition, in offering liberal Dominion prizes, in advertising the show, and paying freightage on exhibits from the distant provinces, in order to place these exhibitors on equal footing with Ontario exhibitors as to expense incurred. There is every probability that many European visitors will attend the Pan-American, and will gladly take in the Dominion Exhibition, which will afford an excellent opportunity to advertise Canada by means of a display of her products in many lines. The project is a worthy one, and we trust will meet with general and hearty approval.

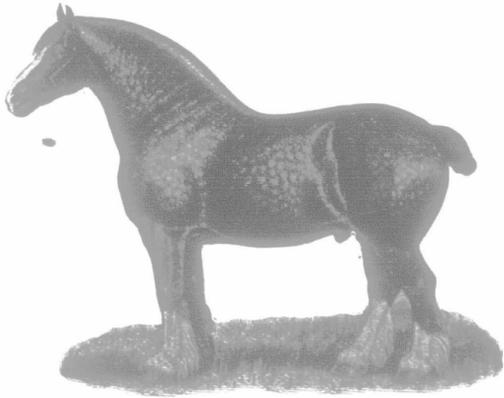
The Weather and the Crops.

The spring, though opening perhaps a little later than usual in Eastern Canada, has yet been exceedingly favorable to the fall wheat in the sections where it is grown, the crop having stood the winter remarkably well, while the absence of alternate freezing and thawing, and the generally warm and genial weather since the middle of April, has left the crop in very promising condition. Clover which withstood the extreme drought that prevailed over a considerable area in Ontario last summer has come through the winter in good condition. In those sections which were not affected by the dry season last year, its condition is very satisfactory. Manitoba and the Northwest had an unusually favorable winter and an early spring, considerable seeding being done in the last days in March, and the wheat seeding practically finished in the first two weeks of April. The land being in remarkably good condition and an immense area of plowing done last fall, with the continuance of such fine weather seeding has been a very short business, and the prospects for the season are very promising. Seeding is progressing favorably in Ontario, the land generally working well and rapid progress being made.

It will be wisdom on the part of farmers who are engaged in dairying or the feeding of cattle for any purpose to plant an extra piece of corn for feeding green during the dry time when pasture fails. If it is not needed this summer, it will come useful in the coming winter.

The Canadian Horse Show.

The improved state of business in general, and of the horse trade in particular, had a telling effect on the Sixth Annual Horse Show, held at the Toronto Armouries on April 26th, 27th and 28th. This popular annual function has been sarcastically dubbed a "clothes-horse" show, and there may be a fitness in the designation, but we fail to see how the combination detracts anything from the success of the very important event. Never have greater crowds attended the afternoon and evening sessions, nor were the morning competitions ever more keenly



IMP. DURWARD LELY [2661] (9900). - Second-prize Clydesdale stallion, over 4 years, sired by Sir Everard.
OWNED BY R. NESS & SONS, HOWICK, QUE.

watched. The managing committee, under the direction of the Canadian Horse Breeders' Association and the Toronto Hunt Club, have pretty well gotten hold of the idea of running a successful show, which they seem to conduct with more success each year. Considerable pains were gone to in preparing and decorating the commodious military quarters, the programme was exceedingly well arranged, both for exhibitors and spectators, and never before have we heard such general satisfaction with the judges' work.

CLYDESDALES.

In a class of eight entries, six grand representatives of the breed were forward to accept their relative positions at the hands of the judges, Messrs. Alex. Galbraith, Janesville, Wis., and James Henderson, Belton, Ont. The big, good horse, Lyon Macgregor, owned and so successfully shown year after year by Mr. Robt. Davies, Toronto, could now well retire from the showing, as he has gone repeatedly to the top among good ones and could well devote his energies to the perpetuation of his race, as we have too few of such good ones and also of the sons of his noted sire, Macgregor (1487). Lyon Macgregor's right to first place was not disputed. He also won male sweepstakes. His strongest rival was the nine-year-old Durward Lely, by Sir Everard (5353), a grand type and exceedingly fresh in his limbs. He is owned by Mr. Robt. Ness, Howick, P. Q., who imported him last year. He is a compact, nice going horse of typical Clydesdale pattern. His two stable companions followed next in order. Full of Fashion, by Prince of Kyle (7155), and Lord Chancellor, by Baron's Pride (9122), are worthy sons of famous sires, which only bears out the accepted truism, "Blood will tell." Full of Fashion is a high-class horse, possessing a desirable set of timber, which carries well a substantial body. He is a flash mover and catches and holds the eye while standing. The son of Baron's Pride needs size to make him a great one, but it would be difficult to find his superior up to the same weight. Alexander's Heir, by Prince Alexander (8899), imported by Dalgety Bros., London, and owned by T. H. Hassard, Millbrook, was quite a favorite for honors, as he has size, style, quality, and he moves well, but he drops just a trifle on his front pasterns. He is a safe horse to use just the same. Robt. Ness' Prince of Annick, by Prince Alexander (8899), was the remaining competitor. He is a showy, thick horse, a bit thick near the ground, but a good horse.

Three-year-olds had five competitors, from the studs of Messrs. J. M. Gardhouse, Highfield, Ont.; Robt. Ness, Howick, Que.; Robt. Davies; D. & O. Sorby; and John Bright, Myrtle, Ont. They were a good lot, well brought out. Gardhouse's King of Clydes, by Ringleader, was pronounced by all horsemen who saw him to be a wonderful colt. He weighs nearly a ton, has a grand set of timber, is nicely made, and a good goer. He was imported from Scotland by Dalgety Bros. Bravado, by Baron's Pride, and imported and owned by R. Ness, is on the way to be a useful horse, as he is of distinctly Clydesdale pattern, with flash legs, good feet, and goes well. Sorby's newcomer, Prince Delectable, by Cedric, and bred by Col. Halloway, was the greatest goer of the class and has a deal of quality as well, but he appears in need of more depth of body, which he will undoubtedly get with age. Robt. Davies' Prince of the Glen also put up a good show, and is a substantial colt. Three two-year-olds competed. Robt. Davies showed King

Lynedoch, by King's Own, and out of Nelly, a growthy colt of good type. He looks a bit raw yet, but his form is right and he goes well. He promises to mature into a big, good one. Prince Lynedoch, by Prince of Quality, is a more compact colt, but somewhat plainer than his stable mate. Sorby's Prince Grandeur stood 3rd. He is a tidy, deep-bodied colt, with good ends.

There was just one class for females of this breed, which accepted mares of any age. Of half a dozen entries, there were five forward—all mature. Messrs. D. & O. Sorby, Guelph, and Robt. Davies, Toronto, divided honors. Sorby's Princess Alexandra, by Prince Patrick, and out of Lily Macgregor, is big as well as good. She is no stranger to the Canadian showing, nor need she be afraid to come again, as her faults are few and insignificant. She has scale, width and sweetness, while her flat, hard limbs and substantial feet carry her to the front. Davies' Princess Maud, by Prince of Quality, is also of the massive type, and well furnished, but her action is somewhat stiff. Sorby's Sonsie Lass, by Second Choice, is a lower, thick mare, with striking action and a fine set of furnishings. She is approaching the foaling, and therefore not at her best for a contest of this kind. Rosie 2nd, by Bay Wallace, and exhibited by P. H. Petre, Stratford, is a square, substantial mare that should breed well. She came in for barren honors.

SHIRES.

While the exhibit of Shires was not large, it was excellent, there being ten entries in all shown on the line. The three mature stallions created considerable interest. Boro Conqueror, by Calwich Markham, and imported and exhibited by J. B. Hogate & Son, Toronto, made a show of action not looked for in such a massive breed. He is a big, square fellow, nice on his limbs, and goes like a Hackney. He is a horse of great quarters, and a thick, deep middle, with short, strong back. He won 1st over the chestnut Mawdsley, owned by Colborne Shire Horse Association. He is a big, showy horse of nice pattern, and good legs and feet. Compared with Boro, he wants middle and action, although he is not defective in these points. A black horse, Bahailon Vulcan, by Vulcan, and shown by Morris, Stone & Wellington, is of the real cart horse type, being stout and smooth, and goes well at the walk. He was placed 3rd.

Messrs. Morris, Stone & Wellington showed two of the three-year-olds. Their big bay, imported Mars, is a grand colt, with the best of feet and legs. Their colt, King, by Pride of Hatfield, is a fairly good sort, with good feet and legs. He won 3rd, being beaten by Messrs. Hogate's Groundsow Charming, by Revival, one of the old style of the breed, but a useful draft colt. Mars won 1st.

In mares, a pair of three-year-olds, bred by Morris, Stone and Wellington, and sired by Pride of Hatfield, won 1st and 2nd. The latter is owned by John Gardhouse, Highfield. They are useful mares, rather rangy than blocky. Wm. Hendrie & Co. showed a mature pair, massive and deep bodied, that are at home before a load. They won 3rd and 4th awards.

DRAFT HORSES.

Draft pairs, any breed, brought out three substantial pairs. Wm. Ewing, Petrolia, won 1st on a pair of Clydesdale grades, of thick, substantial pattern. John Gardhouse showed a beautiful pair of Shires, toppy, flash, and with grand legs, and won 2nd; and G. H. Petrie came third on a thick, well mated team of Clydes. Three pairs by Clydesdale sires included Messrs. Sorby's Princess Alexandra and Sonsie Lass, Robt. Davies' Nellie and Princess Beatrice, and a span of grand geldings sired by Macgregor and Joe Anderson, and shown by Wm. Hendrie, Toronto. They won in the order named.

HACKNEYS.

While all of the classes are of interest to some, Hackneys are enjoyed by all. They are not only beautiful horses, with superb action and well shown, but they display an intelligence lacking in other breeds of horses. This breed was judged by Messrs. Wm. West, Shelburne, Vt., and Richard Gibson, Delaware, Ont. In the classes for stallions foaled previous to Jan. 1st, 1897, Messrs. Beith and Crossley were the only contestants. The former had forward his much-admired, well-bred Squire Rickell, by Cadet, and the larger horse, Ganymede 3rd, by Ganymede, while Mr. Crossley showed the trappy, proud little roan, Rosseau Performer, by Enthorpe Performer. The three horses represent as many types, and each possesses excellencies of his own. Squire Rickell pleases them all while standing, as he is of peculiarly beautiful type, being full of quality as fine as a Thoroughbred. He was brought out in finished form and showed to good advantage. His action is rapid and graceful, but not as high as we have seen in the breed. His victory was not disputed. Ganymede 3rd excels in hock action, and also goes well in front. He is a big chestnut, probably larger than the breed calls for, but the fault, if it be one, does not detract from his value as a sire, as it is the big, good ones we most lack. The roan from Rosseau is a familiar figure in Canadian horse shows, and he always wins applause by his peculiarly catchy knee action. He is of sweet contour, and has proved his excellence as a sire. Mr. Crossley's Royal Oak, by Royal Standard, had just one against him in Majestic 2nd, by Hayton Shales, from Hillhurst Farm, in the class for two-year-olds. The former, out of Lady Cocking, a rangy, flash black with white markings, fairly captivated the spectators as he went down the tanbark. He goes high, free, and with admirable confidence. When he thickens out he will do his

parents credit in any company. Majestic 2nd is of a heavier sort, well-grown, and promises well as a sire of big carriage stock. The male sweepstakes award was won by Squire Rickell.

A beautiful string of eight young females put up a graceful exhibition. The contributors were Messrs. Beith, Crossley, and Hillhurst Farm. There was much speculation as to the ultimate outcome, as the lot did not contain an inferior animal. Beith's two-year-old Hernia, by Royal Standard, and out of Cherry Ripe, bears a striking resemblance to her illustrious sire in conformation, color and way of going. She is high, true and rapid, and is well grown for a two-year-old. She won here, as well as female sweepstakes and for English medal. Queen Dagmar, from Hillhurst, sired by Barthorpe Performer, and out of Princess Dagmar, a three-year-old, won her way to 2nd place. She is a big mare, with lots of quality and free, high action. Rosseau Jewell, also a three-year-old, by Roseau Performer, and out of Sure-foot, is one of the fancy ones, fine and toppy, and rather graceful than rapid in her movements. A rangy roan two-year-old, Lady Minto, from Hillhurst, was a favorite because of her wonderful action, but she needs time to develop her. Hackney blood and Hackney type were much in evidence in harness classes, where the breed gave a good account of itself in several contests.

High-steppers in harness having Hackney sires made up a wonderful class. Of the twelve entries made, no less than seven were sired by Jubilee Chief and two by Lord Roseberry. A beautiful black mare, South Africa, by Jubilee Chief, and owned by Messrs. Crow & Murray, won 1st, while her chestnut stable mate, Right in It, by Lord Roseberry, won 3rd; Beith's Eva, by Jubilee Chief, a brown with white stockings, taking 2nd award.

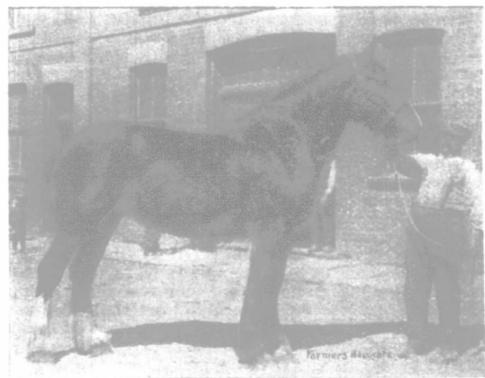
THOROUGHBREDS.

There were seven mature stallions entered, but only four responded to the bugle call. Wm. Hendries' Versatile, by Razon d'Or, has won repeatedly in this class, and this year he again beat his rivals in the regular class, besides winning the gold medal for best Thoroughbred, any age. He is a high-chested, breezy fellow, with a deal of substance. Terremont, by Dandy Dimmont, and owned by A. Frank & Sons, The Grange, Ont., stood 2nd. He is also a fine, breezy fellow, with a deal of character, but has hardly the substance of Versatile. A horse called Boy Orator, sired by Meddler, won 3rd. He is a flash, racy fellow, of good saddle type. The contest for first place in stallions designed to get saddle and hunter stock lay between S. B. Fuller's Wyndham and Geo. Robinson's Monotony, both good ones, considerably over the average in size. They are not new to the showing, and have each won 1st in good company. Wyndham is perhaps a bit more compact, which gave him the preference. Three 3-year-olds contested. The first award fell to a high-withered, notable-looking colt, Bastle, by Bassetlaw, owned by W. F. McLean, Toronto; Copper King, by Islington, won 2nd; and King Joshua, by King Arthur, 3rd.

There was a good string of half-breds by Thoroughbred sires. Of the six entries present, four were sired by the late Wiley Buckles. The 1st award fell to Gold Buckles, owned by Joseph Lawson, Brampton; a compact, useful filly. James N. Elliott, Streetsville, won 2nd on Billy, a black gelding of rare promise, being a model in form. His sire Wiley Buckles, dam a Cleveland mare.

CARRIAGE AND COACH.

There was an extra fine lot of stallions competed



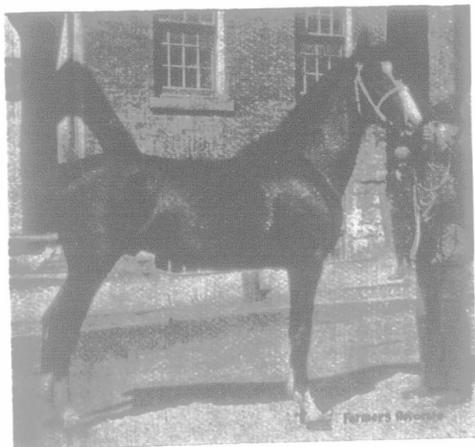
PRINCESS ALEXANDRA [2308]. First-prize Clydesdale mare, and one of first-prize pair with Sonsie Lass [2313].
OWNED BY D. & O. SORBY, GUELPH.

in this class. The former winner, the German Coach, Graf Bremer, owned by Jas. McCartney, Thamesford, was in his usual good form. He must be seen in action to be appreciated, as he goes with extraordinary flash, high and rapid both fore and aft. He is also a breezy horse, some 16.1 hands high, and as clean as a Thoroughbred. Young Royal George, a handsome horse by the German Picador, won 2nd. He is out of a Royal George mare, and proves the cross a good one. Standing he can hardly be beaten, and his gait is pleasing. He was shown by J. Gowland, Zimmerman. W. C. Brown's (Meadowvale) Prince George, by Prince Victor, went to the top a year ago, also at the In-

dustrial, but he had to stand 3rd here. He is a big fellow, fine in his make-up and a very good mover. Two three-year-olds and a two-year-old competed in the young stallion class. Lord Minto, by Candidate, and owned by Amos Agar, Nashville, won easily, and made a creditable fight for the sweepstakes award. He is a rangy, sweet horse, with good action. A flash two-year-old, Pat, by Shining Light, and owned by A. Hewson, Grahamsville, stood 2nd; the other colt being King Henry, by the imp. German, Adam, and exhibited by P. J. Thornton, Woodstock.

STANDARD-BRED ROADSTERS.

There were six mature stallions shown and two colts. The 12-year-old Dashwood, 2.20, by Sentinel Wilkes, might be taken for a much younger horse, as he is as fresh as a colt and a great goer. He is a handsome horse as well, and has substance. He won 1st for his owner, Jas. Wetherell, Blair, Ont.



ROSSEAU ROYAL OAK.

First-prize 3-year-old Hackney stallion, and reserve for sweepstakes.

BRED AND OWNED BY H. N. CROSSLEY, ROSSEAU, ONT.

The big, smooth Altoneer, by Sphinx, and owned by Edmond Taylor, Toronto, is also a square, showy trotter, with useful qualities. He won 2nd, the third going to Alcyonium Boy, by Alcyonium. He is a level-going, substantial chestnut, of good road type. The old gray, high and rapid Postmaster was given the reserve award. He is now owned by Messrs. Crow & Murray, Toronto.

SADDLE HORSES AND HUNTERS.

The classes shown under the pigskin fill a large and important place in the show. The entries were large, running up to over a score in some instances, while all sections were well filled. These were judged by Dr. McEachren, Montreal; W. S. Elliott, New York, and J. N. Scatcherd, Buffalo. One of the most interesting classes called for combined harness and saddle horses, in which there were 24 entries, including animals ranging from Hackney to Thoroughbred in conformation and way of going. Neither of these types filled the bill, however, but a goodly number conformed to the happy medium. The winning entry was a beautiful chestnut mare, 16 hands, and with a good depth of body. She goes well at all the gaits, and exhibits some schooling. She is owned by Mr. L. Meredith, London, who succeeded in landing a similar victory last year with another horse. In all the saddle classes Thoroughbred blood predominated, and many of the winners appeared to contain little else. They, too, possessed deep chests, high withers, short, stout backs, deep, full quarters, and clean, cordy limbs, which are essential to high-class saddle horses. When these characteristics are coupled with a handsome, neat head and neck, together with good performance at the various gaits, their possessor may stand some chance of winning at the Canadian Horse Show of the present day. The hunter classes were well filled, the principal exhibitors being such successful horsemen as Messrs. Adam Beck, London; Geo. Pepper, Toronto; Yeager, of Simcoe, and others who make a specialty of this line of horses.

HORSES IN HARNESS.

The various classes of single and double harness horses were, without exception, well filled with a class of animals that would seem to put to ridicule the idea of their substitution by inanimate motor carriages for recreation purposes. The entries run up to over a score in some single classes, and the double sections were in every case well filled. The awards here were made by G. B. Hulme, New York; Harry Hamlin, Buffalo, and Ger. Field, Buffalo, who took great pains to place the ribbons where they belonged. Since the dissemination of Hackney blood throughout the country this class of stock has shown marked improvement, and it is to be regretted that suitable mates to breed from are scarce. Messrs. Beith, of Bowmanville; Crow & Murray, Toronto; Yeager, of Simcoe, and Meredith, London, were among the most successful exhibitors. The success of Messrs. Crow & Murray in the various classes was phenomenal, winning as they did all the money in some big classes, and most of

it in others. They secure the right horses, and then fit and show them in perfection of finish.

MILITARY HORSES.

Artillery.—A new class, and one in which much interest was taken, was that for artillery purposes. It called for horses weighing from 1,100 to 1,350 pounds, bred and owned in Canada, four years old and upwards, 15.2 to 16 hands high, and able to carry 225 pounds. There were sixteen competitors, and with the exception of perhaps half a dozen rather short in rib and light in body, they seemed to fill the bill well. They were judged by J. G. Rutherford, M. P., Portage la Prairie, Man.; Major Dent, London, Eng., and Vet. Major Phillips, Woolwich, Eng. The type selected by these men was of the strong-ended, deep-girthed, active sort. The Hackney breed showed a new field for favor here, as the first winner was R. Beith's registered mare, Cassandra. She was sired by Jubilee Chief, and out of Mona's Queen, and, therefore, a full sister to the frequent winner, Jessica, and her lamented brother, Banquo. A brown mare, Jubilee Queen, exhibited by Willis Bros., was of much the same pattern, being substantial, active and appeared to be of the wearing sort. A big, handsome brown mare, owned by Doan Bros., Toronto, won the 3rd money.

Cavalry.—There were no less than 28 entries for cavalry purposes. They had to be four years old and upwards, 15.2 hands and over, be able to carry at least 225 pounds, and weigh 1,100 to 1,250 pounds. They came from all parts of the Province, and many of them were shown in saddle classes. The winning horses were smart, stout and active, with a deal of Thoroughbred blood and quality. What seems to be wanted is a strong, quick saddle horse, with a good middle as well as powerful ends.

Mounted Infantry.—Twenty-four entries in this section put up an interesting display. The class called for horses 14.2 to 15.2 hands up, carrying 200 pounds and weighing 950 to 1,200 pounds. They were, indeed, a fine lot, smart and well bred, similar in type to the foregoing, but not so large. Preference was given here to the stouter animals, but quality was of as great importance in the judges' eyes. There is a real dearth of this class, for which there is, and will be, a keen demand for years to come.

Butter--From the Stable to the Table.

BY MISS LAURA ROSE.

ARTICLE IV.

THE CREAMING OF MILK.

During all the different stages in the manufacture of butter, in none is there so great a loss sustained as in the manner many people cream their milk, and it really does seem too bad that after rearing the cows, feeding and caring for them, milking them, then to set and skim the milk in such a way so as to lose all the profit.

The average per cent. of butter-fat in a large number of samples of skim milk collected from farmers was eight-tenths of one per cent.—a loss of nearly one-fourth of the entire butter-fat. I have heard it remarked that such skim milk was good for the calves and pigs. Granted; but looking at it from the standpoint of making the dairy pay, would it not be better to substitute for the butter-fat some kind of meal or oil cake?

There are two methods of creaming milk—the natural or gravity system, and the mechanical or centrifugal system. As the former is the older and more common method, we will consider it first. The milk of some cows creams far more readily than that of others, depending directly on the size of the fat globules. The Jersey and Guernsey cows have the largest fat globules in their milk, consequently it creams the fastest, while the Ayrshire cows' milk is just the opposite. The cream comes to the top because it is the lightest part of the milk, and if it met with no friction would rise to the top of shallow pans in a second or two, but what with the resistance caused by the motion of the fat globules and the different currents due to the cooling of the milk, the gravity process of creaming is slow.

I do not advocate the use of shallow pans only in cases where one or two cows are kept, or in the spring and fall when the ice supply has given out. Strain the milk into the pans as soon as possible after milking, using a fine wire strainer with two or three thicknesses of cheese cloth fastened over the bottom with a tin hoop, so as to be easily and quickly removed—for the cloth must be taken off and washed and scalded each time after using. Keep the milk in a cool, well-aired room, free from odors. The great objection to the pans is the large surface of milk exposed to the atmosphere; therefore, the air must be pure or the cream will be "off" in flavor. Nothing more readily absorbs odors than milk. Avoid having a draft directly over the pans, as it forms a hard, leathery crust on the cream, due to evaporation.

The milk should stand twenty-four hours in summer, and from thirty-six to forty-eight hours in winter, always skimming before the milk thickens. Do not use the old-fashioned perforated skimmers to remove the cream; the following method is by far the most economical: Run a thin-bladed knife around the edge of the cream, pressing well to the sides of the pan; set the pan on the edge of the top of a can, tilt it sufficiently to allow a little of

the milk to run over, holding back the cream with the knife (this is done to wet the edge of the pan to prevent the cream from sticking), then, with the aid of the knife swiftly glide the cream into the can. Considerable milk may seem to go with it, but the cream is so thick the milk does no harm.

Where ice can be procured, or where there is a real cold spring, the deep pans are a great improvement over the shallow pans. You may use a cabinet creamer or an ordinary box or barrel. The only essentials are to keep it sweet and clean (avoid spilling milk in or around it), and use plenty of ice—it takes less by keeping the water always cold.

Strain the milk into the cans as soon as drawn, place the cans immediately in the water. To obtain the best results, the milk should be quickly cooled to 45 degrees or below. When the milk has cooled, it is well to cover the cans. Avoid disturbing the milk while the cream is rising. A can with a tap to draw off the skim milk should have a bottom with a three- or four-inch slant. This carries away any sediment and allows more skim milk to be drawn off. When there is no tap, use a funnel-shaped dipper, with no wire around the rim, and a long, straight handle. Wet the dipper in milk or water, lower it point first into the cream, allowing the cream to flow evenly into the dipper. Repeat until all the cream is removed.

There are on the market several kinds of creamers where water is to be added to the milk to assist in the creaming. I have tried some of these, and cannot recommend them, as the results were not at all satisfactory, the test of the skim milk showing a heavy loss of butter-fat.

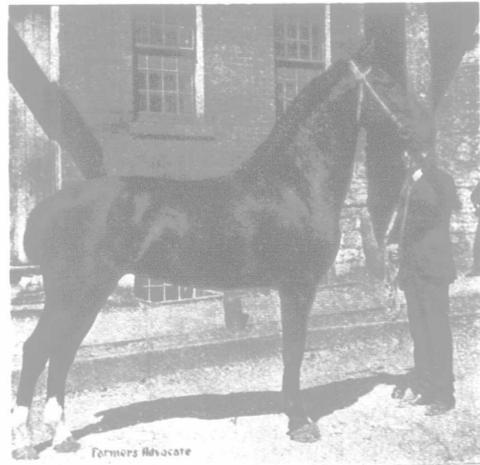
And now I have come to the ideal method of getting the cream from the milk—the cream separator. Before you have hardly read the words, I fancy you are saying, "Too expensive; can't afford one!" They are expensive—cost \$75.00 and upwards—but from my own observations and the testimony of many who have invested in a separator, a machine will pay for itself in a year's time where a herd of twelve cows is kept. So many farmers have told me they average one pound of butter more a week from each cow after getting a separator.

A separator, if properly handled, should mean more butter, better butter, more money, better young stock, and less labor, especially for the women. The skimming and washing of endless cans or pans, and the warming up of the milk for the calves is done away with—the cream only has to be cared for.

In buying a separator, get a good reliable make, one that is strong and simple in construction, will put through a fair amount of milk in a given time, and do close skimming, not hard to clean, and, above all, easy to run, especially if it be a hand machine.

Skill and care should be constantly exercised to avoid unsuspected losses in creaming. If possible, have the skim milk tested occasionally to see the kind of work you are doing, no matter if you are using the shallow pans, deep cans or separator.

Little leakages silently run away with the profits.



CASSANDRA.

Hackney mare. First prize as suitable for artillery purposes. BRED AND OWNED BY R. BEITH, M. P., BOWMANVILLE, ONT.

The Aquatic Cream Separator.

At a New York State Farmers' Institute meeting, in answer to a question as to whether the Aquatic (or dilution) separator was as good as centrifugal separators, Mr. Cook, one of the speakers, said: "As for the so-called 'Aquatic' separator, I am going to say that it is an unmitigated fraud and a deception of the first water. I have repeatedly tested the skim milk from them and have found from .1 per cent. to 1 per cent. fat. Prof. Wing, at Cornell, made exhaustive tests from a number of them and obtained just about the results I did. No, it is no separator at all, but to catch the dairyman who neither attends Institutes nor reads agricultural or dairy papers of respectability, the fakins who make and sell them adopted the name of separator. The whole brood, with their aquatic humbug, ought to be piled up with the so-called 'airblast' churn and blown out of sight with dynamite." Don't buy them."

Cheesemaking.

(Continued from page 239.)

THE REMEDY FOR TOO MUCH ACIDITY.

The acid comes from the whey in the curd, not that outside of it. Where the milk is very ripe, use more rennet and cut finer. In this way we can get the moisture out of the curds faster. If we can get the whey out before the acid develops, the cheese will be all right, but the yield from the milk will not be so great. Draw the whey down early and add warm water. Do not cook the curd from over-ripe milk any higher, as there will be more tendency to mat, and the whey be prevented from getting away. Mr. Publow claimed to have made cheese from milk that actually tasted sour, and the quality was all right; but he did not care to handle such milk on account of the loss in yield. A sour curd should be allowed to mat early. Mill early and add water at 108° to 110° to bring the curd up to 100°. In this way he could take the curd from sour milk and sweeten it. Of course, this plan would not answer if the water was not good. In cases of the early matting and milling, do not let the curd mat again so as to need milling the second time. Cheese from "washed" curds should be salted a little higher on account of the moisture on the particles of curd.

PASTEURIZING.

Objectionable feed flavors could be remedied by pasteurizing. If such milk were taken in, it could be run into a small vat, pasteurized by heating to 160°, stirred for a time and cooled before putting in the vat with the rest of the milk to be made up into cheese. If the curd is well cooked, the objectionable food flavors might cure off. If the acid is developed early in them, there is no chance for the flavor to pass off, and the cheese would not improve with age, as they would do if allowed less acid.

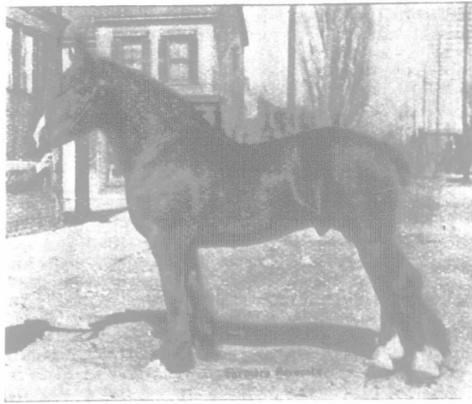
On the whole, the worst fault in the eastern section with the cheese, in his opinion, was the off flavor. This might be caused by rennet, water, salt, or the starter used. If these were all right, it must either be in the milk or the surroundings of the factory, and the maker should trace the trouble to its source. To a fully educated maker, most milk would show some trace of objectionable flavor. To prevent this objectionable flavor developing, we should get the lactic acid fermentation well advanced. If a maker was troubled with tainted curd or pin-hole curd, a starter should invariably be used. This is better than ripening the milk, which some advocate. In ripening the milk, butter fat was lost that might be retained in the cheese. The taints might increase faster than the lactic acid. He had noticed cases where milk had set for 2 or 3 hours at 86° and did not show any more lactic acid by the rennet test. If such milk had had a two per cent. lactic acid starter added it would have been far better. If a cheesemaker does not understand its nature, a starter is a dangerous thing to use, but it would prove invaluable to the judicious maker. To make a starter, take good clean fresh milk, pasteurize it at 160° and hold it at that temperature from one-half hour to an hour, air it by pouring or dipping, put it in a self-sealer at a temperature of 80°. In from 24 to 36 hours it should curdle. If it makes a nice smooth curd, has a pleasant smell and no gas bubbles are perceptible, it can be used to start a batch of pasteurized milk. Add one per cent. of the starter that has been ripened in the self-sealer, have the temperature of the pasteurized milk about 70 degrees. When it gets perceptibly sour, cool it to 60 degrees or below. Cooling it in this way would prevent the starter getting lumpy. Some makers dilute it with water, which answers the same purpose, but it is better to cool the starter. If water is added, its quality should be above suspicion, as otherwise it might taint the starter. In using this starter in cheesemaking, one to two per cent. would usually be necessary, but if the milk is very gassy it will be better to use as much as three or four per cent. Do not use enough to make the milk work very fast. Milk ripened with a starter would always show more acidity than where no starter is used; consequently, do not ripen it down so low. The lactic acid germs introduced in the medium of a good starter will overcome taints, as more than one fermentation does not usually take place in milk at one time. A bad starter will spoil the best milk. As soon as the starter begins to go off flavor make a new batch. If milk arrived at a factory over-ripe, it was a certain indication that it was kept at too high a temperature, and the patrons should be advised to cool their milk, either by means of cold water or ice. Keeping it in smaller quantities would help where the weather was cool, but if the temperature of the night air did not fall below 80 degrees, it would be necessary to cool the milk considerably below the temperature of the air. Kept at 60 degrees, the milk arrived at the factory in far better condition, the cheesemaker could then control the fermentation and could make a finer quality of cheese and larger quantity. Aeration of milk is of benefit to take off food taints and for cooling when the weather was cool.

SPECIFIC POINTS.

Patrons a long way from the factory were obliged to take better care of their milk than the average patron. To protect milk from rain, use a covered milk stand. Every sugarmaker knew a good quality of sugar could not be made from sap that had been diluted with rain water, and it is reasonable to suppose that the more delicate and highly organized milk would suffer greater injury after the cans had been rained into. If the aeration of milk could not be carried on where the atmos-

phere was perfectly pure and where no dust could get into it, he would advise letting your milk go without aeration, and cooling it thoroughly by means of water or ice. In answer to a question about payment by test, Mr. Publow stated that seven factories in the district in which he inspected paid by test, and that the yield of cheese per hundred pounds of milk was higher in these factories than in the surrounding factories where the test was not used. Asked how long a composite sample could be kept in good condition, he stated that he had known of them being kept for three months. Factories paying by test, test once or twice a month. If only once a month, it is necessary to have a cool place in which to keep the samples. One factory that had undertaken the payment by test had abandoned it, but this season was going back to the payment by Babcock test.

Asked how much milk should be taken to make a pound of cheese, Mr. Publow answered that it depended on the richness of the milk, as well as the manner that it had been cared for, and the skill of the cheesemaker. In the factories visited by him it required about 10½ lbs. of milk to make a pound of cheese, taking the average of the whole season. It depended very much upon the condition in which the milk came to the factory, its richness in fat and the way the milk was treated. Time and time again in the Dairy School he had made the following experiment: In a small vat 700 lbs. of milk was placed, after the whey was off the curd was divided into two equal quantities, one-half was sheepskinned down and the other was milled early. He always found that he made from one-half to a pound more cheese out of the half that was "sheepskinned," or piled high, than where the curd was milled early. This might appear at first sight to be a small matter, but it made a difference of one-quarter of a cent per pound in the price of the cheese. The trouble was that too often the milk came in in such condition that it would not stand high piling, and it was necessary to handle it in such a way that the maximum amount of cheese could not be made.



IMP. MARS [275].

First-prize 3-year-old Shire stallion.

OWNED BY MORRIS, STONE & WELLINGTON, FORTVILLE, ONT.

Patrons would find that by taking better care of their milk a finer article of cheese could be made, and a much better yield secured.

The Babcock Test.

J. C. Huron Co., Ont.:—"Will you in the columns of your valuable paper publish full directions for using the Babcock milk tester?"

[The Babcock test is founded on the fact that the strong sulphuric acid will dissolve all non-fatty solid constituents of milk and other dairy products, and will set free the fat. To conduct the test, one requires a Babcock outfit, consisting of a graduated test bottle, a 17.6 cc. pipette, a 17.5 cc. acid cylinder, and the centrifugal machine. The sample to be tested is first mixed by pouring the milk from one vessel to another two or three times, so that every portion thereof will contain a uniform amount of butter-fat. The measuring pipette, which has a capacity of 17.6 cubic centimeters, is filled with milk by sucking the milk into it until it rises a little above the mark around the stem of the pipette; the forefinger is then quickly placed over the upper end before the milk runs down below the mark. By loosening a little the pressure of the finger on the end of the pipette, the milk is now allowed to run down until it just reaches the mark on the stem. The point of the pipette is now placed in the neck of a Babcock test bottle, and the milk is allowed to flow down the inside of the neck. Care must be taken not to lose any of the milk in the transfer. The test bottle and the pipette should each be held at an angle during the pouring, so as to avoid an overflow of milk from the pressure of air from inside the test bottle. The acid cylinder is now filled to the 17.5 cc. mark with sulphuric acid, of a specific gravity of 1.82-1.83. This amount of acid is carefully poured into the test bottle containing the milk. In adding the acid, the test bottle is conveniently held at an angle so that the acid will follow the wall of the bottle, and not run in a small stream into the center of the milk. After adding the acid, this is carefully mixed with the milk by giving the test bottle a rotary motion. When once begun,

the mixing should be continued until completed, and care should be taken not to allow particles of curd to enter the neck of the bottle. The chemical action causes the mixture to become hot. After the milk and the acid have been completely mixed, the test bottle is at once placed in the centrifugal machine, or tester, and whirled for four or five minutes at a speed of 600 to 1200 revolutions per minute, the proper speed being determined by the diameter of the tester. This will bring the fat to the surface of the liquid in the body of the bottle. Hot water is now added by means of a pipette or some special device until the bottles are filled up to the beginning of the neck. The bottles are then whirled again at full speed for one minute, and hot water added a second time until the lower part of the column of fat comes within the graduated scale on the neck of the bottle. A final whirling for one minute completes the separation of the fat. The amount of fat in the neck of the bottle is measured by the scale or graduations on the neck. Each division of the scale represents two-tenths of one per cent. of fat, and the space which the fat occupies shows the per cent. of butter-fat contained in the sample tested. The fat obtained should form a clear yellowish liquid distinctly separated from the acid solution beneath it. The bottles should be kept warm until the readings are made. We have given the general system of testing milk with the Babcock test. There are a number of conditions and details to be observed, and which will be acquired by practice. Full directions, with cuts of apparatus, etc., are given in "Testing Milk and its Products," by Farrington and Woll; price \$1 at this office. We supply the book for two new subscribers at \$1 each.]

Bone in Pigs.

A correspondent of the London *Live Stock Journal* writes: The following extract from one of the American papers devoted to the interests of pig-breeders in the States has been submitted to me by a friend, with a request that I would furnish him with a solution of what he jocosely terms the riddle as contained in the paragraph forwarded to me, which runs as follows: "It is said that the 800-lb. boar, Right Kind, when sold, was driven into the ring was trotted around the circle six times on the jump to show his great action and good vitality, and that his eye was as clear as crystal, and no one came forward to claim the fifty dollars to be awarded to the person who had a hog of greater size of bone. He created merriment and admiration for the attending breeders."

I do not suppose that it is so much the peculiar style nor the somewhat mixed character of the par, which mystifies my friend, as the apparent offer of a bet of fifty dollars that none present could produce a boar which had more bone than Right Kind—presumably a boar of the Poland-China breed, a breed which its devotees rendered notorious some two years since by those extraordinary proceedings in connection with auctions, booms, etc., etc.

I am afraid that I am unable to assist my friend to any great extent, since I really do not know of any advantage in the possession by our pigs of this strong bone, of which so much is written and spoken on the other side of the Atlantic. The reiteration of the alleged fact that certain families and breeds of pigs owned by our American cousins have such so-called immense bone are almost sufficient to lead one to think that their system of breeding or management has been so unpractical that a very large proportion of the pigs sent to the large packing centers, such as Chicago, etc., arrive at their destination broken down or with fractured legs. I have often read of such a condition of affairs, of which the former appears to be due to neglect in selecting for breeders those pigs only which have good firm ankles and feet. Anyone who has attended our shows during the last few years will have noticed a considerable number of the pig exhibits to be what is termed "down on their joints"—i. e., their ankles are not strong and firm enough to bear the weight of the body; the feet also are so loosely put together that these spread out, the result being a wretched attempt to walk. These weaknesses are generally associated with that which our pig-men call strong bone, or bone of a round, soft, porous character, common to those pigs which have been tried for generations for fat rather than flesh and prolificacy. These big, soft-boned sows and boars are almost invariably slow breeders, and early become useless and barren for breeding purposes.

I am fearful that our American cousins are studying the size of the bone of their pigs rather than making a point of breeding only from pigs which possess quality of bone and joints, quite a different thing to mere size. The latter is, in my opinion, a thing to be avoided, as with it is invariably found a thickness and coarseness of skin and shoulder which does not betoken quality, and, unfortunately, both at home and abroad, not sufficiently appreciated by pig breeders.

The Assiniboia Sheep Growers' Association.

At a very representative meeting of the sheepmen of the Maple Creek district, held on April 6th, it was decided to form an association for mutual benefit and the advancement of the sheep-growers' interests. The above name was decided upon, and the following officers elected for the ensuing year: President, C. Blair, Maple Creek; Vice-President, G. W. Quick, Maple Creek; Secretary-Treasurer, Jos. Dixon, Maple Creek. Executive Committee—Thos. Johnston and J. Kellet, Maple Creek, and Mr. Grant, Jr., Medicine Hat.

Milk from Tuberculous Cows.

The last annual report of the Storrs (Conn.) Agricultural Experiment Station contains details of a trial of feeding calves with milk from tuberculous cows, begun in 1896, when four condemned Devon cows were obtained for the purpose from the State-Cattle Commission. One object in view was to study the effect of the milk of slightly diseased cows when fed to healthy calves, and also the relative danger from the spread of the disease by association with diseased animals. The following deductions are given in the report:

"We know comparatively little regarding the conditions which favor the spread and development of tuberculosis among animals or man. Most of all are we lacking in a definite knowledge of the dangers of this disease to mankind from the bovine race. Many have claimed that the danger to mankind from the spread of the disease through the milk supply is very great. It has generally been thought that one great cause for the spread of the disease among our herds is the feeding of the milk of tuberculous cows to calves. The experiments made during the past two years at this Station do not substantiate this view. It must be borne in mind, however, that the number of experiments is comparatively few, and that the cows whose milk was used were probably in the earlier stages of the disease. These facts have been carefully considered, and it is, of course, unwise to attempt to draw any definite conclusions from the work, but the following deductions seem warranted:

"(1) Bovine tuberculosis is usually a disease of slow development, its progress depending quite largely upon the general vigor of the animal and its power to resist the action of the germs. In nearly two years and a half that the tuberculous cows have been at the Station, only one secondary case has appeared, and this was discovered about six months after the feeding period with milk had ended.

"(2) In the experiments here reported, eight calves have been fed upon the milk of tuberculous cows for periods varying from three months to sixteen months without developing the disease.

"(3) The results of these experiments coincide with the general results of European observations, and indicate that the danger from the spread of tuberculosis through the milk of cows to man or to other animals is not as great as has generally been supposed. In the earlier stages of the disease and at all times when the udder is not affected, the danger from the use of the milk is quite limited. Great stress, however, should be laid on the danger of using milk from cows which show any symptoms of udder affection."

Canada's Bacon Trade Imperilled.

SIR,—When recently in England, I visited a number of pork packing establishments, also scores of retail houses, and, to my astonishment, I found in a great many retail places Wiltshire sides with a very thick, fat back, and, in addition, the meat very soft and flabby. In a number of cases I asked the proprietor where this meat was put up, and in every case they said it was Canadian pea-fed. Since my return home I have been investigating the matter, and have every reason to believe that the Americans are shipping to England the product of their thick, fat, corn-fed hogs, and placing it on the market there as Canadian production.

I should like to ask all Canadians who are interested in the production of the ideal bacon hog, what is the use of us trying to compete with the Irish and Danish people under such circumstances? I have no hesitancy in saying that all or nearly all of the packers in Canada are aware that the circumstances mentioned have been going on for some time, and in the face of all this they will preach to us the kind of hog to raise, and the way to feed it. When in conversation the other day with a representative of one of our leading packing houses, he admitted to me that if we could not get the English Government to put a stop to the Americans sending the Wiltshire sides abroad without being branded, there was little or no use of Canada trying to maintain the reputation she has already gained in the bacon line. It seemed to me that it would be only fair to ask our Government to pass a law prohibiting the exportation of Canadian bacon without its being well branded, not only on the boxes, but on the product itself. I found in nearly every retail store I visited in England the Irish Wiltshire side put up by Denny, and there was not a space large enough for your hand that had not his brand on.

Denny certainly puts up his goods in excellent shape, being well colored and quite firm. Upon close examination of the Irish Wiltshire, I am free to say that we as Canadian breeders are not in the least behind them in the production of the proper kind of hog. In no small number of cases were the Irish Wiltshire sides put up with a thick, uneven, fat back.

D. C. FLATT.

Sheep and Lambs High.

The high water mark of the season for both sheep and lambs was reached in Chicago April 9th. Western sheep in fleece sold at \$6.50, which is the highest price since May, 1892. Shorn sheep reached \$5.00, which is a very exceptional figure. Several thousand Colorado lambs sold at \$7.50, which, in point of number, is the highest ever reached by this class of lambs. There were 3,452 Colorado lambs sold at \$7.50, and 74,000 at \$7.50, which is the highest of the year and equals the record established in April, 1893.

Rotation of Crops.

BY GEO. J. M'CORMAC.

In addition to tillage and fertilizers as means of increasing the products of the soil, a proper rotation of crops is also very necessary. On account of the variation in the character of soils and the slope of lands, it is seldom practicable to bring the entire farm under one and the same rotation. Modifications to suit existing conditions must be made, and the more judgment exercised in making these modifications to suit the conditions, the better will be the results.

On the ordinary farm of one hundred and fifty to two hundred acres there may be two or three slightly different rotations to suit the particular soils of individual fields. In determining upon a rotation for any farm, it is always well to introduce as much regularity as possible; that is, have about the same number of acres devoted each year to the respective crops. If this rule be followed, the farmer will from year to year have about the same amount of fodder for his stock. Break up each year the same amount of pasture land, and as far as possible be regular in the number of acres seeded for hay. A proper rotation of crops systemizes the several departments of the farm. It secures a regularity of fertility over the whole farm and furnishes the same income each year. Why is a rotation of crops necessary? Why is it necessary not to allow crops of the same kind or crops having the same habits of growth to be grown year after year upon the same land? There are several reasons: (1) Some plants, such as barley and wheat, must not have too much plant food. They require a soil in high condition, but not too much plant food. If too much plant food be present, the yield of straw will be far greater than that of grain. (2) Some kinds of plants require more food than others. (3) Plants differ greatly in their power of collecting food from the same soil. It is a well-known fact that oats can collect more than wheat or barley. (4) A variety is less expensive on a soil than the same crop grown year after year. It is not an easy matter to account for these differences in plants, but they do exist, and rotations enable the farmer to provide for the peculiar characters and habits of growth.

Example of a six years' rotation: 1st year, roots or fodder corn; 2nd, wheat or barley; 3rd, hay; 4th, hay; 5th, pasture; 6th, oats.

For the 1st year's crop—roots or fodder corn—the land must necessarily be thoroughly tilled and manured. After the crop is gathered, a deep and thorough plowing cleans the land; and in spring a shallow cultivation will render the soil suitable for the wheat or barley crop and the hay crop of the following year. Hay and pasture tend greatly to improve the mechanical condition of the soil and to increase its fertility. The humus of the soil is increased and the soil is opened up by the accumulation of roots. With clover, a full set of roots is developed the first year, just as if it were an annual plant; and every following spring, after the store of food contained in the roots of the previous year's growth has thrown out new plants, there is in addition to the old roots a similar development of another full set of roots. But when the clover is cut for hay, the root growth is somewhat modified. After the plant is cut, instead of the roots sending up a new plant, there begins an energetic growth of rootlets, and afterwards a new plant grows up and a full set of roots is produced. It will be seen that clover roots penetrate the soil in every direction, and every succeeding year new roots come in contact with new particles of soil. Food is therefore collected from a greater area and depth by clover roots than by the roots of the cereal plants. This extensive growth of roots and the disposition to store up food in them must greatly improve the fertility of the soil. The action of all plants in growing is to increase upward capillary movement of soil water, and therefore the upward movement of all kinds of plant food. As grasses and clovers are plants that grow during the whole summer, pasture and hay fields are having their surface soil constantly increased during the entire summer. If the grass were allowed to decay where it grew, the effect would be to speedily increase the soil's fertility; but when the grass is cut for hay a great quantity of plant food is removed. If this hay be fed to the stock, it may largely replace in the soil those food substances that are necessarily parted with in selling wheat, live stock, and dairy produce. The effect of pasture in a rotation is also to improve the fertility of the soil. The grass being pastured off, the soil only loses about 18% of the ash constituents and nitrates if the animals are growing; and if the animals are simply fattening, the fertility is greatly increased. The pasture land, being plowed late in the fall or early in the spring, may be worked into a suitable condition for oats by simply sowing the oats on the plowed land and following it by at least three harrowings. If the condition of the land is such that a good seed-bed cannot be secured by repeated harrowing, the spring-tooth cultivator or disk harrow should be used. This rotation may be increased to a seven-year rotation by sowing peas after pasture and following the peas by oats. The yield of oats would be greater after peas than after sod, and the pea crop will leave the land richer and in better tilth than it was before the peas were grown.

Prizes for Seed Grain Competition.

Mr. G. H. Clark, B. S. A., of the Ontario Agricultural College, has been appointed to take direct charge of the work in connection with the sum of ten thousand dollars, donated by Sir William C. Macdonald, to promote "progressive agriculture" by encouraging boys and girls to select seed grain on the farms on which they live. As has already been fully stated in the January 20th issue of the ADVOCATE, page 37, ten thousand dollars in cash is to be paid in prizes during the three years. One set of prizes is to be awarded for the largest yield per acre of oats, counting also the quality of the grain. The basis for awarding the prizes, is one mark for every pound in weight of grain of good quality per acre in the first year; two marks for every pound in weight of grain of good quality in the second year; and three marks for every pound in weight of grain of good quality in the third year. Other sets of prizes are to be awarded for wheat. Any acre of oats or wheat on the farm on which the competitor lives may be selected for 1900, and the particular acre need not be chosen until just before the grain is ready to harvest.

The competitor who obtains the largest number of marks in the total of the three years will receive the first prize in the Province; the competitor who obtains the second largest number of marks, the second prize; and so on for ten prizes in every Province.

The following show the prizes for each Province and the Northwest Territories:

	Oats.	Wheat.
1st prize	\$100	\$100
2nd "	75	75
3rd "	50	50
4th "	25	25
5th "	15	15
6th "	10	10
7th "	5	5
8th "	5	5
9th "	5	5
10th "	5	5
	\$295	\$295

There will be also sets of prizes annually for the hundred heads of grain which contain the largest number of seeds of the best quality picked out of those selected from the acre each year.

Any 100 heads from the acre entered for competition may be picked; one mark will be awarded for every seed on the 100 heads, and two marks for every grain (in weight) which those seeds weigh.

The competitor who receives the largest number of marks will receive the first prize in the Province; the competitor who obtains the second largest number of marks, the second prize; and so on for the ten prizes in every Province.

The following show the prizes for each Province and the N.-W. T. for 1900, 1901 and 1902:

	Oats.	Wheat.
1st prize	\$25	\$25
2nd "	20	20
3rd "	15	15
4th "	12	12
5th "	10	10
6th "	8	8
7th "	5	5
8th "	5	5
9th "	5	5
10th "	5	5
	\$110	\$110

The seed grain for this competition is not supplied, and it is not necessary to choose any particular variety of seed for sowing this year, but whatever variety of seed is sown this year will be continued during the three years of the competition on each farm.

Teachers in rural districts are invited to join in helping to forward this educational movement. Any teacher may send in a list of not more than six pupils in the school district for competition.

All those who desire to enter the competition should send their names and addresses to Professor Robertson, Ottawa, before the 1st June, 1900. These communications should contain only the words "Entry for seed grain competition," and the full name and address. They will be carried by mail free of postage.

It is particularly requested that no questions be asked on these entry applications. Full particulars will be mailed in good time to every one whose entry is received.

It will not be necessary for any of the boys or girls entering this competition to receive any further directions concerning this movement until some time in June, when full particulars will be sent to each competitor, intimating how to choose the particular acre and how to go about selecting the large heads from it for seed grain for sowing next year.

Cotton for Glass on Hotbed.

To the Editor FARMER'S ADVOCATE:

I notice in your last issue J. D., of Westminster, asking for a substitute for glass for a hotbed. I would just say I have used common white cotton for years for convenience and cheapness. I think it fills the bill remarkably well.

Tack the cotton along the top on one side of the bed and a strip of board about three inches wide on the other side; have the cotton just wide enough so that when drawn tight this strip of board will hang over the side of the bed. If there is any wind blowing, it will be necessary to place a short piece of plank along the ends to keep the cotton from flopping.

A. MALCOLM.

Dauphin.

The Farm Garden.

BY GEORGE C. LLOYD.

The garden is the most valuable part of the farm and is often the most neglected. There is no other part of the farm that yields such quick returns, bringing such an abundance of good health and pleasure, and why a farmer should neglect his "truck patch" and buy his neighbor's or buy in town, or, too often, go without, has always been a mystery to me. By all means get the little folks interested in it, give them a bed for their very own and help them to arrange it. Let them have a few onion sets—the largest ones in the sack—a few peas, some radish seed, and a few bright-colored beans. Peas, onions and radishes are things that children—and old folks, too, for that matter—crave, and too often are the little darlings scolded for making a raid upon them before they are large enough to pull. Give the children a few bright flowers to tend, and they will lend you many a helping hand in return. The wife and grown-up daughters can do wonders in weeding and light hoeing. It won't hurt them a bit. If there is any hard work to do, instead of the man of the house taking a whole day off to go to town, let him send his wife or some of the young folks and give the garden a few extra licks, and the way it will respond will surely surprise you. There can be no time set down when to begin work in the garden, as localities and seasons differ. Peas, radishes, onions, lettuce, parsnips, etc., should be planted as soon as the ground can be worked. Beans, beets, and all tender plants should not be planted until the air and ground become thoroughly warm. I like to plant melons, cucumbers, beans, etc., in rows, so I can cultivate them with a single-horse double shovel. For onions, beets, etc., I plow the land into beds about six feet wide. This makes a handy bed to weed, as you can reach half way across on each side and throw the weeds in the path, where the sun soon finishes them. Plant rows about fifteen inches apart. I plant peas in double rows, eight inches apart, and five feet between double rows. I have long discarded all peas but the Champion of England, the Black-eyed Marrow-fat, and the Prize Taker. These are the three grandest peas planted. Plant them as above described and stick them with brush—two rows in one—and it is a pleasure to pick them. Stick them when from four to six inches high, after a rain while the ground is soft. Brush five feet long should be used. What the garden should contain is a question that every one must decide for himself. I have narrowed the list down to the following: Beans (the pole variety) I plant in corn, beets, cabbage, cucumbers, carrots, lettuce, melons, onions, peas, parsnips, peppers, radishes, salsify, tomatoes, and turnips. Sweet corn, pumpkins, squash, and potatoes are planted in patches by themselves in the field. A berry patch is indispensable to the freeholder, but it is almost a waste of time for a renter to interest himself in one, as someone else is pretty sure to reap the harvest.—*Homestead.*

Scab of Potatoes.

Prof. B. D. Halsted, Botanist at the New Jersey Experimental Station, has recently published the results of his six years' painstaking and ingeniously varied experiments on the destructive but obscure disease of potatoes, radish and beets known as scab.

The experiments covered a wide range of investigations, including susceptibility of different varieties, seed fungicides, soil fungicides, longevity of the germs, and methods of inoculation.

The following is a brief summary of the results reached:

Of seven standard varieties of potatoes tested, "Early Rose" was the most susceptible to scab.

Scab germs retain their vitality in the soil for at least six years.

On one experiment plot—11 by 16½ feet—one bushel of scabby potatoes was spaded into the soil; on another plot the manure from feeding a bushel of scabby potatoes to young cattle was spread. The scabiness was many times as great in the former plot as in the latter. These are typical of several experiments on soil infection; and while the particular results varied, it is not far from correct to say that the scabiness in plots of the first class was eight to twelve times as serious as in those of the latter class. It was clearly established that uninfested soil can be readily contaminated by planting scabby potatoes in it, and that it will retain for years its liability to inoculate clean seed.

Experiments to kill the germs in the soil were made with lime, gas-lime, kainit, corrosive sublimate, sulphur, Bordeaux mixture, cupram, oxalic acid, sulphate of ammonium, bisulphide of carbon, sulphide of ammonium, sulphuric acid, coal oil, creolin, formol, and benzine. Lime seemed to make the potatoes more scabby; corrosive sublimate reduced the disease. *Sulphur alone yielded results sufficient to warrant its recommendation as a preventive of scab.* The freshly-cut seed should be rolled in sulphur powder, and 300 lbs. per acre may be applied in the open row.

The washing or soaking of scabby seed potatoes in solution of corrosive sublimate has been the remedy advised of late years. Prof. Halsted reports that such treatment has not proved of much practical value when potatoes were planted in scab-infested fields. J. D.

Large or Small Pastures.

Every observant shepherd knows that his flock delights in frequent changes of pasture. Even though they are exchanged from a luxuriant to a more scanty lot, the sheep seem to respond favorably. With cattle this is not the case. Where pasture is to be entirely depended upon, it is well to allow cattle of any class the entire run of the land they are to have when first turned out in spring, or as soon afterwards as circumstances will allow. While the fresh, green growth is abundant the cattle will select their preference, leaving a fair quantity over the entire lot, which they will come back to during the dry season, whereas a closely-cropped surface would yield nothing for their support at that trying season. Prof. Henry, in his admirable work on "Feeds and Feeding," says:

"The subject of large or small pastures is frequently discussed. The majority of experienced American feeders favor a single large range rather than numerous small pastures. Grasses, both in variety and quality, are never quite the same over the whole of a large pasture, and cattle soon detect the slight differences and satisfy their desire for variety by ranging from one spot to another. In large pastures the habits of the animals become regular, and it is interesting to study their movements. The herd will be found in the morning on one side of the valley, feeding on the more abundant vegetation; later, as the sun's heat increases, they appear on the hillside, where there is a movement of air and where the grasses are shorter and more nutritious; while at noon they are to be seen resting in the shade at still another point. This regularity in grazing certainly conduces to comfort and quiet, and is of importance to profitable returns. Where the pastures are cut up into several lots, the fresh bite of rank herbage which comes with each change leads to irregularity and unrest, thus reducing the gains."

Selecting and Judging Dairy Bulls.

BY F. S. PEER.

In my last letter (page 214) I gave my reasons for not judging by signs. In this I shall simply call attention to the principal points or characteristics of a bull that decide me in his favor, and will attempt to give my reasons for each point.

The Head.—I want the head to be as near the ideal type of the breed as possible (Jersey, Guernsey or Ayrshire, as the case may be), because I want a Jersey bull to look like a Jersey and not like a Shorthorn or Brown Swiss. I like a beautiful head because there is no one feature of a Jersey cow that is so strikingly different from all other breeds, and because the style and beauty of the Jersey cow's head adds essentially to her market value.

Neck.—I like a bull to carry his head well up, because it is a common fault among Jersey cows to drop in front of the shoulders—ewe-necked. The Ayrshire breeders have paid considerable attention to this point, and have been well repaid for their pains. Nothing adds more to the grace and symmetry, and especially to the carriage of the animal—bull or cow—than a well-placed head on a level or slightly rising neck.

Masculinity.—I always want to see a thoroughly masculine bull—strong, vigorous, courageous, with neck large and full, but without coarseness and without being throaty. The latter point has never been criticised in America as it deserves. It is a useless appendage, and detracts very much from the beauty and symmetry of the head.

Shoulders.—I do not insist on too fine a shoulder in a bull; if he is a masculine bull he will have heavier shoulders and narrower hips in proportion than the female. This insisting on bulls being built as we like a cow—with flat, sharp withers and broad, prominent hips—is founded on a mistaken notion in animal economy, as is evident when we attempt to apply the same rulings to the human family.

We have carried fine shoulders too far. No one likes to see a fine shoulder and sharp wither on a cow better than I, but we must not sacrifice breadth through the heart—a point where too many Jerseys fail. I refer to lung capacity because milk is a product of the blood, and to produce a large amount of milk the cow must first manufacture a great quantity of blood; to do this she requires large lung capacity to purify the same. Therefore, I insist on great breadth through the body back of the elbow joints. For the same reason I like to see a large, open nostril, and as there must be a great amount of "milling" done by a cow in the mastication of a large quantity of food, I like a rather heavy, muscular jaw.

Barrel.—The barrel of a bull should be good size, with large, heavy ribs, well sprung, because his daughters must have capacity and strength of machinery for disposing of an enormous quantity of forage. I like a rather deep barrel on a bull unless the depth is made at the expense of width, as is sometimes the case in flat-ribbed, narrow-joined bulls. For this reason a bull should be better sprung than a cow, as he has not had the weight of feed and a calf to carry to bring him down.

Hips.—I like to see a bull long from the hips to the setting of the tail, because if a cow follows him in this respect she will have room for length of udder corresponding (usually) to length of hips. Cows with short hips, cows with sloping rumps

(which generally amounts to the same thing), have short and deep udders instead of long udders running well forward. I like good breadth of hips, although I do not look for a bull to be as wide in proportion as a cow. While I am not so particular about broad, pronounced hips in a bull, I like to see the hind legs so placed under them that there will be plenty of room for breadth of udder in the females.

Back.—I insist on a level top line from the horns to the setting of the tail, because nothing looks so much like a deformity, nothing so disfigures the symmetry and beauty of a cow or bull, as a sloping rump. That some great cows are thus formed has led some to think it a good sign, but it is entirely unnecessary and has nothing in fact to sustain the theory, as thousands of great cows are as straight as a line. To me it always looks like a case of in-and-inbreeding, where the animal has degenerated to its original type.

Breeding.—When I find a bull that comes the nearest to my ideas in conformation, style and beauty, I then look up his ancestors—not on his tabulated pedigree, but the individuals themselves, if living. I have ridden hundreds of miles to see the dam and grandams of a bull. If I am satisfied with these animals individually, then I look up the breeding of his sire, or the sire himself, if he is unknown to me. I would not buy the best-looking bull in the world for myself that had a dam with a rump like a mansard roof or no fore udder, if she had a record of 30 lbs. of butter a week. In general I prefer a fairly good all-round bull to one that is exceptionally good in most points, with one decided weakness or failure.

Stealing Canada's Good Name.

The letter from Mr. D. C. Flatt, the well-known swine breeder, which appears in another column, brings before the attention of the public a matter of very serious importance in view of the immense strides of the hog-raising and bacon-curing industry in Canada. As a result of personal enquiries and observations made when in England recently, Mr. Flatt states that great quantities of thick, fat Western States hog products are being palmed off in the British markets as Canadian, to the prejudice of the latter, filching from this country the material benefits arising from the good name honestly earned for our bacon, which now ranks well up alongside that of Ireland and Denmark. In the past, unscrupulous Old Country dealers have not been loth to palm off choice cuts of Canadian beef as "Best Scotch," and toothsome Canadian cheese as British-made cheddars, and it was once not an uncommon thing for cheese made in the United States to be brought into Canada and then re-shipped to England with the name "Canada" placed upon the boxes. In order to stop this latter fraud, a Government Inspector was employed at Montreal, and the Dairy Act of 1897 made it compulsory to brand the word "Canada" or "Canadian," both upon the box and cheese, of all cheese intended for export. A similar regulation applying to butter also exists. In the opinion of one of Mr. Flatt's informants, unless the practice referred to were stopped, it would be futile for Canada to try to maintain her reputation as a producer of fine bacon. Mr. Flatt's suggestion looking toward a rigid inquiry and the application of prompt and effective measures on the part of the authorities to preserve the fruits of Canadian skill and enterprise to our own people is one that commends itself.

Why Not Improve Your Home Grounds This Spring?

BY THE SECRETARY MINN. STATE FORESTRY ASS'N.

There are few persons who do not appreciate the beauties of nature, more or less; few who can withstand the attractions of a good and beautiful home. As a duty of every citizen, not only to himself and family, but all who come in contact with his influence, he should endeavor to make his home what a true home should be, a place where contentment reigns supreme. In no way can a place be made more attractive in appearance or be enhanced more in value than by the expenditure of a little time (not always money) in endeavoring to beautify it by taking advantage of nature. Tastes differ; no two of us are alike. But by going at it with a little interest in the work, and possibly a good suggestion from some older or more enthusiastic head, you will count it a pleasure every time you have occasion to look upon the effort put forth. If a thing is worth doing it is worth doing well, and hence, before starting in a haphazard manner, study the question a little. What trees, vines, shrubs, etc., will do best here or there, and also give the most pleasing results? Figure on room enough, for they will be large some day. There are few places that cannot be touched up some, and many that will stand considerable, and now is the time to plan on it. Improvements of this nature have a great deal to do with the prosperity of any place. The value of surrounding trees, etc., effects not only their local position and neighborhood, but all who come in contact with their influence. Hence we might say they are public property, or should be regarded as such. You cannot begin too soon to plan on decorating your home grounds. Try it and see if this does not increase the interest in your home, in your neighbor's home, in the welfare of the community in general. Having that spirit at heart, success cannot but favor your efforts, "for in unity there is strength."

Some Useful Beetles.

BY C. J. S. BETHUNE.

Most people are apt to regard all insects as injurious, or at any rate troublesome, and in consequence to condemn them all, wherever found, to a speedy death. There are really very few, out of the enormous number of species, that are serious enemies and deserving of ruthless destruction. The vast majority are either useful in their own sphere of life, or of no particular benefit or injury as far as the human race is concerned. In the world of nature there is a marvellous system of checks and counterchecks, and in this system insects play a very important part. Vegetation, for instance, if left undisturbed, would become a tangled mass that would choke itself by its own luxuriance, but as every plant has one or more insects that feed upon it, a constant pruning is being effected, and a thinning out is always going on that leaves room for light and air and moisture. To insects, again, is largely due the removal of all dead and decaying animal and vegetable matter, which but for them would accumulate to such a degree as to render life almost impossible. But the insects themselves which are performing these useful duties would increase to such an enormous extent, if let alone, that they would sweep away all vegetation from the face of the earth; accordingly we find that they in turn are restrained from too great a multiplication by birds and beasts which feed upon them, and especially by other insects whose vocation it is to reduce their numbers and keep them within due bounds; these, again, have others to prey upon them, and so it goes on in a wonderful system that maintains a fair balance among all created things.

The farmer and fruit-grower are chiefly concerned with the vegetable-feeding insects, and are not likely to bestow much consideration upon any kinds that do not directly affect their crops, and so it comes to pass that they know little or nothing about some of their best friends. Most of the parasitic insects—that is, those which feed in their maggot or grub state within the living bodies of injurious kinds, such as caterpillars—are very minute, and are not likely to be observed or interfered with, but there are other kinds large enough to be conspicuous which devour grubs, caterpillars or aphides, and help very materially in reducing the numbers of these serious pests. To a few of these we would now draw attention.

In spring and early summer, while the earth is still moist, if a loose stone or log, or bit of board, is turned over there are usually to be seen a number of beetles of different sizes, which rapidly scuttle off in different directions, and speedily get out of sight. Most of these belong to the family of Carnivorous Ground Beetles (*Carabidae*), which includes an immense number of different species. The majority of them resemble the figure in the margin in shape and general appearance, though they differ much in size and details of structure. Most of them are black or brown in color, some polished and shining, others dull—some few are bright green, others metallic like burnished copper—all of them may be regarded as useful insects, and friends who deserve our protection. They usually fly about at night in search of food, and devour great quantities of noxious insects; the larger species prey upon cutworms and other caterpillars, the grubs of potato-beetles, etc. In the daytime they hide away as already mentioned. Some kinds are attracted indoors by lights at night; they fly in through the open window or door, and when they drop on the table near the lamp, instantly start off to run with great rapidity in order to effect their escape. Beetles of this description should not be killed; even if they seem to be a nuisance by coming into the house, they will do no harm to either food or furniture, but may devour some really injurious creature. When seen in the fields or garden, or by the wayside, they should not be trodden under foot, as they too often are, but be allowed to go on their way unmolested.

Another beetle belonging to the same family, but differing somewhat in shape from those already referred to, is the large caterpillar-hunter, figured in the margin. It is black in color, with three rows of bright copper impressed spots on each wing-cover. Its name is *Calosoma calidum*, which means the hot or glowing, beautiful body, so called from its elegant shape and apparently red hot spots. If taken up in the fingers, it will be found to have a very strong, peculiar and by no means pleasant smell, which probably protects it from being devoured by birds. This insect is a special foe to cutworms and other caterpillars; it goes about at night seeking its food, and is most useful on the farm and in the garden. There are several other species of similar shape and size, but differing in markings; they are not, as a rule, so readily met with as the one just referred to, but are equally useful. One very handsome species (*Calosoma scrutator*) is brilliant green in color, with broad coppery-red margins; it feeds upon caterpillars,



Ground Beetle.



Caterpillar Hunter.

climbing trees for the purpose, and is believed to be a special enemy to cutworms in wheat fields and among other crops. Being nocturnal in habits, it is not often seen, but is sometimes found in quantities on the lake shore, where it has been washed up by the waves after being blown off the land in a gale at night.

For these and other useful insects we plead protection, and hope that they will be spared from a pitiless destruction, which dooms to death both friend and foe without discrimination.

Swarming of Bees.

BY M. PETTIT.

One of the necessities of nature is that every living being shall have some power of reproducing its like, in order to preserve the species; and, especially in the insect world, there is a great diversity of ways of attaining this end. In the apiary the individual is the colony rather than the insect. Thus, "increase" signifies an addition to the number of colonies, while the population of each is spoken of as its "strength."

Increase is effected by "swarming." As soon as a colony becomes very strong, queen cells are started in various parts of the hive, and the majority of the inmates "swarm," accompanied by the old queen; this during the months of May, June and July, but chiefly in June.

If permanent increase is not desired, it is advisable to prevent swarming as much as possible, as it involves the loss of much valuable time and the risk of swarms issuing and escaping unobserved. To my knowledge, no method of absolute prevention in profitable beekeeping has been discovered. It may be greatly lessened, however, by studying the requirements of bees and adding as much as possible to their comfort in the hive. See that the workers have plenty of room for stores, that the queen is not crowded in the brood chamber, and that the hive is kept airy and cool. The wedges used in the comb-honey hive, described on page 95, assist much, and should be used on extracting hives also. Apple trees provide excellent shade for hives, as well as low branches for convenient access to swarms which do occur.

A swarm seldom absconds without first alighting on a neighboring tree, shrub or other object. As soon as it has clustered take it down and place in the new hive. A light pole with swarming device attached to the upper end may be held under the cluster, while an assistant gives the limb a sharp jar with another pole having a hook on the end. Continue to jar the limb to prevent the flying bees from relighting, and hold the swarm-taker in the air where the bees are thickest until they are nearly all clustered in it; then carry them to the new hive. Several hives should be kept in readiness for this purpose, with from 6 to 8 frames containing half-inch starters of foundation attached to top bars. The number used should depend on the strength of the swarm and size of frame, the hive being filled out with dummies (boards which take the place of combs). Transfer the sugar from the parent hive, and the new swarm will continue its unfinished work.

It is desirable to strengthen the new swarm at the expense of the parent stock to concentrate forces for work and avoid a second swarm. For this purpose set the new hive on the old stand, and the parent hive immediately behind it. Then the bees which were at first when the swarm issued will naturally enter the new hive on their return. On the 5th or 6th day, at a time of day when bees are flying about most vigorously, remove the parent hive to a new stand at some distance from the old, and clear away all signs of a hive from where it stood. The field bees, returning and finding their home gone, will join the new swarm also. About the 7th day the first queen hatches, and under ordinary circumstances would come out with a second swarm; but, if the parent stock is thus weakened, they will probably have given up all thoughts of swarming again, and she will be allowed to destroy the remaining queens in their cells, or contend in mortal combat with any that may have hatched simultaneously with her. Not much surplus can be expected from such hives; but, having young queens, they make the best colonies for next season. About 27 days after swarming, examine their combs for eggs or brood, to be sure they all have laying queens. This is a point that should not be neglected, as there are many dangers surrounding the young queen before she starts laying. (See F. A., Vol. XXXIV., p. 520.)

The bees understand perfectly that they cannot exist as a colony without a queen, and refuse to remain away from the parent hive unless one goes with them. They swarm and sometimes cluster, or even go straight to the woods, expecting their queen to accompany them; but unless she does so, or some other queen joins them, they always return. Taking advantage of this, many beekeepers obtain an easy method of having swarms by clipping one or more of the queen's wings, after she has had her mating flight, so that she cannot fly. A laying queen may be clipped at any time; but it is best to go through the hives in spring to find every queen, and be sure she is clipped. (See Apiary Dept., F. A., Vol. XXXV., p. 190.) It is advisable to clip on the earliest opportunity; i. e., when the day is still and sunny, thermometer at 50° F., in shade, and bees gathering a little pollen and honey. Although

many recommend it, if, where bees have been wintered well, one waited until fruit bloom, the hives would be so full of bees there would be difficulty in finding the queen.

When a colony having a clipped queen starts to swarm, watch for her until she is found either about the entrance or on the ground near by, and cage her. A cage may be made of wire cloth rolled into a cylinder 4 inches long and tacked about a wooden plug at one end. A stopper placed in the other end confines the occupant. Lay the caged queen in the shade of the next hive, and set the hive back immediately behind the old stand. Put the new hive in its place, lay the queen in front of the entrance, transfer the super and adjust cover and alighting board. All this is accomplished while the swarm is in the air. As soon as they discover their loss they come back, usually with a rush, and enter the new hive. When they are going in pretty freely liberate the queen, and she will go in with the rest.

If the swarm clusters on a tree and shows no inclination to return, it may be that a virgin queen has joined them, and they should be hived in the old way.

Hatching and Rearing Chickens Naturally

At this season of the year the broody hen is welcomed by all poultry-raisers. April and May hatched pullets, if well reared, are almost sure to make good winter layers. After getting the hen, one of the perplexing problems is how best to set her so as to insure a good hatch and also avoid vermin. Wherever possible, set the hen in a pen by herself, or at least away from the other fowls, and avoid setting her anywhere in the henhouse. In this way one can usually keep the hen quiet, and at the same time avoid her becoming infested with vermin from the henhouse.

When it can be so arranged, set three or more hens at the same time. About the tenth day the eggs should be tested, the infertile ones removed. The fertile ones may be put under part of the hens, and the other hens can be either re-set with fresh eggs or broken up.

The nest should be a roomy one. Try to place an inverted sod in the bottom of the nest, hollowing it out a little in the center; then upon this place a few inches of straw, taking care to well fill the corners, or the hen may possibly roll some of the eggs into these places, which will materially injure the hatch. As a preventive of lice, dust the hen well with insect powder and place in the nest camphor balls, tobacco stems or tansy. Any of these substances are a good preventive of vermin. Place a liberal supply of grain in easy access to the hen, as well as good clean water, not omitting to supply some grit and a dust bath.

When hatching begins, it is well, if the hen is quiet, to remove the shells every few hours, taking care not to chill the chicks or the eggs. Do not be in a hurry to remove biddy and her brood, or yet to give them a feed. It must be borne in mind that just before the chick is hatched the yolk is absorbed into the system and this acts as a food for some hours.

Arrange the coop so as to face the south, and have it well sheltered from cold winds, if possible. Be careful to have the coop airy, but not drafty, and at the same time waterproof. Early in the season a board bottom is a help in keeping the chicks dry and warm, but during the latter part of May or later the mother earth serves as a good bottom. The coop should have a small amount of chaff placed into it. Before removing the chicks from the nest, a portion of food should be put down, as well as a supply of water. Never fail to clean the coop at least twice a week, or if no bottom is in the coop, to move it to fresh land every day or so AFTER THE DEW IS OFF.

The first feed for the little chicks may be either equal proportions of hard-boiled eggs (chopped fine), onion (chopped fine), and bread crumbs, all in equal proportions, or johnny-cake (finely crumbled). Usually the former ration gives best results. Feed the ration for the first few days, after which gradually wean to a ration composed of equal proportions of meat, vegetables and grain. Cooked livers (chopped fine) answer well for the meat supply; grain sprouts or root sprouts for the vegetable; and the grain may consist of equal proportions of bran, corn meal and oatmeal. Moisten all slightly with skim milk or boiling water. If grit is not easy of access, it is advisable to add a handful to about a gallon of the feed. Where the chicks have a nice fresh grass range and where there are plenty of insects, the meat and vegetables may be omitted. The water should be so supplied that the chicks cannot get into it. This can be easily accomplished by taking an old corn or tomato can, punching a few holes near the edge; then fill with water and place a saucer over the top. Turn the can over quickly and you have as good a fountain as one would wish. Cracked wheat or wheat screenings may be fed after the tenth day. Give five feeds daily until the chicks are four or five weeks old, when they may be gradually weaned to three feeds per day. Chicks usually thrive better upon ground grain than upon whole grain.

Keep a sharp look-out for lice. If any are seen, dust the chick and hen with insect powder.

When chicks show a greenish discoloration at the back of the abdomen, it may be taken as an indication that there is a lack of meat food.

Poultry Dept., O. A. C.

W. R. GRAHAM.

Feed and Care of Ducklings.

BY J. E. MEYER, WATERLOO CO., ONT.

The first food we give ducklings is stale bread soaked in sweet milk, together with any kind of table scraps, as cooked potatoes, oatmeal porridge. Feed them all they will eat up clean, every three or four hours for several days in this way, and after they are a week old they will need feeding only three or four times a day. Feed a mixture of cornmeal, crushed oats and middlings, moistened with milk, in any form, after the first week, until ten weeks old, when they will be feathered. The three kinds of meal need not be mixed together; any two of them will do, and the corn should be increased the last week if the ducklings are intended for market.

Keep clean fresh water constantly before the ducklings, arranged so that they cannot do more than put their heads into it. This can easily be done by driving sticks close together about the dish containing the water. The water should be placed in the shade and changed often in hot weather to keep it cool and fresh. This is very important. Ducklings should on no account be allowed to get to any water beyond what they drink. We prefer to confine ducklings to a well-shaded grass run, by using foot-wide boards or poultry netting, and moving them whenever the run becomes soiled, if it is not large enough to keep clean.

Besides the food and water, place a shallow box of sand, where they can at all times get at it. Sand is by some put into the soft food. We never feed ducklings whole grain, and when we do feed it to old ducks we put it into water. The old ducks will do very well if they can get to water, but it is not at all necessary that there should be water in order to be successful with ducks. This is especially true of the Pekins, the greatest of market ducks.

Agropyrum Tenerum.

In a pamphlet on grasses, edited by Prof. Kennedy, of the Department of Agriculture at Washington, we clip the following reference to *Agropyrum tenerum*, with us commonly known as Native Rye Grass, but in this pamphlet called Slender Wheat Grass: "A valuable native perennial grass about three to four feet high, with numerous soft leaves and a long, slender, erect spike. It is found growing wild in dry soil from New Mexico and Southern California to Washington and British Columbia, and eastward to New Hampshire and Labrador. It responds readily to cultivation, and produces excellent results when slightly irrigated. When well grown it forms a close, uniform growth that yields as much per acre as an average field of timothy. Considering its high nutritive value, no more profitable grass can be found for dry regions, especially on saline soils. It is one of the most valuable grasses for the Rocky Mountain region. During the years 1898 and 1899, 89 three-pound packages of the seed of Slender Wheat Grass were distributed. This distribution includes experimenters in twelve different States. Twenty-eight reports have been received from Colorado, Idaho, Montana, and South Dakota.

A Cure for Egg Eating.

Hens when kept in confined areas are likely to contract quite a number of troublesome habits—among others the annoying trick of eating their own eggs and the nasty habit of pulling one another's feathers. As a preventive of egg-eating many cures have been recommended from time to time. In our experience the most effective is that of filling a number of eggshells with a mixture of soft soap and carbolic acid, and placing these in the nest most frequented by the offending birds. After dosing themselves with two or three eggs so treated the birds will usually be found very chary of attacking even natural eggs subsequently.—*Farmers' Gazette.*

Brome Grass.

According to a bulletin on co-operative experiments with grasses and forage plants, issued recently by the Department of Agriculture, Washington, no less than 251 different varieties of grasses and forage plants were sent out to 1,739 experimenters during 1898 and 1899. It is interesting to note that of all the varieties the largest number of reports have been received on Brome grass (*Bromus inermis*), showing the widespread interest that is being taken in this grass, now becoming so well and favorably known in Manitoba and the Territories. There will unquestionably be a big demand for Brome grass seed, both at home and in the States, and it should be a profitable crop.

QUESTIONS AND ANSWERS.

Veterinary.

OBSTRUCTION IN THE PAROTID DUCT.

G. H. C., York Co., Ont.:—"I have a mare, in foal, running at straw stack in day time. She swells up quite large from the ears down to the throat. On tying her up the swelling goes down."

[Do not allow the mare to feed off the ground or floor. She had better be kept in the stable and fed from an elevated manger. Apply tincture of iodine along the course of the swelling every other day, and give her a small teaspoonful of saltpeter once a day, in a mash, for a week.]

WASHY MARE.

SUBSCRIBER, Wentworth Co., Ont.:—"We have a hackney filly rising 3 years old which scours badly at times almost every day. She has not been worked yet, and has been fed clover hay and wheat straw, with a small allowance of oats; has a good appetite and is in good condition, shedding her hair freely. She seems to have a great desire to drink. If turned out for exercise, she will eat snow or drink water every little while, and does not seem to be satisfied."

"Please give the address of Prof. Thos. Shaw."

[Your mare is evidently what is called washy (predisposed to scouring), but altering conditions and careful feeding, with a little medicine, will probably help matters considerably. Have her mouth examined by someone who understands such things, as if the teeth are not in good shape treatment will be of little avail. Instead of clover hay and straw, feed good fresh, sweet timothy hay and a reasonable quantity of good clean oats. Do not feed any roots. Animals affected with diarrhoea are always very thirsty, and, of course, the large quantity of water taken tends to keep up the purging. Allow water in small quantity, say from one to two gallons at a time, and give it frequently. Feed a tablespoon of ground ginger in her oats night and morning to stimulate the secreting glands of the stomach and intestines and aid digestion. You might better commence with smaller doses, and she will soon take full doses, as it is not bad to take. In order to check the excessive thirst give 1½ drams iodine night and morning for 2 or 3 days. Give either in a ball mixed with linseed meal or dissolved in ½ pint cold water and given as a drench, and give about 2 hours after meals, else there is a danger of the drug uniting with the starch of the ingesta and forming the insoluble iodide of starch, and hence its actions would not be established. It is probable that after a few doses you will notice the thirst much diminished. Prof. Shaw's address is St. Anthony Park, Minnesota, U. S. J. H. REED.]

LAME HORSES AND OTHER THINGS.

J. N. M., Pictou Co., N. S.:—"1. As I have a horse who, through heavy feeding, got some trouble in one of his hoofs, it binds in narrow and it is very hard; it pains him much on a hard road, or in hot weather."

"2. I have another whose front cords pain if you press them. He can hardly get out after being on a hard road the day before."

"3. Can you give me any remedy for keeping a horse from sinking in a soft place which cannot be dried when plowed? I have heard of snow or mud shoes on horses. Can you tell me about them?"

"4. Can you give me an invention to run a dash churn by foot, like an old-fashioned spinning wheel?"

"5. Give a perfect remedy for horse interfering behind."

[1. Your horse is suffering either from chronic founder or navicular disease. The cure cannot be effected, but the symptoms can be considerably relieved. The better treatment would be a long rest and repeated blistering around the coronet. If this cannot be done, get him shod with bar shoes. Soften his feet by standing in water a few hours each day, or by poulticing with boiled turnips or linseed meal. Especially in dry weather do the feet require to be kept soft by moisture.

2. Bathe the affected tendons well with cold water, twice daily, and apply the following liniment, with smart friction: gum camphor, 2 drs.; alcohol, 6 ozs.; oil turpentine, 4 drs.; spirits ammonia, 6 drs.; water to make a pint. Bandage the leg about an hour after rubbing the liniment and leave the bandage on for two or three hours or longer.

3. I cannot advise you in this affair. It is possible pneumatic boots about 12 or 14 inches in diameter could be manufactured, or you might try a raft.

4. I cannot help you in this, either, but perhaps some reader can.

5. The only perfect remedy for a horse interfering behind, is to keep him tied up. Careful shoeing and the wearing of boots are the only known remedies.

J. H. REED, V. S.]

COW WITH A COUGH.

SUBSCRIBER, Colchester Co., N. S.:—"I have a cow four year old, in calf, due tenth of May; took a cough about two months ago, and now she blows almost like a horse with the heaves. She is worse when eating dry hay; is in good condition. Please state cause and treatment."

[I presume, as you have not mentioned any, there are no symptoms presented but the cough, such as a discharge from the nostrils or eyes, decrease of appetite, etc. I infer that the cow is apparently in good health, eating and thriving well. The absence of such symptoms, and the fact that the cough does not seem to interfere with the animal's health, indicate tuberculosis. This disease cannot, except in advanced cases, be diagnosed without the tuberculin test. It is practically incurable. It would be well to isolate the animal; take good care of her, and watch the symptoms closely. When she calves, take the calf away from her at once, and feed it milk from cows known to be healthy. If this be a valuable cow, I would advise you to get your veterinarian to test her with tuberculin. J. H. REED, V. S.]

ENLARGED LEG—WARBLES IN CATTLE.

G. D. Muskoka, Ont.:—"I have a mare 10 years old, which for a few years past has had an enlarged hind leg. It cracks in front of the hock joint about 2 inches long and half inch wide, which bleeds when working sometimes, and heals up altogether, then breaks out again. Leg enlarges when standing in stable, sometimes as large as an ordinary stovepipe down at fetlock joint, and swelling goes up to body. Leg is hot on inside close to body. If fed grain, it gets bigger than usual. What do you advise?"

"2. My cows have lumps on their backs in which after a while there will be worms come out. They had them last year. Is there any cure for them?"

[1. The lymphatic glands of the affected leg are practically ruined by the long standing of the case in question, which renders it impossible to affect a cure. The animal can be helped, however, by a course of physics, tonics, and external applications. Prepare the animal for a physic by feeding exclusively on bran mash for sixteen hours, and then give the following purgative ball: Barbadoes aloes, 7 drams; powdered ginger, 2 drams; syrup of soap, sufficient to form a ball. Continue the bran mash until the physic has ceased to operate. After this give, morning and evening, in food for two weeks: Iodide of potass., and nitrate of potass., of each 1 dram; powdered gentian, 2 drams. Paint the leg once daily for four days with strong tincture of iodine (iodine, 6 drams; iodide of potass., 5 drams; alcohol, 8 ozs.). Allow one week to elapse, and wash the leg thoroughly with warm water and castile soap, and then repeat the application of the tincture of iodine. Repeat this treatment for at least four times, observing the above directions.

2. The lumps on the backs of the cattle are due to the presence of warbles or larva of the ox bot fly. There is still some doubt regarding the life-history of this insect, but it is now generally believed by authorities on entomology that the eggs are laid by the fly on the hair of the animals in the summer season, and are taken into the stomach by the cattle licking themselves. In the stomach the eggs hatch, and from there bore their way upward to the skin. It is therefore difficult to prevent the animals, getting them in sections where the fly abounds. In the late fall or early winter, the larva commences to be apparent on the animals' backs, and at this time repeated applications of grease well rubbed into the backs of the cattle will destroy the grub. The same treatment applied any time before the grubs escape in spring will destroy them. By parting the hair over the enlargement a small opening can be observed. It is through this the grub breathes. The oil or grease closes this opening and smothers the insect. A needle pushed down through this opening will kill the insect.]

CAKED UDDER IN COW.

H. J. W., Cedar Co., Iowa:—"I have a cow that dropped a calf some few days ago. I was careful to milk her after the calf had sucked, and did so for two or three days after the calf came, when it seemed to take it all, but it did not for some reason take the milk out of one teat. I believe the milk clogged in that one, for the calf sucked it the same as all the rest, but on examining the udder I found this teat, or the quarter of the udder above, very hard and fevered. I can't do much for it. There is just the least bit of watery milk comes from it. The calf sucks it the same as the rest. What do you think can be done for it? Can anything be done for it without drying the milk? She is a good cow. I have been feeding her nitrate of potash in the feed. I had been feeding shocked corn, but am feeding oats and oil meal now."

[The affected quarter is highly inflamed and congested, due to the milk not having been drawn off for an extended period. The treatment should be prompt and energetic in order to save the quarter. Give a purgative of 1½ pounds of Epsom salts, with a ½ ounce of ginger dissolved in warm water. Bathe the quarter twice daily for 30 or 40 minutes with warm water in which the hand can be borne; rub dry and apply belladonna liniment or goose oil well rubbed in. Continue giving nitrate of potash in teaspoonful doses twice a day. Reduce the grain diet to a simple warm bran mash, and give hay in place of corn stover. Milk out the quarter frequently. Keep the cow warm and away from drafts, and take the chill off all the water she drinks.]

SPRAIN OF THE BACK TENDONS.

J. N., Perth Co., Ont.:—"I have a mare about fifteen years old. She went lame last June. If travelled on the hard road, she is worse; it is in the cords of the front leg. Could you tell me what to do for her?"

[The mare is evidently suffering from sprain of the back tendons of the fore leg. Bathe the part well for one hour, twice a day, with cold water in which has been dissolved a few handfuls of salt, rub dry and apply the following liniment: water, half pint, two ounces of spirits of turpentine, one egg, two ounces of spirits of alcohol, two ounces of liquor ammonia, and add enough water to make one quart. In making this liniment, the mixture should be vigorously shaken for four or five minutes after the addition of each ingredient. One hour after applying the liniment, bandage firmly and leave for three hours. Continue this treatment till the lameness is well gone, then blister with cantharides, two drs., well mixed with vaseline or lard. After clipping the hair, rub in well for twenty minutes. Tie the mare's head so that she cannot reach the blistered part with her mouth, and oil on the third day.]

RETENTION OF PLACENTA.

D. H., Muskoka, Ont.:—"I have a cow that does not clean when she calves. It rots and comes away in pieces, and she fails in flesh. What would you advise me to do for her?"

[Occasionally cows under varying circumstances fail to expel the afterbirth. The retention is due to an abnormal adhesion between the womb and fetal membranes, or a rapid closing of the mouth of the womb after delivery. Old or poorly-fed cows are considered to be liable to the accident. If the placenta does not come away in eight or ten hours after delivery, the cow should be given the following drench: Epsom salts, 1 lb.; fluid extract of belladonna, 1 dram; and sweet spirits of nitre, 1 oz. Keep the cow comfortably bedded and blanketed, give chilled water to drink, and warm slops. If the membrane has not passed in about 30 hours it should be removed by hand. This is an unpleasant operation, but a very important one, because, when the placenta is not removed, it is absorbed in the system as it decays, to the injury of the cow's health, and it renders her milk unfit for human food. To perform the operation it is necessary to understand something of the structure of the parts, and to exercise caution. During the time of pregnancy, the placenta is attached to the womb by numerous button-like tubercles, called cotyledons. At the time of parturition these adhesions should dissolve, and it is when they do not that retention occurs. So that an important part of the operation of removing the placenta is to loosen with the fingers these attachments. The operator should have an assistant to help him. He should have beside him a pail of clean, warm water, in which has been dissolved a piece of good soap. It is well to remove the shirt or roll the sleeves up to the shoulders. Next oil the right hand and arm and pass it into the womb, while the extending placenta is grasped in the left hand. Draw gently on the membrane with the left hand while the right hand is engaged loosening the attachments. The operation is often a tiresome and tedious one, requiring patience on the part of the operator. There is sometimes advantage in relieving one hand with the other. It is well to mix a few drops of carbolic acid with the oil used to smear the hands and arms. After the operation is completed the womb should be washed out with warm soft water, using a large syringe, after which it should be plentifully injected with water 50 parts and creolin 1 part.

While the above is the proper treatment as given in veterinary books, we may say that we have operated in scores of such cases, and always with complete success, without any medicine or after-treatment, and we would not in any case delay longer than 24 hours before removing the placenta by hand. —ED. F. A.]

MALIGNANT GROWTH ON COW'S EYELID.

M. C., Peterboro Co., Ont.:—"I have a cow eight years old. She has always been healthy and a good milker. Last September we noticed something like a small wart (about the size of a pea) coming on her left eyelid very near the center of the eye, or close to the edge under lid or winkers. It grew slowly at first, but after a while it began to grow rapidly, and looked and smelled bad. I tied a silk thread tightly around it, which cut the ugly lump off (about the size of a small plum). I washed the lid with bluestone water twice a day (a strong solution), but the lump is growing big again, and will soon have her eye closed up. I find no bad smell since I began to use the bluestone water. If you can tell me what this ailment is, and advise me in the matter of a cure, I shall regard it as a great favor?"

[This cow has a malignant tumor. The only cure is to carefully dissect it out, being careful to remove all the unhealthy tissue, else it will grow again. If the eye itself has become involved it will have to be removed in order to save the other eye from disease. If the eyeball be not involved, the operator will need to be very careful in dissecting lest he injure or puncture the eye. After the operation, use, as a dressing, a solution of sulphate of zinc, say 10 grains to the ounce of water, in preference to the solution of bluestone. Growths of a malignant nature, such as this is, in any situation are troublesome to treat, but especially in such close proximity to the eye. If you are handy with the knife and used to operations, and not nervous, you may possibly be able to operate yourself, otherwise you had better employ a veterinarian. There is little use in applying any preparation to the growth with the hopes of removing it.

J. H. REED, V. S.]

CONTRACTED TENDON.

B. B. A., Victoria Co., Ont.:—"I have a horse coming two this spring. During the winter the conds in the back of her fore legs have become shrunken, and her fetlocks knuckle over till she can hardly walk. Will you please tell me what is the matter with her, and how she can be cured?"

[Contracted tendons may arise from different causes. Among the most prevalent are soreness in the region of the hocks, standing on uneven floors where the front is higher than the back, want of exercise, rheumatism brought on by overfeeding, or allowing the toes to grow too long. Have the colt's hoofs put in a natural shape, see that the toes are not too long; give moderate work, and apply the following liniment along the course of the contracted tendon every night: Nitrate of potash, 50 parts; oil of turpentine and turpentine ammonia, 50 parts; of each half an ounce; spirits camphor, 1 ounce; tincture cantharides, 2 ounces; water, 1 quart; shake well.

BREEDING AN AGED MARE.

SUBSCRIBER, Grey Co., Ont.:—"I have a mare fourteen years of age. She has never raised a foal. Would it be safe to start her now, and would there be any danger of losing her when foaling on account of her being aged. She is a very sound little mare, with a very high neck and wide breast, light limbed, with a slight tuft of hair on fetlocks, well ribbed, heavy mane, very pretty head and large white nose and face, very gentle, with medium spirit, she being bred from a draft horse and common mare. Her weight is 1,050 pounds. To what class of horse would it be best to breed her for the best results?"

[Your mare, in my opinion, is not too old to start breeding. I started a favorite mare of my own at 17 years, and she bred four colts successfully, and then I did not breed her again. She is now 23, and apparently as young as she was at 5 years old. Of course, there is a danger of any female having difficulty at parturition at any age; but my experience has not taught me that the danger differs materially according to age. Therefore, I would not hesitate to breed a mare at 14 years. Your mare is evidently not a typical animal of any breed or class, simply a good stout little animal. She has not sufficient size to breed to a draft stallion, nor sufficient breeding or quality to breed to a carriage or hackney stallion with reasonable prospects of producing a desirable animal. The same difficulty exists, but not to such a marked extent, in regard to the roadster or Standard-bred. If an animal of this class with sufficient size and quality (hot blood) were selected, the results might be satisfactory. In my opinion, you should select a good big, strong, sound Thoroughbred stallion with good disposition. The cross in this case will not be too violent, and the prepotency of the stallion will overcome the cold-bloodedness of the dam, and you will in all probability get a colt with size, quality and action, of good disposition—one that will make a very serviceable animal in either harness or saddle.

J. H. REED.]

LUXATION OF THE PATELLA.

H. N., Haldimand Co., Ont.:—"I have a three-year colt—its stifle slips out and goes back. It has been that way for a few months. Can you give me a remedy for it? I have taken your paper for a few years, and think there is no better."

[Rest, and repeated blistering, is the most successful treatment for this condition. Clip the hair off the stifle and rub in Gombault's Caustic Balsam freely every 10 to 15 days. Feed the horse well so as to increase his strength.]

Miscellaneous.

A \$25 WINDMILL WANTED.

SUBSCRIBER:—"Can you inform me through your paper where I could obtain plans for a windmill not costing over \$25? I wish to use it chiefly for sawing wood."

[The construction of the windmill has within recent years undergone very great improvements, and at the same time the cost has steadily been reduced, until it would hardly seem worth anyone's time to attempt the building of a windmill. But maybe some of our readers can help Subscriber to the plans he desires.]

FELT ROOFING WANTED.

C. C. F., Innisfail:—"Kindly let me know through your next issue if there is any firm in Canada which manufactures felt for roofing purposes."

[Manufacturers would do well to keep the public informed through our advertising columns.]

IT GROWS ON ONE.

A. R., Rossandale, Man.:—"Please inform me where the book, mentioned in your last issue, 'Successful Farming,' by Wm. Rennie, Sr., can be had. This is my first year with the ADVOCATE. I like it better every issue."

["Successful Farming" may be obtained through this office at the publishers' price—\$1.50. See announcement in advertising columns.]

FIVE HORSES ON GANG PLOW.

SUBSCRIBER, Deleau:—"Could you in next issue of the FARMER'S ADVOCATE give me a device to make a good whiffletree to work five horses on a gang plow?"

[We do not think it is possible to hitch five horses abreast on a gang plow and get the draft to balance correctly. The best plan we know of is to use three horses next the plow and two horses ahead. Some of the implement firms have 3-horse eveners designed for such a hitch.]

CURBING A WELL IN QUICKSAND.

In reply to a request of your subscriber as to how to dig a well in quicksand: We had the same difficulty a few years ago. We took a curb 12 feet long and placed it tight in the well so it would sink straight, and sharpened the boards at the bottom, and then we laid bricks on the ring till it had pressure enough. Take pine or hemlock, and be sure to have it waterproof. We are very much pleased with the ADVOCATE.

CONRAD WAGNER.

Waterloo Co., Ont.

POLLED DURHAMS.

If S. H. B., Simcoe Co., Ont., will correspond with the undersigned, I can give him all the necessary information he requires in regard to Polled Durhams. I can furnish him with printed matter which I received from the President of the Polled Durham Association, who is Dr. William Crane, of Tipppecanoe City, Ohio.

ANDREW GILMORE, Athelstan, Que.

SOFT EGGS—HENS LOSING HEAD FEATHERS.

W. Bros., Ontario Co., Ont.:—"For the past week many of our hens have been laying soft-shelled eggs. Is the cause due to the lack of something they do not get that helps to form the shell? They have been getting all the small gravel and old plaster they require, and frequently oyster shells. Is it necessary to keep some kind of sharp grit, such as oyster shells, where they can have free access to it at all times? We give a warm feed every morning, composed of boiled vegetables and roots; with water, oats and barley (chopped), and clover heads and leaves (steamed). At noon we give them turnips to pick at. Do you think turnips as good for them as mangels? They don't appear to relish the turnips like they did a month ago. At night we give them a grain feed—oats or barley, with wheat mixed through occasionally. We try to keep them as active as possible by scattering a little grain through the litter. There are several of our hens with the feathers all off the head. The feathers come off gradually until the head is bare. Is this a disease? What is the cause and remedy?"

[Soft eggs are generally caused by overfeeding the hens, and the remedy is self-evident. It may, however, occur from want of lime, which is supplied in best form in the slaked powder condition, and smashed oyster shells. The fowls should have access to these at all times, and a handful of lime thrown in the drinking water will also hasten a remedy.]

We are inclined to attribute the loss of head feathers to feather-eating, which becomes a real vice with fowls rather closely confined, and whose diet is lacking in animal food. The vice grows and spreads in a flock in which it gets a start. Any bird known to have it should be isolated, as it tempts the others. Give the flock more liberty, and feed two or three times a week a fresh liver, crushed green bone, or meat scraps. Occasional cooling doses of Epsom salts, say 10 grains each in soft food, will tend to correct an abnormal appetite for feathers.]

INSECTS ON HOP VINES—MANITOBA WASHER.

HARVIE DOAK:—"Last season our hop vines were infested with numbers of little grubs, which ate the leaves and rendered them useless. Please prescribe through the ADVOCATE what will prevent these pests, and much oblige."

"2. Where is the Manitoba Washer manufactured?"

[1. Since the infesting grubs take their food by eating the leaves, an application of poison to their diet at once suggests itself. At the first appearance of the intruders the vines should be carefully sprayed with Paris green, 1 ounce in 10 gallons of water. Repeat as often as appears necessary at intervals of a week or ten days.]

2. The manufacturers of the Manitoba Washer, or dealers in that machine, could increase their business by advertising in our columns, which are closely read because they are reliable.]

SUGAR-CURING HAMS AND BACON.

GRAIN FARMER, Waterloo Co., Ont.:—"Can you give me a recipe, either by mail or through the columns of your valuable journal, for preparing sugar-cured hams and bacon?"

[To each 100 pounds of ham or shoulder use seven and one-half pounds of fine salt, one and one-half pounds of granulated sugar, and four ounces of saltpetre. Weigh the meat and the ingredients in the above proportions, rub the meat thoroughly with this mixture, and pack closely in a tierce or cask. Fill the tierce with water and roll every seven days until cured, which, in a temperature of 40 or 50 degrees, would require about fifty days for a medium ham. Large hams take about ten days more for curing. When wanted for smoking, wash the hams in water, or soak for twelve hours. Hang in the smoke-house, and smoke slowly 48 hours.]

HAULING MANURE INTO LARGE PILES.

RAY C. HOYT, State Maine, U. S. A.:—"Does manure lose any of its value by being moved into the field in large heaps about a month before it is to be spread on the surface? My manure is quite coarse, and I thought handling it would make it in better shape for the harrow."

[In reducing coarse manure to a finer condition by piling it in heaps in the field, a certain amount of decomposition must necessarily take place. During this change, nitrogen, a valuable constituent, is given off in the form of ammonia. This can be partially prevented by an application of gypsum to the surface of the heap, or even a few inches of soil. Would it not be a better plan to turn over six or eight inches of the surface of the manure where it now lies, and tramp it well with stock? In this condition, it would lose practically nothing, while the coarser portion would become reduced without the extra work of hauling to a heap.]

TRAINING A BULL'S HORNS.

SUBSCRIBER, Waterloo Co., Ont.:—"Will you please let me know whether it is possible to make the horns of a yearling bull grow in a position desired. I have one whose horns grow too far backward. Would scraping help them?"

[Scraping them thin on the front side will probably cause them to incline forward to some extent, but it will be a slow process. To make it quickly effectual a contrivance with a screw, on the principle of that used in tightening a bucksaw, might be adopted. The bull's horns will no doubt come forward satisfactorily, as he grows older, without treatment.]

TRAINING A PUP—CARE OF DUCKS.

FATHER'S BOY, York Co., Ont.—"My father takes the FARMER'S ADVOCATE, and it is a very good paper. I have a few questions to ask: 1st, I have a pup. Would you please give me your best instructions to make a first-class dog of him?"

"2nd, How would you prefer feeding and taking care of ducks? Should they have a pond or not?"

[We presume that the puppy is of the collie breed, as in our opinion that is the only sort of dog that is worth keeping on a farm, and unless these are naturally bright and well trained they are liable to give more trouble than their services are worth. Puppies, like children, must be dealt with so as to create mutual affection. Talk with him, praise him, and teach him a few little tricks, being careful to be systematic, and do not misplace the pup's confidence. Give him a box, a bed or a blanket always in the same place. He should receive his two meals a day regularly, so as to form in him habits of regularity. In teaching tricks use the same words each time for the same thing, and in this way the puppy will soon learn what you mean. If the puppy is to be a stock driver begin with him when about five months old. At first just keep him at your side while you drive the stock. Take plenty of time and do the work carefully. Always go quietly around to the rear of the stock, then wave your arm and make some noise about the work. The dog will then understand what you are about. A dog should not be expected to do his work alone until he is a year old, and not then unless he has had considerable schooling in the field. A collie generally takes naturally to driving, but sometimes they incline to go to the head. It is, therefore, well from the very first to lead him with a cord or light rope, by which he can be taught to come quickly when called back. He should know to stop driving at once with the words "that will do" or "here" from his master. Then if he goes to the head he may be called or pulled back. These bad habits will not prevail if the start is made right. Above all things, remember a collie must know but one master. If every man, boy or child about a place undertakes the training, you will have a dog which will prove only a disappointment and a vexation. Never whip a collie; he will not forget it if you do, and will constantly be in fear of you. A good scolding is enough. It is always well to reward an act well done with a morsel of something that he likes.

2. During and before the laying season give a warm breakfast. The mash need not be mixed as stiff as for chickens. Once a week place powdered charcoal in their mash, a gill to a quart, and have it around their house in sizable pieces all the time. Treat them about as you do your hens, only they do not need a dust bath and as warm a house. They need more to eat than hens, head for head, but it may be made more of bulk with advantage to the ducks and to the cost of feed. During the heavy laying time they need feed in the proportion of three hens' rations to two ducks. To do their best at laying they should have fresh lean meat twice per week, all they want after you have them broken into it. Procure one drake for each five ducks, and get nice ones. Don't keep their craws full all the time if you are to get many eggs. For ducks to lay well, and above all, their eggs to hatch well and produce good strong ducklings, they must exercise a great deal, and for this there is nothing better than a pond to swim in. It is not necessary to have a duck pond in order to be a successful duck-raiser, but it helps lots. The eggs seem to be all fertile, and such great, strong ducklings kick out of them. After the ducklings are thirty-six hours old give them a drink of water and feed, composed of equal parts of bread soaked in sweet milk, gluten meal and corn meal, to which has been added two per cent. of beef scraps and a little grit. Give this food during the first five days. After this give equal parts of bran, corn meal and gluten meal, with five per cent. beef scraps and a little grit. Keep grit and clean drinking water before them all the time. Feed five times at first, reduce to three times at four weeks old. As they grow older replace part of the bran with middlings, and increase the beef scraps. When five or six weeks old they should have access to a large run, and a stream of water if convenient. At nine weeks old, fed in this way, they should commence to be ready for market, dressing four and a half to five pounds each.]

RECIPE FOR TANNING DEER SKINS.

To the Editor FARMER'S ADVOCATE:

SIR,—Enclosed please find sample of tanned deer skin, also the recipe for same that my father has used for years with good success. The skins give the best of wear. First soak the skins from two to three days to remove the hair and grain. Take a half round block made very smooth, use a square instrument for removing the grain. For the liquor make a strong brine of soft water and salt, put in oxalic acid enough to make it white or a sharp sour, just enough to cover the hides. Put in liquor from thirty-six to forty-eight hours, according to thickness of hides. Rub hides frequently and keep liquor a little warm, then run them through a wringer to take out liquor, wash well and wring again. Make a suds of soft soap and a little salt, just enough to cover hides, with about an ounce of lard for each hide. Leave in this form twenty-four to thirty hours, rub the same as in first liquor, then wring again dry over a slow fire, stretching and rubbing frequently. If you wish to buff them, spread the skins out, sprinkle on a little ochre and brush it in with a common brush. Hides tanned by this recipe will outwear the old Indian tanning. E.W. BROOKS.

AS SHIRES AND CLYDES DIFFER.

W. H. P., Frontenac Co., Ont.:—"I am interested in draft horses, and would ask you to tell me, through the columns of your valuable paper, the difference between Shire and Clyde horses. What is the breeding of the English Shire, and how does it differ from that of the Clyde? What, if any, advantage has the Shire horse over the Clyde for farm or draft work? Has the Clyde any advantage over the Shire or wherein lies the difference?"

[We invite W. H. P.'s attention to Mr. Innes' letter in our issue of April 20th, page 217. The Shire horse derives his name from the Shire counties in the heart of England. For a long time prior to the eighteenth century he was known as the large "Black old English Horse." The Shire horses of today trace to the "Old English War-horse," which ancient writers tell us excited the admiration of the Romans when they first invaded England some two thousand years ago. They were powerful horses, of great weight and activity. It is claimed by authorities that during later centuries Shire men aimed largely at the production of a horse of great bulk, capable of shifting great loads in crowded streets, and starting the same on the level from a dead halt. With this end in view the body was more looked after than the limbs, which caused the latter to lose something in quality and flexibility. For the last few decades, however, more attention has been paid to the pasterns and action of the animals, until we find the better specimens of the breed to-day possessing the desirable quality of bone and action, while the body has lost nothing of its substance and symmetry.

Clydesdales are claimed to have been descended from a race of tough, shaggy, pony-built horses, appreciated by the inhabitants of Scotland because of their ability to move heavy loads, to carry heavy weights in the saddle at a fair pace, to pull the plow on hillsides or level ground, and to be in readiness for service in the fields of war. Such services demanded horses of stamina and vigor. As time went on these horses of 1,000 or 1,200 pounds were gradually increased in weight in order to meet the changing conditions in agriculture and draft work. More liberal food, with better shelter and slower work, did their share, with selection, in increasing the size. This is how the pure Clydesdale is still a big pony, with shaggy hair, square quarters, sound, hard legs, and tough, well-shaped hoofs. The typical Shire has somewhat greater weight than the Clydesdale, but lacks to some extent in quality of bone and activity.]

COWS CHEWING BONES—BLUESTONE FOR SMUT.

SUBSCRIBER, Wentworth Co.:—"1. Two of my cows have a mania for chewing bones. What is the cause and remedy? 2. How long should oats be soaked in the bluestone solution in order to kill the smut spores?"

[When cows chew bones, it indicates an abnormal appetite due to a demand in the system for earthy matter that is deficient in the food given. We have found a speedy and sure remedy in mixing wood ashes with their salt in the proportion of one of ashes to two of salt.]

2. Mr. S. A. Bedford, Experimental Farm, Brandon, after considerable experimenting, recommends steeping smutty oats for 24 hours in sulphide of potassium, 1½ lbs. to 25 gallons of water. When bluestone liquid, 1 pound to 8 gallons of water, is used, the oats should steep for five minutes. A longer treatment tends to delay germination of the grain.]

SHEEP-DIPPING TANK.

J. B., Norfolk Co., Ont.:—"Will you or some reader give instructions how to build a tank for dipping sheep, giving size and shape, and any other information that would enable a carpenter to build one? Also the amount of dip required for forty sheep?"

[Tank should be of matched plank 1½ or 2 inches thick, and made same as a water trough for stock, about 5 feet long, 2 feet 6 inches high, one foot wide at bottom, flanging out to 2 feet or 2 feet 6 inches at top, the ends also flanging in same proportion. These dimensions are roughly approximate and are given from memory. Perhaps some reader will kindly give more definite instructions.]

Directions are given on cans or packages of sheep dip on the market stating quantity required for a given number of sheep. We judge one half gallon of the advertised dips would be quite sufficient for forty sheep if mixed according to directions. It is well, however, to order at least one gallon, as it is better to have too much than too little, and it is useful as a disinfectant and for other purposes.]

BULL SLOW IN SERVING.

SUBSCRIBER, Middlesex Co., Ont.:—"I have a Shorthorn bull about 14 months old, in good health and condition, but is very slow in serving cows. Is there any reason why he should be so, and what would you do for him?"

[Feed him liberally with ground oats and bran, and roots and clover hay, and give him plenty of exercise. Turn him out in the barnyard with quiet cows or young cattle, half an hour at first on fine days, and an hour or two later on. Turn him loose with the cow in season, and let him romp with her. A run on pasture with other cows for a few weeks may do him good if he is taken up once or twice a day and fed.]

Chatty Stock Letter from Chicago.

FROM OUR OWN CORRESPONDENT.

Following table shows current and comparative live stock prices:

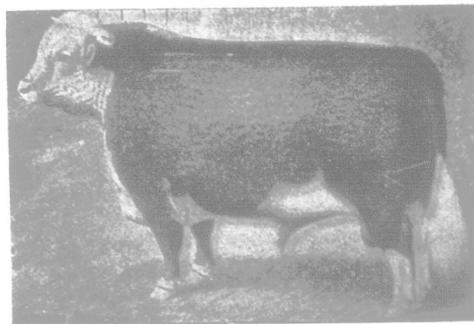
Beef cattle.	Extreme prices now.	Top Prices		
		ago.	Two weeks	1899
1500 lbs. up.....	\$5 00 to 6 00	\$5 80	\$5 70	\$5 40
1350 to 1500 lbs.....	4 75 to 5 65	5 75	5 85	5 25
1200 to 1350 lbs.....	4 35 to 5 50	5 60	5 50	5 25
1050 to 1200 lbs.....	4 15 to 5 40	5 40	5 25	5 00
900 to 1050 lbs.....	4 00 to 5 25	5 20	5 10	4 90
Hogs.				
Mixed.....	5 30 to 5 65	5 60	4 02	3 97
Heavy.....	5 30 to 5 70	5 65	4 05	4 00
Light.....	5 25 to 5 50	5 52	3 95	3 85
Pigs.....	4 25 to 5 30	5 30	3 85	3 90
Sheep.				
Natives.....	4 30 to 6 50	6 30	5 00	4 75
Lambs.....	5 35 to 7 40	7 40	5 90	5 65
Colorado lambs.....	7 25 to 7 50	7 50	5 90

The situation in the fat cattle market is fairly satisfactory to producers. It is a noteworthy fact that the choice light-weights and big heavy cattle are getting closer together. Some 915-lb. steers of choice quality sold at \$5.20, with 1,576 to 1,584 lb. cattle at \$5.20.

The hog market has been very high, being the highest since 1896, but just lately the tendency has been toward a sharp reaction. The wild speculation in pork products has been at the bottom of the recent sharp changes in hog prices.

The April cattle receipts at leading market points are the largest in the past ten years. The increase is entirely in "native" or corn-belt cattle, as the number of Texans is very small just now.

A GREAT SALE OF HEREFORDS.



DALE 66481.

[Hereford bull sold for \$7,500 by auction at Chicago, April 17th.]

The great event of the past fortnight was the dispersion sale at Dexter Park Amphitheatre, Chicago, of the Nave herd of Hereford cattle:

- 96 lots sold for \$61,415; an average of \$671.00.
- 20 bulls sold for \$19,085; an average of \$954.25.
- 76 cows sold for \$45,330; an average of \$596.45.
- Highest price bull, Dale 66181, \$7,500.00.
- Highest price cows, Theresa 92896, and Russet 73654, each \$3,000.00.
- 77 domestic-bred bulls sold for \$49,755; an average of \$646.17.
- 18 domestic-bred cows sold for \$14,915; an average of \$828.56.
- 59 domestic-bred cows sold for \$34,840; an average of \$590.51.
- Highest price domestic-bred bull, Dale, \$7,500.
- Highest price domestic-bred cows, Theresa and Russet, each \$3,000.
- 19 imported Herefords sold for \$14,990; an average of \$789.00.
- 2 imported Hereford bulls sold for \$1,502; an average of \$751.00.
- 17 imported Hereford cows sold for \$10,490; an average of \$617.00.
- Highest price imported bull, Viscount Rupert, \$3,100.
- Highest price imported cow, Lady Help, \$2,600.

The \$7,500 bull was bought by the man who raised him, and who sold him as a youngster at \$1,000.

Someone says that some breeders can make big money out of \$5,000 to \$7,500 bulls, while others might have such animals at \$500 to \$700 and not be able to manage them so as to avoid a loss. It simply means that a boat should not try to carry more sail than its ballast justifies, or that people to make a success of large ventures must have ideas and fittings to match.

Some 40 head of fine trotting-bred carriage horses, fitted up here for about a year, sold in the East at an average of over \$1,000 per head.

There is justification for high sheep and lamb prices in the fact that the receipts at four leading markets for the second week in April are the smallest for the season since 1895, being 33,000 smaller than in 1897. There has been a mighty growth in the demand for lamb and sheep meat, and as the demand grows better the quality improves and thereby causes a still increasing demand.

About 11,000 Colorado-fed lambs sold one week recently at \$7.20 to \$7.65, being 10c. to 15c. below the recent top, but still \$1.50 higher than a year ago.

Dock and Castrate Ram Lambs.

The importance of docking and castrating grade ram lambs intended for the butcher, cannot at this time be too strongly emphasized. Great numbers of ram lambs are shipped to the markets in Oct. and Nov. every year, which sell for much less than wether lambs. They fret and worry themselves and the other lambs or sheep they are with, and do not feed and gain weight or allow others to do so, and their flesh is liable to go off flavor when the breeding season is on. The proper time to attend to the operation is when the lambs are two or three weeks old, when it is attended with very little risk, but with reasonable care it can be safely done at two or three months old. Do not delay it, however, beyond a month from the birth of the lambs.

Legislation Re Salt Packages.

Mr. Robt. Holmes, M.P., of Huron Co., Ont., has introduced at Ottawa a bill amending the Weights and Measures Act, and providing that hereafter every barrel of salt packed in bulk, sold, or offered for sale, shall contain 280 lbs. of salt, and every such barrel or sack of salt shall have the correct gross weight thereof, and in case of a barrel the net weight also marked upon it in a plain and permanent manner. The name or the registered trade-mark of the packer of the salt, if packed in Canada, or the name and address of the importer, if it is packed elsewhere than in Canada, shall be marked, stamped or branded upon every barrel or sack of salt sold or offered for sale in Canada.

At an international agricultural congress to be held in Paris, July 9th to 16th, a plan will be proposed to ask the farmers of the world to reduce their wheat output by 20 per cent., and not sell a bushel for less than a dollar. J. Chanley, of St. Paul, executive agent of the Farmers' Alliance and Industrial Union, the National Cotton Growers' Association, and the Farmers' Federation of the Mississippi Valley, and the National Grain Growers' Association, is the chief promoter of the international agricultural trust in America. Prof. G. Ruhland, of the University of Fribourg, Switzerland, is the chief promoter of the plan in Europe.



Not Lost, but Gone Before.

(Continued from page 223.)

"Promise!" uttered an entreating voice. "I promise," was the earnest answer.

But the voice was languid and weak, for the dragon-fly grub was sick and uneasy. His limbs had lost their old activity, and a strange oppression was upon him. Upwards he must go now, upwards, upwards! That was the strong sensation that mastered every other.

His friends and relations were gathered around him, some of his own age, some a generation younger, who had only that year entered upon existence. All of them were followers and adherents, whom he had inspired with his own enthusiastic hopes; and they would have helped him if they could, in this his hour of weakness.

Then came an earnest request, and then a solemn promise, that, as surely as the great hopes proved true, so surely would he return and tell them so.

"But, oh! if you should forget!" exclaimed one of the younger generation, timid and uneasy.

"Forget the old home, my friend?" said the sick grub, "forget the emotions of hope and fear we have shared together, and which I am bound, if I can, to relieve? Impossible!"

"But if you should not be able to come back to us?" suggested another.

"More unlikely still," murmured the half-exhausted grub. "To a condition so exalted as the one in store for us, what can be impossible? Adieu, my friends, adieu! I can tarry here no longer. Ere long you may expect to see me again in a new and more glorious form. Till then, farewell!"

Languid indeed was the voice, and languid were the movements of the grub, as he rose upwards through the water to the bulrushes that fringed its bank. Two brothers and a few of his friends accompanied him in his ascent, in the hope of witnessing whatever might take place above; but in this they were disappointed. From the moment when, clinging with his feet to the stem of a bulrush, he emerged from his native element into the air, his companions saw him no more.

Eyes fitted only for the water were incapable of the upward glance and power of vision which would have enabled them to pierce beyond it, and the discoverers descended, mortified and sorrowful, to the bed of the pond. They waited through that day for their friend's return, at first in joyful hope, then in anxiety, then in a gloomy fear that bordered at last on despair.

"He has forgotten us," cried some. "A death from which he can never awake has overtaken him," said others. "He will return to us yet," said the few who clung to hope.

Thus passed on the hours of the second day, and before night a sort of grim and savage silence was agreed upon among them, and they ceased to bewail either the loss of him they had loved, or their own uncertain destiny. On the morning of the third day one of the grub's favorite brothers came sailing into the midst of a group who were just awaking from sleep.

"Our brother has not returned to us," he said. "But, my friends, I feel that I am going to him, wherever that may be, either to that new life he spoke about or to that death from which there is no return. Dear ones, I go as he did, upwards, upwards, upwards! An irresistible desire compels me to it; but before I go, I renew to you, for myself and him, the solemn promise he once made to you. Should the great hopes be true, we will come back and tell you so. Adieu!"

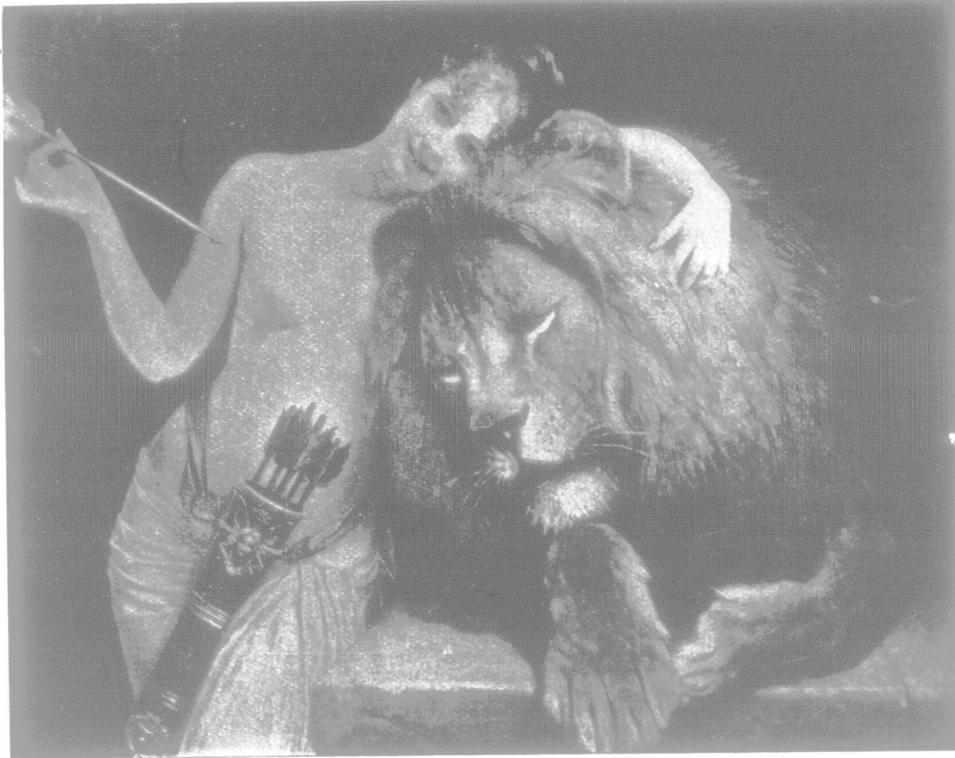
The grub rose upwards till he reached the brink of the pond, then, seizing a plant of forget-me-not, he climbed out of the water into the open air.

The hope he had again awakened died out as the day wore on and he did not return. And after this others went upwards in succession; for the time came to each when the lustrous eyes of the perfect creature shone through the masked face of the grub, and he must needs pass forward to the fulfillment of his destiny. But the result among those who were left was always the same. There were ever some that doubted and feared, ever some that disbelieved and ridiculed, ever some that hoped and looked forward. If they could but have known, poor things! If those eyes, fitted for the narrow bounds of their water world, could have been endued with a power of vision into the purer element beyond, what a lifetime of anxiety would they not have been spared! But belief would, in that case, have been a necessity, and hope must have changed her name.

Was the dragon fly really as faithless as they thought? When he burst his prison-house and rose on glittering wings into the summer air, had he indeed no memory for the dear ones he had left, no recollection of the promise he had made?

Ah! so far from it; he thought of them amidst transports of his wildest flights, and returned ever and ever to the precincts of that world which had once been the only world to him. But in that region also, a power was over him superior to his own, and to it his will must submit. To the world beneath he could never more return. The least touch upon its surface, as he skimmed over it with the purpose of descent, brought on a deadly shock, and his wings involuntarily bore him instantly back from the unnatural contact.

"Alas! for the promise made in ignorance and



"LOVE CONQUERS MIGHT."

presumption, miserable grub that I was," was his bitter, constantly-repeated cry.

And thus—divided, and yet near; parted, yet united by love—he hovered about the barrier that lay between them, never quite without a hope that some of his dear ones might come in sight. Nor was his constancy long unrewarded, for, as the days flew past, some fresh arrival of kindred from below added a keener joy to the dragon fly's already joyous existence. Sweet it was to each newcomer, when the riddle of his fate was solved, to find in the new region, not a strange and friendless abode, but a home rich with the welcomes of those who had gone before.

Sweet also it was to know that even while they had been trembling and fearing in their ignorant life below, gleams from the wings of those they lamented were dropping like star-rays on their home, reflected from the sun that shone above. Oh! if they could but have known! MRS. GATTY.

"Love Conquers Might."

This is a well-known picture by Van Courten, and shows us a splendid specimen of the king of beasts, and what a pass he seems to have come to! Poor, poor fellow, the tender passion evidently has him fast, and he is as helpless as that other poor fellow in the fable who had his teeth drawn and his claws cut. He looks so soft, both physically and mentally, that one almost feels like leaning on him too, but then, my friends, he's not in love with us, you see, and would probably quickly assume a different aspect. He is a beauty, though, and looks very happy just now. Love makes a good foil, but it is Might that really makes the picture.

THE QUIET HOUR.

Temper.

"When it drizzles and drizzles, If we cheerfully smile, We can make the weather, By working together. As fair as we choose in a little while. For who will notice that clouds are drear If pleasant faces are always near. And who will remember that skies are grey If he carries a happy heart all day!"

The truest test of anyone's Christianity is the test of the home life. If you want to know what a person is like, don't study him in society, where he has his "company manners" on, but in the monotonous round of his everyday life. As a little girl of my acquaintance said once, when people had been praising her: "They don't know me when I am at home!"

Some people, especially semi-invalids, seem to think that they have a right to be as irritable as they choose. We hear a great deal about "nerves" nowadays, and sometimes when the nervous system is out of order, it is hard to keep them under control. But do we always try? Don't we sometimes act as though we had a monopoly of nerves, and no one else had a right to have any? Have we any real right to speak impatiently and crossly just because someone else—a restless child, perhaps—is fidgeting uneasily in his chair? Is it in obedience to the command, "Be courteous," that we look as black as a thunder cloud if a little brother or sister bothers us by asking questions, or chatters when we want to be quiet?

It surely is not Christian love which makes us dislike other people because of little tricks of manner which, as we say, "make us nervous," as if that were an excuse! If you really want to let your nerves run away with you, if you want to lose all control over them, then you are going the best way about it when you get sullen and snappish over trifling annoyances. Perhaps the person who offends you by little peculiarities and mannerisms, is living a life of noble self-sacrifice, beside which your refined self-seeking existence is very mean and petty.

God floods the world with sunshine, and no one has any right to pull down the blinds of his soul, and then complain that his life is sad and dreary. It is always possible to find something to fret about, if one is determined to be miserable; but this manufactured-to-order misery is a sin, and a great sin, too. The Bible is full of commands to rejoice and be glad, and our own common sense agrees with the Bible most entirely—when we see the irritability in someone else.

How do you like to live with people who are sometimes pretty cheerful, but can never be depended on

for evenness of temper? The least thing ruffles them. A door banging suddenly, a badly-cooked dinner, an east wind, or any other trifling annoyance, makes them ill-tempered quite long enough to destroy the comfort of the rest of the family. It is easy to see this in others; it is so hard to understand that our own frowning looks and fretful tones not only make the home uncomfortable, but also are a disgrace to our Christian profession.

Worldly people are watching professed Christians, watching eagerly to see if they really do possess a pearl of great price, which it would be to their advantage to gain, even if they had to sell everything they owned to obtain it. If they see a joyful spirit, rising triumphant over the petty vexations of life, shining always, because living always in the light, they are attracted by it, and are inevitably drawn nearer to God. But what if they see just the reverse? Are they not repelled, and inclined to look for happiness in the service of the world? Do you want to drive anyone from the Living Fountain to the broken cisterns, to quench this spiritual thirst? Oh, be very careful, for your everyday life has tremendous influence on those around you. It has far more effect than the great acts of heroism which you feel you could do if you only had a chance. Even if you did shine in them, which is doubtful, they would not help others, in the daily battle with little temptations, half as much as you can help them now by being always sunny and pleasant.

A good temper is not easy to cultivate, but it is far more valuable than wealth, beauty or fame. It is more valuable to its possessor, for it ensures his happiness, which none of these things do, and it is

more valuable to others, for it contributes very largely to their comfort and pleasure.

What a nuisance "tempers" are! There is the touchy temper, which is very silly, and makes its possessor most uncomfortable, for it is always spying out insults and taking offence. There is the irritable temper, which seems to be in a chronic state of being rubbed the wrong way, quite unintentionally, by everyone who touches its owner. There is the violent temper, which gets into a rage, and storms over trifles, making "much ado about nothing." There is the sullen temper, snarling and surly, and refusing to look at anything but the dark side of things.

We all need to strive most earnestly, and pray most perseveringly for the charity which is "not easily provoked." It cannot be obtained in a day or a week; in fact, a lifetime is not too long to bring this grace to perfection.

As for the habits we have already formed of indulging in cross, impatient and irritable words, or the black and sullen looks which are apt to accompany them, they will have to be broken carefully, prayerfully, and slowly. They have probably taken years to mature, and they will take years to eradicate.

"How shall I a habit break?
As you did that habit make.
As you gathered, you must lose;
As you yielded, now refuse.
Thread by thread the strands we twist,
Till they bind us neck and wrist.
Thread by thread the patient hand
Must untwine, ere free we stand.

HOPE.

A living, loving Christian—true of tongue, honest of conduct, pure of heart, lovable in daily life—is the most unanswerable argument for Christianity.—T. L. Cuyler.

"As I have loved you" means love that is sweet and gentle to all men, who have many rudenesses and meannesses, who are selfish and faulty, who have sharp corners and vexing ways.—J. R. Miller.

"Tis not the great things that we do or say,
But idle words forgot as soon as spoken,
And little thoughtless deeds of every day
Are stumbling blocks on which the weak are broken."

Her Money-makers.

"Come out and see my money-makers," said a lady living in the country to a friend from the city who was visiting her. "These," she continued, as they came to a large and well-appointed henhouse, "are my 'church hens'; all that I make out of them above expenses is devoted to religious objects.

"The geese you see down there on the pond are my 'poor and needy geese.' They cost little or nothing, and the profits are applied to the relief of the poor and needy. A way down beyond that wood I keep a drove of hogs—'dress hogs' I call them, because I buy my dresses out of what I make from them.

"Those Alderney cows are my 'theatre and opera cows.' I saw four Wagner operas last winter out of the profits of one of them. You see that bed of strawberries? Well, we don't call them strawberries, but 'shoe-berries.' I buy all the children's shoes, and my own too, out of the income from that strawberry patch.

"These and many other little moneymaking schemes I manage myself, without troubling my husband, who works in the city for a not very big salary. Consequently, we have a great many comforts and luxuries that we couldn't otherwise have; and I thoroughly enjoy the work too."

Upon reading the above article, I could not help ruminating.

Perhaps there are some wonderful people who can do all the things enumerated, but it has not yet been my happy lot to meet them. This lady mentions *five* industries which she pursues, hinting, too, at various other little "moneymaking schemes." If she manages all these things herself, I should like to know where she gets the time or strength for the theatres, etc. Children, also, are mentioned. Where, then, does *their* care come in? It would be really interesting if some of our farmers' wives and daughters would give us their opinions on this subject, and tell us of anyone who manages all these little things—hens, geese, hogs, cows, strawberries, etc., etc.—goes to amusements, takes care of children, and (we suppose) household generally. My very humble opinion is that if these industries are personally superintended, the household and children must be neglected. If, on the other hand, assistance is employed and paid for, where does the economy come in?

A Letter from a Cat.

Dear Editor:

I hereby take
My pen in paw to say,
Can you explain a curious thing
I found the other day?
There is another little cat
Who sits behind a frame,
And looks so very much like me
You'd think we were the same.
I try to make her play with me,
Yet when I mew and call,
Though I see her mew in answer,
She makes no sound at all,
And to the dullest kitten
It's plain enough to see,
That either I am mocking her,
Or she is mocking me,
It makes no difference what I say,
She seems to know the game,
For every time I look around
I see her staring me
And yet, no matter though I creep
The time she has the floor,
Or quickly dash around the frame,
She's sure to disappear!

Recipes.

PUFFETS.

Beat together two eggs, one tablespoonful of sugar, and $\frac{1}{2}$ cup butter. Add one pint of milk, one quart of flour, and two teaspoonfuls baking powder. Bake in muffin rings in a quick oven.

CORN GEMS.

Two cups cornmeal, two cups flour, two cups sweet milk, two eggs, three heaping teaspoonfuls of baking powder, $\frac{1}{2}$ cup butter, $\frac{1}{2}$ cup sugar. Bake in gem pans.

SCOTCH SHORT BREAD.

Wash $\frac{1}{2}$ cup of butter, wipe it, and cream with $\frac{1}{2}$ cup of granulated sugar; add two cups of flour and knead it till smooth. Put it on a sheet of white paper and roll it into a square piece three-quarters of an inch thick. Press the edges all round with a three-tined fork and prick all over the surface. Bake in a slow oven about half an hour. Let it stand in the pan till hard.

POMERANZENBROD.

(A German Cake.)

Separate the whites and yolks of five eggs. Put the yolks into the mixing bowl, beat them slightly, then add two cups of fine granulated sugar and beat them for half an hour or till very light and thick. Beat the whites to a stiff froth and beat them into the yoke mixture. Have ready $\frac{1}{2}$ pound of almonds blanched and chopped, and $\frac{1}{2}$ pound of citron sliced thin and cut fine. Add these to the batter. Stir in about four cups of flour, or enough to keep the dough in shape when dropped. Butter a large baking sheet or shallow pan, sprinkle on a little flour, drop the batter in small heaps with fork, some distance apart, and bake in a brisk oven ten to fifteen minutes or till a pale golden brown color.

BOILED CELERY.

Bring it to the boiling point and simmer for 45 minutes, drain, add pepper, salt and butter.

CELERY AND POTATOES.

Boil the celery as per recipe given. After it is cold, chop very fine and mix with cold boiled chopped potatoes in the proportion of 1 of celery to 3 of potato. Melt a generous piece of butter in a saucepan and fry the celery and potato, seasoning with pepper and salt.

Weights and Measures in the Kitchen.

- 1 tablespoonful of butter or the size of a small egg = 1 ounce.
- 10 common eggs = 1 pound.
- 1 teacupful liquid = half pint.
- 1 rounded tablespoonful of flour = 1 ounce.
- 1 cup butter = half pound.
- 2 cups granulated sugar = 1 pound.
- 2 cups brown sugar = 13 ounces.
- 4 tablespoonfuls liquid = 1 wineglass or half gill.
- 1 rounded cup of flour = quarter pound or half pint.

UNCLE TOM'S DEPARTMENT.

MY DEAR NEPHEWS AND NIECES,—

It is quite a long time since Uncle Tom has mentioned puzzles, and his boys and girls may perhaps charge him with forgetfulness of that particular domain of theirs; but though silent, he has always been an interested onlooker. The number of actual contributors to that column is not very great, but I know that many others take a deep interest in it, and would be sorry to see it die away.

I should like such persons to give tangible evidence of their interest by sending in solutions or original contributions; and, as an incentive, I offer a cloth-bound interesting book for the most and best answers to puzzles published during May, June and July, the contest to be open to all new cousins and to all old ones who have never won a prize. This is a good chance for beginners, as they have an opportunity of winning one of the quarterly prizes as well. By the way, I wonder where our Manitoba cousins have hidden themselves of late? I should like to see some of the prizes go to the Prairie Province this summer. The golden rule, when you enter any such contest as this, is to send regularly for every issue, no matter how few answers you may happen to have sometimes. Often the winners are not much in advance, and the one or two answers someone thought not worth sending might have turned the scale favorably. Some of our little friends think we give a prize for every correct answer, but if they read the rules at the head of the column, they will understand that such is not the case. It would be very pleasant, no doubt, to do so, but we are not quite rich enough to be so generous.

I have pleasure in announcing the following winners in addition to those given last issue:

For solutions during January, February and March: 1st, \$1.50, to Miss Helen McQueen (Diana), Salem, Ont.; 2nd, \$1, to J. McLean, Kentville, Nova Scotia; 3rd, 75 cents, to M. R. Griffith, London, Ont.

"Rolly" and Sila Jackson follow very closely, while the contest between the two last winners was unusually keen.

I must leave space for a goodly number of puzzles this time, so will conclude by hoping we may have a large influx of old and new contributors during this quarter.

Your loving
UNCLE TOM.

Puzzles.

[The following prizes are offered every quarter, beginning with months of April, July and October: For answers to puzzles during each quarter—1st prize, \$1.50; 2nd, \$1.00; 3rd, 75c. For original puzzles—1st, \$1.00; 2nd, 75c.; 3rd, 50c.]

This column is open to all who comply with the following rules: Puzzles must be original—that is, must not be copied from other papers; they must be written on one side only of paper, and sender's name signed to each puzzle; answers must accompany all original puzzles (preferably on separate paper). It is not necessary to write out puzzles to which you send answers—the number of puzzle and date of issue is sufficient. Partial answers will receive credit. Work intended for first issue of any month should reach Pakenham not later than the 15th of the month previous; that for second issue not later than the 5th of that month. Leave envelope open, mark "Printer's Copy" in one corner, and letter will come for one cent. Address all work to Miss Ada Armand, Pakenham, Ont.]

1—CONUNDRUM.

Wherein does the fashionable lady of the day resemble jugglery?
IKE ICICLE.

2—CHARADE.

When Uncle Sam was fighting Spain,
A wealthy *Last* to Washington came;
For balls and parties he had no *First*,
And he said he wished old Spain would burst,
For a prop to insurgent bands was he,
And to help the cause he had crossed the sea,
And should he return to sunny Spain,
Total for him was all in vain.
But one day he was missed by the upper fry,
He had gone to Spain, the old Madrid spy.
IKE ICICLE.

3—DIAMOND.

- X 1—In wick.
- X X X 2—An article.
- X X X X X 3—A fashionable cloth.
- X X X 4—To obtain with difficulty.
- X 5—In wick. M. N.

4—CHARADE.

"I once was destitute of *One*,"
A friend once said to me,
"But since reading the *Quiet Hour*,
Two Total now I be."
ROLLY.

5—ENCLOSED DIAMOND.

- . . X . . 1—Harmony (trans.).
- . X X X . 2—A piece of meat, encloses a beverage.
- X X X X X 3—An ancient name of Ireland.
- . X X X . 4—Tips over, encloses an insect.
- . . X . . 5—A vapor (trans.). M. N.

6—ANAGRAM.

"May I visit Farmer Jackson's poultry yard, Mother," asked a young fox, "a nice fat pullet would be a fine addition to our bill of fare. I DON'T SCENT any hounds near, and I'm tired of stopping in the woods all day."
"Be satisfied where you are, Reynard," was the reply.
"Get rid of your COMPLETE, and you will then be as happy as any owner of a poultry farm."
F. L. S.

7—SQUARE.

- 1—Wine boiled and thickly sweetened with honey.
- 2—A linear measure in Burma about twelve statute miles.
- 3—A little rodent which makes great havoc among fruit.
- 4—A habit practiced by some men (verb form).
- 5—Devoured. ROLLY.

8—ACROSTIC.

In lawn, but not in lace;
In race, but not in run;
In run, but not in ran;
In correct, but not in right;
In shade, and not in light;
In money, but not in tin;
In temptation—not in sin;
In year, but not in cheer.
For thee my total hero slain,
For freedom's cause and Britain's gain.
MURIEL DAY.

9—SQUARE DIAMOND.

- 1, A bed; 2, to penetrate; 3, rocks; 4, renters; 5, fissures; 6, streets (abbr.); 7, in square. L. B. FORCK.

Answers to April 5th Puzzles.

- 1—Editor's office.
- 2—Jack, anti, chum, orb, blue, star, dell, acre, lady; Jacobs-dal, Kimberly.
- 3—Cuba Libre.
- 4—Con-ten-ted.

5—
a
a l l
a u g u r
a l g e r i a
l u r i d
r i d
a

6—Reader, Reade, read.

SOLVERS TO APRIL 5TH PUZZLES.

M. N., "Diana," M. R. G., "Rolly."

ADDITIONAL SOLVERS TO MARCH 20TH PUZZLES.

M. R. G., M. N., "Rolly."

COUSIN'S CHAT.

"Rolly,"—Should like to accept your invitation, but fear it is impracticable.

"Diana,"—I sent you a note, but an afraid I addressed it to the wrong post office. In answering puzzles like 2 and 3 this issue, you should give them in full.

I call the attention of all interested in puzzling to the prize offered by Uncle Tom in this issue. The old prizewinners will not be competitors, so I hope many new friends will avail themselves of the opportunity of securing a fine book of poems.

ADA A.

They were at a dinner party, and he remarked that he supposed she was fond of ethnology. She said she was, but she was not very well, and the doctor had told her not to eat anything for dessert except oranges.

THE PROVINCIAL
Mutual Hail Insurance Co.
 OF MANITOBA. (Manitoba Government.)

Incorporated in 1891 by
 PRESIDENT—
 John Renton, Farmer, Deloraine.
 VICE-PRESIDENT—
 C. J. Thomson, Farmer, Virden

The Original Hail Insurance Co.
 MANAGED BY THE FARMERS THEMSELVES.

During the nine years of its existence, this Company has paid about **ONE HUNDRED AND TWENTY THOUSAND DOLLARS** for losses sustained by farmers by hail storms. The assessments have ranged from 12 1/2 cents to 25 cents per acre, which is the maximum that can be charged. The average amount paid for losses has been \$5.50 per acre for total loss, and at the same rate for partial losses.

BOARD OF DIRECTORS FOR 1900.

T. L. MORTON, Farmer, Gladstone. F. SCHULTZ, Farmer, Baldur.
 JOHN RENTON, Farmer, Deloraine. J. MOLLAND, Farmer, Glendale.
 C. J. THOMSON, Farmer, Virden. H. B. BROWN, Farmer, Morden.

ROBERT STRANG, Managing Director, WINNIPEG.

LOCAL AGENTS AT ALL PRINCIPAL POINTS IN THE PROVINCE.



LISTER'S
Alexandra and Melotte
 CREAM SEPARATORS
 STAND UNRIVALLED FOR LARGE OR SMALL DAIRIES.
 "The proof o' the puddin' is the preein o't."

Do not be misled by interested agents, men of ready speech, who are all selling the "best" machine, no matter how cheap and worthless they are, and which certainly are the best for separating the unwary farmer from his hard-earned money. Listen to men in your own rank who have tested them:

INNISFAIL, ALTA., NOVEMBER 27TH, 1899.

DEAR SIRS,—The No. 2 MELOTTE separator you sold me some time ago is very satisfactory, even more than we expected. A child ten years of age can turn it. It is both easy to turn and separates more milk in a given time than any other separator of the same size I have ever seen. I can safely recommend it as being the best separator in use here. Yours very truly,
 HUGH R. ROSS.

For full description, prices, and copies of reliable testimonials, address:

R. A. LISTER & CO.,
 LIMITED.

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David Maxwell & Sons,
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PATENTED
STEEL ROLLER BEARINGS
IMPROVED STEEL FRAME

And combined Foot and Lever Drive, improvements you will not find on other churns. Do you want the best? Then don't purchase until you see it. Sold by the leading wholesale houses in the Dominion.

No.	CAPACITY.	Churns from
0	6 gl.	1 to 3 gl. cream.
1	10	1 to 5 "
2	15	2 to 7 "
3	20	3 to 9 "
4	25	4 to 12 "
5	30	6 to 14 "
6	40	8 to 20 "



CANADIAN DAIRY SUPPLY COMPANY,
 236 KING ST., WINNIPEG, MAN.

Agents Manitoba and the Territories.

THE GLOBE FURNITURE COMPANY, LIMITED.
 WALKERVILLE, ONTARIO.
CHURCH SEWS,
 PULPITS, ALTARS, BARS,
SCHOOL DESKS, ETC.
 WRITE FOR PRICES

THE ONTARIO VETERINARY COLLEGE
 (LIMITED),
 TEMPERANCE ST., TORONTO, CANADA
 Affiliated with the University of Toronto.
 Patrons: Governor-General of Canada, and Lieut.-Governor of Ontario. Fee, \$65.00 per session. Apply to ANDREW SMITH, F.R.C.V.S., Principal. 18-2 y om
 PLEASE MENTION FARMER'S ADVOCATE.

NOTICES.

A Stock Food Book.—The attention of our readers is directed to the advertisement of the International Food Company, of Minneapolis, Minn., who offer practically free a large volume containing no less than 183 large illustrations of horses, cattle, sheep, swine, and poultry, with an illustrated veterinary department and a fund of instructive reading matter. As indicating the staple character of the business of the company in question, it is pointed out that in March, 1900, their trade was 45 per cent. larger than during the same month in 1899, and this sort of growth has been going on for ten years past. Some 20,000 dealers are handling their food, and they are authorized to refund the money in any case of failure to produce the results guaranteed. Read their announcement, and send for the book.

Wonderland.—Whatever is undertaken by the Northern Pacific Railway is most likely to be completed in a manner that will reflect credit upon the management, and certainly their reputation does not in any sense suffer from the beautiful booklet, entitled "Wonderland," which they have just issued. It contains an interesting and well-written account of the exploration of the Western and Northern States, by Lewis and Clark, in the beginning of the century. Then, there is a charming description of the famous Yellowstone Park, and an article dealing with the growth of the Northern Pacific system. Consisting of 130 pages, illuminated by upwards of a hundred creditable illustrations, well printed on finished stock, and enclosed in a striking lithograph cover, it makes a volume that anyone might well be glad to possess. We congratulate the publishers on the high quality of their production.

THREE BULLS

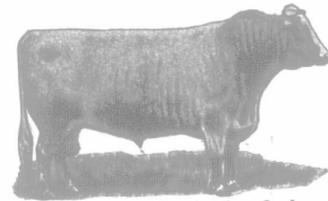
Fit for service, the best I ever offered, for sale. Also some fine two-year-old and year-old heifers.

GEORGE RANKIN, Hamiota Man.

"PRAIRIE HOME STOCK FARM."

Bulls at head of herd:

Judge = 23419 = and Imp. Jubilee = 28858 =.



Yorkshire and Berkshire Swine.
 Clydesdale Stallions and
 Shropshire Sheep.
 Shorthorn and Ayrshire Cattle.

THOS. GREENWAY, Proprietor. m
 JAMES YULE, Manager, Crystal City.

FOR SALE:

The roan Scotch-bred Shorthorn bull,
Golden Robe 20396,
 By Knight of St. John (17102); dam, Golden Bud (imp.) 23015. Having sold most of my females, I can dispose of Golden Robe. He is sure and quiet.
 ISRAEL GROFF,
 Alma, Ont.

Bonnie Burn Stock Farm

Forty rods north of Stouffville station, Ont., offers for sale Shorthorn bull calves and yearling heifers, Shropshire lambs and shearlings (both sexes), on D. H. RUSSELL, Stouffville, Ont.

SCOTCH SHORTHORNS and BERKSHIRES.
 Choice young bulls and heifers for sale. Also Berkshire pigs of the most approved breeding. Meadowvale Stn., C. P. R. Six miles from Brampton, G.T.R.
 S. J. PEARSON & SON, Meadowvale, Ont.

Place Your Egg Orders . . .
 with the Lucknow Poultry Yards and you will not be disappointed with hatches and the quality of stock. Our matings for 1900 far surpass any previous matings in Buff and White Cochins, L. Brahmas, Buff and Silver Wyandottes, White and Barred Rocks (exhibition cockerel and pullet mating in Barred), Buff Leghorns, Red Caps, Black Minorcas, Black Spanish, G. Seebright, and Pyle Game Bants. Eggs, \$2.00 per 13; \$5.00 per 15. We have strong pens of White, Brown, and Buff Leghorns and Barred Rocks, \$1.00 per 13; Pekin and Rouen ducks, \$1 per 11. Our stock won for us over 1,000 prizes in the past 4 years, which should be sufficient proof that we understand mating etc. Satisfaction guaranteed.
 J. C. LYONS, Lucknow, Ont.
 N. B.—Miss Caldwell's Barred Rocks are now owned by us.

HORSEMEN! THE ONLY GENUINE IS

GOMBAULT'S
 CAUSTIC BALSAM.

Not genuine without the signature of
The Lawrence, Williams & Co.
 Sole Importers & Proprietors for the
 U.S. & CANADAS. CLEVELAND, O.
 The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY or FIRING. Impossible to produce scar or blemish. Every bottle is warranted to give satisfaction. Price \$1.50 per bottle. Sold by Druggists, or sent by Express, charges paid, with full directions for its use. Send for free descriptive circulars.
 THE LAWRENCE-WILLIAMS CO., Toronto, Ont.

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IMPORTER AND BREEDER.

HAS FOR SALE—
CLYDESDALES—Bargains in Stallions and Mares, all ages.
SHORTHORNS—Choice Bulls, Cows and Heifers.
HEREFORDS—17 Heifers.
 All animals registered in their respective herd books. Everything for sale except the stock bulls, Lord Stanley 2nd and Golden Measure. If notified, visitors will be met at the station. Come and see the stock. Satisfaction guaranteed. Write or wire
J. E. SMITH,
 Smithfield Ave., BRANDON.
 P. O. Box 274. Telephone 4.

RYAN & FARES.



Largest dealers in all classes of horses in Manitoba. We have on hand from 75 to 100 head of pure-bred Percherons for sale—all ages. There are in this bunch some very fashionably-bred stallions, from yearlings up, that we are prepared to sell—worth the money. 800 head draft-bred Western horses for sale. We also keep in stock a large range of farm horses, dray horses, drivers, saddlers, and ponies. Correspondence solicited. m-

215 JAMES STREET, WINNIPEG.

Bulls! Bulls! Bulls!

We have 9 young Short-horn bulls, home bred, and recently imported from some of the best Eastern herds. All fit for service. We are quoting prices down in order to dispose of the lot as quickly as possible. A few good sows for sale cheap, to farrow May and June. R. P. Rock eggs, \$1.50 per setting of 15.
 Roland, N. P. R.

Carman, C. P. R.
ANDREW GRAHAM,
 Pomeroy P. O.

D. FRASER & SONS,
 EMERSON, MAN.

Breeders and importers of Durham Cattle, Shropshire and Southdown Sheep, and Pure-bred Poland-China Pigs a specialty. Young stock for sale. 9-y-m

YOUR ATTENTION

Our No. 1 Collection contains 33 full sized packets of the best Vegetable Seeds, sufficient to furnish vegetables throughout the year, and one packet of Wild-Garden Flower Seeds, which we will send prepaid to any address in the Dominion of Canada or United States for the extremely low price of \$1.
 Our No. 2 Collection contains 16 packets of Vegetable Seeds and one packet Wild Garden Flower Seed Mixture. Prepaid for 50 cents.
 Our No. 3 Collection contains 8 packets of Vegetable Seeds for 25c.
 Our No. 4 Collection contains 40 packets of Flower Seeds for \$1.
 Our No. 5 Collection contains 20 packets of Flower Seeds for 50c.
 Our No. 6 Collection contains 10 packets of Flower Seeds for 25c.
 All postpaid on receipt of price. For varieties in above collections see our Handsome Illustrated Catalogue containing other great offers. Mailed free to any address.
R. ALSTON, Royal Greenhouse & Seed Establishment, WINNIPEG, MAN

GOSSIP.

J. A. S. Macmillan, Brandon, has sold his Clydesdale stallion, Montauk, recently imported from the Meadowlawn stud of N. P. Clark, St. Cloud, Minn., to a Bradwardine syndicate.

Mr. Jas. Stonehouse, late Instructor at the Dairy School at the Ontario Agricultural College, Guelph, takes charge of the Yorkton Creamery for the summer, and Mr. Theo. Wianka, recently one of the instructors in the home dairy course at the Guelph College, will operate the creamery at Churchbridge. At this point the prospects are most encouraging for a big season.

Ed. Anderson, Dugald, recently purchased from W. S. Lister, of Middlechurch, a roan bull calf sired by Indian Nobleman, the last and perhaps best son of Indian Chief (imp.); dam Rosabel, of the Sittyton Rosebud family. Mr. Lynch, the veteran Shorthorn breeder, who was present when Mr. Anderson made the purchase, remarked that he was the best backed calf he had seen. Mr. Anderson advertises in this issue a bull calf of deep milking strain.

Mr. E. R. Collier, of Norquay street, Winnipeg, who has been breeding Light Brahmas successfully for a number of years, and who was successful in winning high honors at the Winnipeg Exhibition with birds from his pens, has added to his yards Anconas. These birds were winners in the United States before being imported by Mr. Collier. By referring to advertisement in this issue, readers will note cockerels are offered for sale, also eggs for hatching from these two breeds of fowl.

J. A. Turner, Balgreggan Ranch, Millarville, Alta., called at this office recently on his way home after a four months' visit to Scotland. His visit had been a most enjoyable one, and opportunity was taken of visiting many of the leading Clydesdale studs in Scotland. Mr. Turner found prices of really good Clydesdales ruling very high in Britain. On his way back he visited many of the leading Clydesdale breeders of Ontario, and bought several head from D. & O. Sorby, of Guelph.

S. Ling & Co., Winnipeg, Man.: Dear Sirs.—The eggs you sent me two years ago proved you not only an adept in packing eggs for hatching purposes, but one whose scrupulous care makes you worthy the thanks and patronage of all whom your business may concern.

Sincerely yours,
J. J. O'BRIEN.
North Portal, N. D., February 6, 1900.

Messrs. D. Hysop & Sons, Landazer Stock Farm, Killarney, write us:—As we intend to give more time and attention to cattle than formerly, we have decided to sell our entire flock of magnificent Cotswold sheep, without doubt the best of their breed in the West, at prices which will give opportunity for making money to the buyer. Will sell separately or in bunch. There are certainly some rare chances for getting big money prizes at Winnipeg's Great 20th Century Industrial. No one interested in the breed should miss so splendid an opportunity. Our bulls are coming on in grand shape; some good chances for bargains here also. We have lately added to our herd a beautiful representative of the old Butterfly family in a heifer from the herd of J. G. Washington, of Ninga.

GOLD STANDARD HERD ANNOUNCEMENT.
J. A. McGill has recently issued a neat catalogue of his Berkshire herd, giving breeding and details regarding the stock at present on hand, which includes: The boars, General Booth, by Prince of the North, out of Lady Clifford 9th; Royal Duke, imported from Lovejoy & Sons, of Illinois; Major, another son of Lady Clifford and Oxford Manitoba, bred by Stone, of New York State, sired by imported Lord Oxford, the first-prize winner at the English Royal in '96. Among the sows in the herd are Charmer 11th, by Baron Lee 4th, bred by the late J. G. Snell; Jubilee Bet, by Signet Seal; Nora, another of Snell's breeding, by Star 1; Lady Clifford 9th; Rosamond, and over half a dozen others. They are all full of the best blood of the best Berkshire families, and Mr. McGill knows how to handle them to keep them at their best. He also breeds Barred Plymouth Rock fowls of choice strain.

NOTICES.

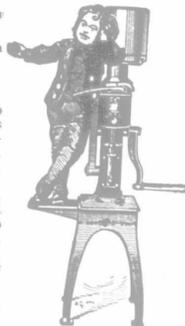
Blackleg Vaccine.—Parke, Davis & Co., of Walkerville, Ont., advertise in this issue a Blackleg Vaccine (Symptomatic Anthrax Vaccine), a preparation for the prevention of blackleg. They supply the preparation in two forms: (a) a single vaccine, requiring to be injected into the animal once; and (b) a double vaccine, which requires two injections, allowing a period of eight days between each injection. Information and apparatus furnished, showing how to successfully prepare and administer the preparation. Full particulars furnished by writing Messrs. Parke, Davis & Co., Walkerville, Ont., or their Winnipeg agents, the Bole Drug Co., or the Martin, Bole & Wynne Co., Winnipeg, Man.

Blackleg Vaccine.—We notice quite a few reports concerning the disease of cattle known as Blackleg, which is always liable to break out in the spring of the year. These all seem to come from localities where the cattlemen have not as yet learned the value of preventive measures. In some sections where the yearly mortality from this disease amounted to from 10 to 20 per cent, not 1 per cent loss now occurs, the reduction in the death rate being doubtless largely due to the intelligent use of Pasteur Blackleg Vaccine. The single-treatment vaccine, termed "Blacklegine," is by far the simplest method yet devised, as it is ready for use as sold, and can be purchased at a most reasonable price. The vaccine only costs from 10 to 15 cents per head, a sum so small when compared to the benefits conferred, the cost can hardly be said to enter into consideration. Cattlemen cannot afford to neglect this cheap and simple means to prevent loss, and those who have not already used it, should do so before the disease breaks out. Prevention is better than cure, and in this case, where the disease develops there is no known cure. Credit belongs wherever it is due, and in the Pasteur Vaccine, property of a large laboratory, is due to the intelligent use of blackleg vaccine in North America in 1897. For full information, write to the Pasteur Vaccine Co., 65 Fifth Avenue, Chicago, or W. J. Mitchell & Co., Winnipeg, Man.

"ALPHA BABY" SEPARATOR

The CANADIAN DAIRY SUPPLY CO., Montreal, Branch Office, 236 King St., Winnipeg, sole agents in Canada for the DE LAVAL SEPARATORS.

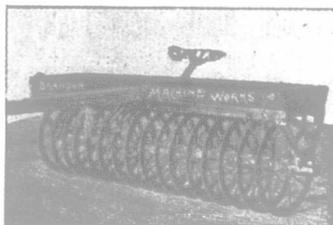
The Alpha machines still lead the procession, and only have to be known to be appreciated. The agents of cheap grade machines tell you that theirs are "just as good." You never hear them compared with each other, as they know that the Alpha is the favorite. High-grade mechanism, durable, best skimmer on any market. Dairy schools prove that fact. We do not claim that the skimmed milk from the Alpha is better for calves than from other machines, that suggests a lurking suspicion that there is too much butter-fat in the milk, which is too expensive to feed, at 20c. per pound, to calves. When they get down to the .01 and .02 points with thick cream from cold milk, then something interesting can be expected. Call and examine and be convinced, and keep out of a position where you would feel sorry that you bought so soon.



Send for circulars and particulars re prices to

The Canadian Dairy Supply Company,
236 KING ST., WINNIPEG, MAN.

Sub-Surface Packer and Davidson's Grain Pickler.



Manufactured by
THE
Brandon Machine Works Co.
BRANDON, MAN.

"Pasteur" Black-Leg Vaccine

THE original and genuine preventive vaccine remedy for Blackleg. Officially endorsed in all the cattle-raising States. Successfully used upon 1,500,000 head in the U. S. A. during the last 4 years. Write for official endorsements and testimonials from the largest and most prominent stock-raisers of the country. "Single" treatment vaccine for ordinary stock; "Double" treatment vaccine for choice herds. Registered "BLACKLEGINE" Trade-Mark. "Pasteur" single treatment Blackleg Vaccine ready for use (no set of instruments required). No. 1 (10 head), \$1.50; No. 2 (20 head), \$2.50; No. 3 (50 head), \$6. Easily applied. No experience necessary.

Pasteur Vaccine Co., 65 Fifth Avenue, CHICAGO.
W. J. Mitchell & Co., WINNIPEG, MAN.

Summer Sports Catalogue

NOW READY FOR DISTRIBUTION. IT GIVES A FULL DESCRIPTION OF ALL SUMMER SPORTING GOODS, BICYCLES, SUNDRIES

WE WILL BE PLEASED TO FORWARD ONE TO ANY ADDRESS.
Hingston Smith Arms Co.,
WINNIPEG, MAN.

\$75 BUYS A FINE RED 11 MONTHS OLD \$75
Shorthorn Bull

or deep milking strain. Sire Senator of Blue-earth 11256

Ed. Anderson, Dugald, Man.

Shorthorns 4 Heifers and 2 Young Bulls

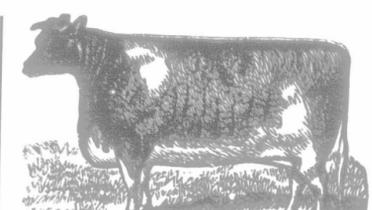
THORNDALE STOCK FARM, MANITOU.

JOHN S. ROBSON, PROP.

Females of all ages FOR SALE.

Write for particulars.
4 Young (Golden Royal - 24402 -) SHORTHORN BULLS.
Good size, grand feeders, in good growing order, and from choicely bred dams.

J. H. KINNEAR, SOURIS, MAN.



PIONEER HERD OF SHORTHORNS

Won the gold medal at the last Winnipeg Industrial Exhibition; also first for bull and two of his get, first for cow and two of her progeny, and numerous prizes for individuals. They were bred right here, and I can usually show a few generations of their ancestors, and am always pleased to show them.

WALTER LYNCH, Westbourne, Man. P. O., Railway and Telegraph.

ELMWOOD STOCK FARM.

Scotch Shorthorns for Sale:

Three grand young bulls, all got by imported Scotch sires, and out of extra good cows, by imported bulls.

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SHORTHORNS, YORKSHIRES AND TAMWORTHS.

Stock of all ages and both sexes, at prices according to quality. Auction sales of farm stock undertaken. Improved farm and wild lands for sale in the Winnipeg district. Correspondence solicited.

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SHORTHORNS

Masterpiece = 23750 =, by imp. Grand Sweep, out of an Indian Chief dam, at head of herd. Imp. Large Yorkshires for sale.

JAMES BRAY, LONGBURN, MAN.

40 HEREFORDS

Bulls, Cows, and Heifers, for immediate sale.

Alfred Stone, 5 Douglas St., GUELPH, ONT.

POPLAR GROVE HEREFORDS

THE LARGEST HERD IN CANADA. STOCK OF ALL AGES FOR SALE.

J. E. MARPLES, DELEAU, MAN.

HEREFORDS

I keep only the best. For stock of all ages. Write or call. WM. SHARMAN, "Ridgewood Stock Farm," SOURIS, MAN.

Landazer Stock Farm.

Shorthorns—Choice young bulls and females. Cotswolds of top-notch excellence. Prices moderate. D. Hysop & Sons, 492, Killarney, Man.

Hope Farm Galloways

Three good yearlings, home-bred bulls, still for sale. Also one imported from Ontario. To make room for some importations from Scotland, these will be sold at very reasonable prices.

Apply T. M. CAMPBELL, Manager, Hope Farm, St. Jean Baptiste, Manitoba.

SWEPESTAKES HERD OF LARGE ENGLISH BERKSHIRES

WINNIPEG INDUSTRIAL EXHIBITION, 1899.



Herd headed by Perfection (4790), Proud Victor (4601), Prince (4690). A choice lot of young sows fit for breeding; a nice lot of September pigs, both sexes. Booking orders for spring pigs, boars or sows, not akin. Address or call on

R. MCKENZIE, Maple Lodge Stock Farm, HIGH BLUFF, MAN.

Insure Your Crops

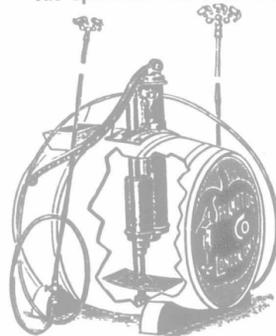
of wheat and oats. This is best done by applying 100 lbs. of

Nitrate of Soda

per acre early in the spring. Promotes stooling, stimulates growth, increases yield. Of great value on all crops, vegetables, grass, fruits, etc. Get free book, "Food for Plants," which tells why. Address **John A. Myers**, 12-R John St., New York. Nitrate for sale by fertilizer dealers everywhere.

Write at once for List of Dealers.

SENT FOR A CENT.
The Spramotor Co. of London, Ont.,



Will mail free to every one applying by postal card, a valuable (copyright) treatise on diseases affecting fruit trees, vegetables, etc., and their remedies. The information given is of the most reliable character, and is up-to-date in every respect. Remember that the book is given away. Write now, and kindly mention the FARMER'S ADVOCATE.

Certificate of Official Award.

This is to certify that at the contest of Spraying Apparatus held at Grimsby under the auspices of the Board of Control of the Fruit Experimental Stations of Ontario, in which there were eleven contestants, the **Spramotor**, made by the **Spramotor Co.**, of London, Ont., was awarded first place.

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Judges.

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West's Fluid

Has cured Contagious Abortion in several of the finest herds of prize stock in the country; but as it would injure the reputation of the breeders, they will not give written testimonials. These statements are facts.

Write for circular on this disease, specially prepared by a V. S.
Headquarters for "STANDARD" Sheep Dip.
Manufacturers: **The West Chemical Company,**
TORONTO, ONT.
Agents Wanted.

GOSSIP.

The F. W. Stone Stock Company, Guelph, recently shipped to Gordon & Ironside, of Winnipeg, the Hereford Bull, "Canada" (C. H. R. 1173), also "Greeney of Red Deer" 25317, A. H. R., to Dan, Hamblin. Both of these went to the Canadian Northwest. The following will be shipped to British Columbia in about ten days: Laddie (1051), Sir Charles (996), Harry (1174), Dainty's Hero (1208), Imogene 3rd (1551), and Veronica 3rd (1552).
John Miller & Sons, Brougham, Ont., write us:—"Among the Clydesdale stallions we offer for sale is one rising 3 years, Border Duke (10514). His sire, Ferguson (9526), was got by the Prince of Wales horse, Prince Fortunatus (8136), and his dam was by Macgregor (1487). This is a very large, good-colored colt, and will weigh a ton at maturity. Another rising 3 years, Prince Brilliant (10608), is a very thick, heavy-boned colt, and from his breeding should make an extra good stock-getter. He was sired by William the Conqueror (9093), he by Prince of Wales (673). Una (8002), the dam of this colt, was got by Darnley (222). We have also an extra good imp. yearling and three home-bred yearlings sired by the champion horse, Young McQueen (2290)." See their advt.

NOTICE.

Deering Harvesters.—The Deering Harvester Company, whose announcement appears on another page of this issue, have just issued a handsomely illustrated pamphlet which gives a very complete and accurate description of the various lines of their justly famous harvesting and haying machinery, together with facts of interest relative to binder twine, oil and knife-grinders. With prospects daily brightening for another big harvest, the farmer will naturally be on the lookout for thoroughly efficient machinery, and must therefore study closely points of construction as described in such literature as that to which we now refer. A bird's-eye view is given of the Deering works, Chicago, Ill., covering 85 acres, employing 9,000 hands, in addition to 12,000 local agents in America alone. Copies of the pamphlet may be obtained from any local Deering representative, or from the permanent branch houses at London and Toronto, Ont.; Montreal, Que., or Winnipeg, Man.

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Traction Engines Return Tube
Portable Engines and Locomotive Style.

Coal, wood and straw burning Engines.
Challenge and Advance Threshers.

We can furnish YOU with the most reliable, best finished and best designed outfit made. See our special points before purchasing.

THE
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LONDON, CANADA.

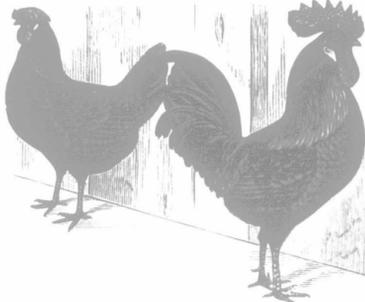
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INFERIOR SALT MEANS A LOSS IN DOLLARS WHEN USED IN BUTTER OR CHEESE.

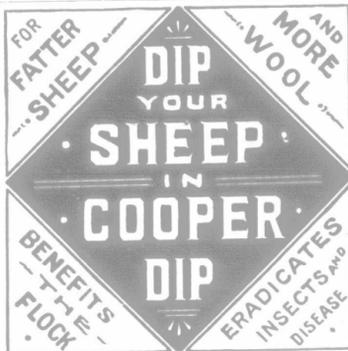
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MAKES IT SWEET, KEEPS IT FRESH, BRINGS HIGHER PRICES. TRY IT.

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Superior to all liquid Dips.

25-gal. pkt., 50 cts.; 100-gal., \$2.00. If druggist cannot supply, send \$1.75 for 100-gal. pkt. to

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Premiums on application to—
COOPER & NEPHEWS,
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Important to Breeders and Horsemen.
Eureka Veterinary **CAUSTIC BALSAM.**

A reliable and speedy remedy for Cuts, Splints, Spavins, Sweeney, etc., etc., in Horses, and Lump Jaw in Cattle. See pamphlet which accompanies every bottle, giving scientific treatment in the various diseases. It can be used in every case of veterinary practice where stimulating applications and blisters are prescribed. It has no superior. Every bottle sold is guaranteed to give satisfaction. Price 75c per bottle. Sold by all druggists. Guaranteed remedy for sterility in cows, with full instructions. Price, \$2. Prepared by **THE EUREKA VETERINARY MEDICINE COMPANY, London, Ont.**



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From the best blood in Scotland and Canada. Ayrshire bulls and heifers from imported stock. Jersey heifers and bull calves, sired by the prize-winning bull, Distinction's Golden. Best milking strains, with good teats. Terms reasonable. A visit to Thorncliffe will well repay you.

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Bay; ratch on face, one white hind pastern. A large, smooth horse, with excellent feet and legs; imported sire and grandam, and descended from prizewinners on both sides.

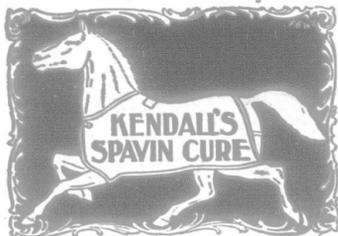
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BREEDERS AND IMPORTERS OF

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Also the leading breeds of fowls for the farmers.

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**Don't Guess
At Results.**



This man knows what he did and how he did it. Such endorsements as the following are a sufficient proof of its merits.

Oshawa, Minn., Feb. 22, 1898.
Dear Sirs:—Please send me one of your Treatise on the Horse, your new Look as advertised on your bottles, English print. I have cured two Spavins and one Curb with two bottles of your Kendall's Spavin Cure in four weeks.

FRANK JUBERIEN.
Price, \$1; six for \$5. As a liniment for family use it has no equal. Ask your druggist for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," book free, or address DR. J. B. KENDALL CO., ENOSBURG FALLS, VT.

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ESTABLISHED 1864.

Scotch Shorthorns.

SIRE IN SERVICE:

Scottish Hero and Joy of Morning.

BRED BY W. DUTHIE, COLLYNIE.

Oldest Stud of Hackneys in America.
Shropshire, Dorset Horn and
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Seven Shorthorn Bulls, from 8 to 16 months. Also eight Shorthorn heifers by Red Stanley; bred by J. & W. Russell, Richmond Hill; dam Roan Princess (Imp.), the dam of Lord Stanley, Russell's World's Fair champion. Apply—
A. MONTAGUE, Thamesford, Ont.
Thamesford Station, C. P. R., 3 miles.

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HERD ESTABLISHED IN 1872.

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

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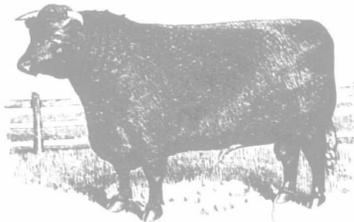
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My herd is one of the largest in America, both imported and Canadian-bred. A very choice selection of both sexes always on hand for sale. Personal inspection invited. Address all communications:

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4 Imported Clydesdale Stallions.

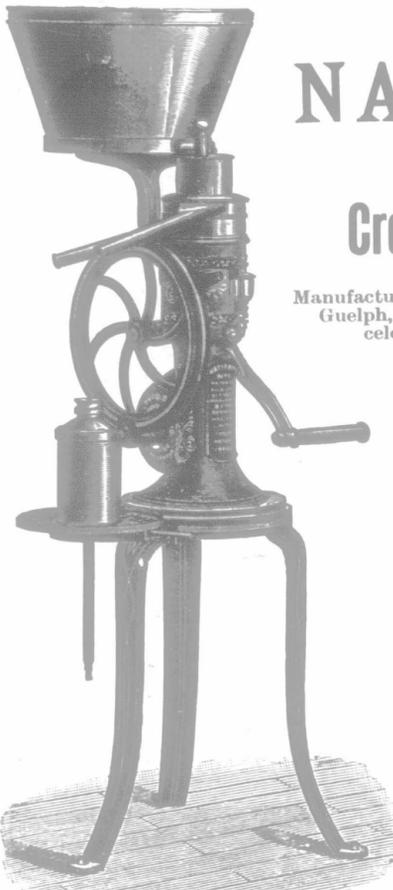
10 Scotch-bred Shorthorn Bulls.

PRICES REASONABLE.

Claremont Stn., Pickering Stn.,

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Correspondence Invited.



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Cream Separator**

Manufactured by the Raymond Mfg. Co. of Guelph, Limited, manufacturers of the celebrated Raymond Sewing Machines.

THE National is an up-to-date machine, leading all others in separating cream by centrifugal force. It is the farmers' choice, because it runs easy, skims fast and clean, and makes a perfect cream, containing any per cent. of butter-fat desired. It is also easier to clean than any other. The National is built of the very best material suitable for the construction of a high-speed machine, and with proper care should last a lifetime. The bearings are interchangeable and easily adjusted. Every machine is guaranteed to do good work, and a trial of the "National" is solicited before purchasing any other. The already large sale of the "National," and the growing demand for it, shows how much the Canadian farmers appreciate a Canadian-made machine that does its work so easily and well, and at the same time returns such a large profit on the small investment. Ask for the "National"; try it and buy it.

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General agents for Ontario.

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Agents for the Counties of Middlesex and West.

"NATIONAL" NO. 1 HAND POWER.
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**H. CARGILL & SON,
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SEVENTY-SIX HEAD IMPORTED DURING 1899.

13 BULLS.

63 FEMALES.

ALL imported females of suitable age bred before leaving Scotland. Catalogue free. Correspondence or personal inspection invited. Address as above, Cargill Station half a mile from barns, on Grand Trunk Ry.; 70 miles north-west of Guelph.

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OFFER FOR SALE: 1 imported bull, extra good; 3 imported cows, with calves at their side and in calf again; 6 home-bred bulls, from 5 to 15 months; 10 home-bred cows and heifers. All of breeding age have been bred to imported bulls. Our Shropshires have wintered well, and our lambs this season are a strong, thrifty bunch. 5 rams carried over from last season are in good shape. Correspondence or a personal visit solicited. Catalogues on application.

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I have six young females for sale—three are in calf and three old enough to be bred. These heifers have four or more crosses of the finest Booth sires, on imported Marr and Gordon Castle foundation, a desirable and needed line of breeding.

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OF DEEP-MILKING SHORTHORNS.**

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

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

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PLEASE MENTION FARMER'S ADVOCATE.

Cruikshank and other Scotch sort, headed by (imp.) Knuckle Duster. Herd has furnished the Fat Stock Show champion three out of the last five years. Correspondence invited.

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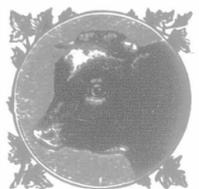
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Shorthorn Cattle and Lincoln Sheep. Herd prize and sweepstake at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by Topsman—17847—, champion at Winnipeg, Toronto, London and Ottawa, 1899. High-class Shorthorns of all ages for sale. Also prizewinning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



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

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5 SHORTHORN BULLS

Of the most noted Scotch families, and choice individuals. For prices and particulars write

SHORE BROS.,

White Oak.

5--Shorthorn Bulls--5

From 9 to 15 months. Also a few choice yearling and 2-yr.-old heifers, among which are grand, thick-fleshed and choicely-bred animals, mostly solid red colors. Speak quick, for they will not last long.

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SYLVAN P. O., PARKHILL STATION.

Scotch Shorthorns, imp. and home-bred.

The Imp. Clipper bull, Chief of Stars, heads the herd. Eight extra good 2-year-old heifers for sale, in calf to Chief of Stars (72215). Inspection invited.

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FOR SALE.

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

T. DOUGLAS & SONS,
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Farm 1 mile north of the town.

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Choice bulls ready for service, by Scottish Chief—27241—, by Scottish Pride (imp.). Dam Fane's Gem, by Guardsman (imp.).

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Modern type, well-bred boars and sows, all ages.

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75 HEAD

High-quality,
Early maturing

Herefords

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

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Herefords for Sale

Choice young bulls, from 1 to 2 1/2 years old, and show bull, 3 years. Also

Moreton Lodge Farm,

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Plains Farm, Arkell,

Containing from 200 to 250 acres each.

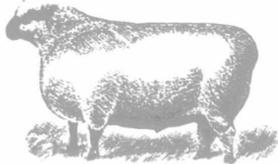
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TERMS EASY.
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The largest herd of pedigreed Yorkshires of the large English type in Canada. Purity of breed, size, and general excellence is my motto. One hundred awards with one hundred and five exhibits at 7 shows in 1899. A choice selection of young boars and sows of all ages for sale; also boars fit for service, and pregnant sows. Fifty breeding sows, of which 25 (twenty-five) are imported; also three imported stock boars bred by such noted breeders as Sanders Spencer and Philo L. Mills. Am also using two Canadian-bred stock boars, first prize at Toronto in 1898-99. Express charges prepaid. All stock carefully shipped and guaranteed as described. Telephone, Millgrove, Ont. Telegraph 254 Bay St. S., Hamilton, Ont.

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HENHOUSE AND PIGGERY, 16 x 20 FEET.—Wall from foundation to peak, built with Thorold Cement, also floors. Walls 11 feet high at eave, 9 in. thick; also cement troughs.

Piggery.—Basement walls, floors and troughs built with Thorold Cement. 20 x 10 x 8 feet, one foot thick.

READ WHAT MR. LOCKWOOD SAYS:

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Yours truly,
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Young rams and ewes for sale. Write or call on
A. D. GAMLEY,
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STEEL BROS., Glenboro, Manitoba,
BREEDERS
OF **Ayrshire Cattle.**

Choice young stock for sale. 24-2-y-m

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The kind that can speak for themselves. Size, constitution, dairy and show combined. Six young bulls for sale, by Glencairn 3rd (imp.), dam Primrose (imp.). Five from Napoleon of Auchenbrain (imp.). Their dams are all Glencairn heifers. Five of their dams were shown last fall at Toronto, London, and Ottawa. Also a few good cows. No culls sold.

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4 AYRSHIRE BULLS 4
Sired by Beauty Style of Auchenbrain (imp.), whose dam gave 72 lbs. milk in one day, and out of high-producing dams.
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WOOL

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Write us before selling your wool. It will pay you.
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Ayrshires, Guernseys, Yorkshires
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ALL high-class, pedigreed stock. Those desirous of purchasing thoroughbred animals should write for particulars at once. Orders booked now in rotation for present and future deliveries. Address—



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Have fine butter-bred Holstein Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

Kicking Cows.

Stop your cows kicking, increase the flow of milk by the use of

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Positively prevents chapped teats, warts, and caked bag or udder. Price, 25c., 50c., and \$1, per tin.

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2 high-class Jersey Bulls for sale. Also farm lands.
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Bulls. Bulls. Bulls.

I WILL undertake commissions to purchase pure-bred bulls of any breed for ranchmen, and will attend to their careful shipment, on the best terms obtainable. Correspondence solicited.

WM. SHARMAN,
RIDGEWOOD FARM, SOURIS, MAN.
References—Merchants' Bank, Farmer's Advocate, Nor-West Farmer, Pure-bred Cattle Breeders' Association.

JERSEY CATTLE

That will put

Money in your pocket.

MRS. E. M. JONES,

Brockville, Ontario, Can.

Box 324.

JERSEY BULLS.

High-class show bull, Prince Frank's Son 48758, A. J. C. C., solid color, calved Oct. 25th, 1896. 1st prize at Western Fair, London, 1897, as a calf, and 1898 as a yearling, beating 2nd prize bull at Toronto. Quiet, sure and a capital breeder; probably the best show bull in Canada to-day. Sire 3 times a sweepstakes winner at Western Fair; dam a pure St. Lambert and a good one. Also yearling bull, St. Lambert of Ettrick 55385, A. J. C. C.; solid color; calved Jan. 25th, 1899. Handsome and richly-bred. Sire, Stoke Pogis Cross 36700, pure St. Lambert; dam a deep milker. Also handsome bull calf, eligible to register, solid color. Sire, Prince Frank's Son; dam, Stella of Ettrick. Prices right for quality. Come and see, or write.
W. G. LAIDLAW, Wilton Grove, 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.

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

The Annandale Farm
Holstein-Friesians.

For sale, after careful selection from my famous herd, several very fine thoroughbred and grade bull calves, ages from 1 to 15 months old, from cows averaging 10,000 to 16,000 lbs. milk per year and testing 3 1/2 to 4 1/2; sired by the grand bull, COLANTHUS ABBEKERK 2nd, winner of 1st prize at Toronto, Ottawa, and London, as yearling. Prices reasonable.

E. D. TILLSON, Proprietor, Tilsonburg, Ont.

3 Holstein-Friesian Yearling Bulls FOR SALE.
Prices right. Apply to
WILLIAM SUHRING, Sebringville, Ont.

MAPLE HILL HOLSTEIN-FRIESIANS

Three Yearling Heifers, sired by Colanthus Abbecker 2nd, and in calf to Daisy Teake's King (brother to Daisy Meake's Queen, the great test and show cow).

Three Bull Calves, sired by De Kol 2nd's Paul De Kol Duke, the great butter-bred bull; dams, the fine show cows, Lady Akkrum 2nd, Cornelia Artis, and Midge Merton.

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

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WE WANT TO SELL A FEW

Holstein Heifers, coming 2 years old

THEY are of the richest and largest producing strains, fine individuals, and bred to as good bulls as there are living. We have a few bull calves and yearling bulls also for sale.

HENRY STEVENS & SONS,
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Maple Glen Stock Farm.

Special Offer: An August bull calf, sired by Gem Pietertje Hengerveld Paul DeKol, a rich bull, bred by President Matteson, Utica, N. Y. Has for dam the sweet show heifer, Gilly Flower 2nd, an undefeated winner in 1898 as a yearling, also 1st Ottawa and 2nd Toronto, 1899, as a two-year-old, where she was also a member of sweepstake aged herd. She gave over 50 lbs. milk per day on show grounds as a two-year-old. Also a bull two years old past; dam was half-sister to our old stock and show bull. The sire of some of the best in world to-day. We still have a few females from 3 months to 6 years old for sale—one a dairy test winner, of the Teake family. Prices reasonable for quality. C. J. Gillroy & Son, Glen Buell, Ont. Brockville, on G. P. R. or G. T. R.

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BY sending them to Meadowside Farm, Carleton Place, to see J. Yuill & Sons' stock. Eighty-four Ayrshires, second to none in the world for milk production. Thirty-two Shropshire ewes and two rams which are from prizewinning stock. Fourteen Berkshires of the bacon type; and a grand flock of B. P. Rocks. Also two good Collie pups, 4 weeks old.
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eggs, \$1 per 11.



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For Sale: Six Ayrshire bulls, ranging from 5 months to 1 year past. Also a few cows and heifers, thoroughbred fowls, and Scotch collie dogs.

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We breed them and import them.

Orders can now be booked for imported stock, and some good rams are now at Fairview. JOHN CAMPBELL, Woodville, Ont., Canada.

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Newly imported from the greatest English breeders. Home-bred rams and ewes of best quality. Scotch Shorthorns and Clydesdale horses for sale at moderate prices, and in large numbers, by

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OFFICIAL TESTS OF HOLSTEIN-FRIESIAN COWS FROM MARCH 1 TO APRIL 1, 1900.

These tests are uniformly made by representatives of Agricultural Colleges or Experiment Stations, at the homes of the owners of the cows. The length of each test is seven consecutive days; the age given is at the date of the last calf; the butter-fat is determined by the Babcock test, and the butter estimated first by the 80 per cent. rule and second by the 85.7 per cent. rule. Among the cows making the best records were the following:

Fisher Mercedes 43002; age 7 years, 10 months, 2 days; 28 days after calving; milk 355.4 lbs., butter-fat 14.301 lbs., butter 80 per cent. fat 17 lbs. 14 ozs., butter 85.7 per cent. fat 16 lbs. 11 ozs.

Quaker Maid 37899; age 5 years, 8 months, 23 days; 3 days after calving; milk 455.9 lbs., butter-fat 15.593 lbs., butter 80 per cent. fat 19 lbs. 7.9 ozs., butter 85.7 per cent. fat 18 lbs. 3.1 ozs.

Shadeland Zora 2nd 36219; age 6 years, 5 months, 19 days; 48 days after calving; milk 538.2 lbs., butter-fat 17.011 lbs., butter 80 per cent. fat 21 lbs. 4.2 ozs., butter 85.7 per cent. fat 19 lbs. 13.5 ozs.

Kalsora Pledge De Kol 40637; age 3 years, 8 months, 11 days; 22 days after calving; milk 382.9 lbs., butter-fat 13.058 lbs., butter 80 per cent. fat 16 lbs. 5.2 ozs., butter 85.7 per cent. fat 15 lbs. 3.7 ozs.

Margaret Lyons 48596; age 3 years, 8 months, 1 day; 33 days after calving; milk 380.6 lbs., butter-fat 12.140 lbs., butter 80 per cent. fat 15 lbs. 2.8 ozs., butter 85.7 per cent. fat 14 lbs. 2.6 ozs.

Jessie Forbes 2nd's Tritonia 44130; age 3 years, 1 month, 4 days; 21 days after calving; milk 378.5 lbs., butter-fat 12.703 lbs., butter 80 per cent. fat 15 lbs. 14.1 ozs., butter 85.7 per cent. fat 14 lbs. 13.1 ozs.

Zermah Clothilde 43745; age 3 years, 2 months, 20 days; 49 days after calving; milk 335.6 lbs., butter-fat 12.243 lbs., butter 80 per cent. fat 15 lbs. 4.9 ozs., butter 85.7 per cent. fat 14 lbs. 4.5 ozs.

Daisy Van Beers 46449; age 2 years, 9 months, 9 days; 72 days after calving; milk 303.1 lbs., butter-fat 10.233 lbs., butter 80 per cent. fat 12 lbs. 12.7 ozs., butter 85.7 per cent. fat 11 lbs. 15 ozs.

May Hartog Pauline De Kol 45124; age 2 years, 12 days; 42 days after calving; milk 325.6 lbs., butter-fat 11.725 lbs., butter 80 per cent. fat 14 lbs. 10.5 ozs., butter 85.7 per cent. fat 13 lbs. 10.9 ozs.

Roxie Wayne De Kol 45125; age 2 years, 13 days; 50 days after calving; milk 319 lbs., butter-fat 10.435 lbs., butter 80 per cent. fat 13 lbs. 0.7 ozs., butter 85.7 per cent. fat 12 lbs. 2.8 ozs.

S. HONIG, Supt. Advanced Registry, Holstein-Friesian Ass'n of America.

THE HILLHURST HERD OF SHORTHORNS. We are in receipt of the private catalogue of the Hillhurst herd of high-class Shorthorns, which embraces the pedigrees of 63 head, 36 of which have been imported from Great Britain within the last two years, and include representatives of many of the best-known Scotch families, as well as a few excellent specimens of the Cumberland and Gloucestershire strains, combining deep-milking qualities with size and thick flesh, which, bred to the very superior Scotch-bred bulls in service in the herd, are reasonably sure to produce ideal utility cattle. In 1899 the great dark roan Collynie-bred bulls, *Scottish Hero* and *Joy of Morning*, were imported, and it is safe to say that no herd in America to-day can boast of two better bulls in breeding and individual merit; indeed, it would probably not be going too far to claim that no herd on the continent can show two that are their equal.

Scottish Hero, coming two years old in this month of May, is of the same breeding on the side of both sire and dam as the Royal champion *Marengo*, being sired by the Cruickshank-bred *Scottish Archer*, and out of *Missie 134th* by *William of Orange*, the best *Orange Blossom* bull ever bred at Sittlyton, used for many years in the Upper Mill and Collynie herds, and with perhaps the exception of *Heir of Englishman*, the most impressive sire ever used in either herd. *Scottish Hero* is lengthy, low set, broad of chest, has well-sprung ribs, full crops, long level quarters, big thighs and broad buttocks, an ideal head, and the best quality of flesh, skin and hair.

Joy of Morning, a year old past in December, also bred by Mr. Duthie, was the highest priced Scotch-bred bull imported to America last year, and was sold at the last Collynie sale to Mr. W. S. Marr, of Upper Mill, where he was secured for Hillhurst. He is one of the best sons of the great *Pride of the Morning*, whose record as a sire of Royal and Highland Society winners is second to none, his produce being uniformly wide-ribbed and big-fleshed like himself. The dam of *Joy of Morning* is *Jessie 2nd*, of the *Jealousy* tribe, by *Scottish Archer*, a Sittlyton Secret by *Cumberland*, whose dam was by the Royal Northern prizewinning *Pride of the Isles*, purchased when a yearling by Deane Willis for 300 guineas, now a principal stock bull at Collynie, and considered by Mr. Duthie one of the best animals and one of the best sires he ever owned. There are in the catalogue two richly-bred and personally promising young imported bulls, 14 months and 5 months respectively, a red and a roan, both of the favorite *Miss Ramsden* family, the latter bred by Mr. Duthie, sired by Mr. Bruce's *Silver Plate*, dam by *Scottish Archer*, and granddam by *Field Marshal*, the former by a son of *Star of Morning*. A very taking, richly-bred and substantial red 2-year-old bull is *Pine Grove Monarch*, a high-class show bull by *Royal Glast*, of the Sittlyton *Duchess of Glast* tribe, and by the Cruickshank *Victoria* bull, imp. *Indian Chief*. Space forbids individual reference to the grand herd of females, which rank with the best in the Dominion, and must be seen to be fully appreciated.

Hillhurst is historic ground for Shorthorns, and the experience and good judgment of Mr. Cochrane is a guarantee that the herd will be kept up to the highest standard. Parties looking for good things in this line will do well to write for his catalogue, communicate with him, and visit the far-famed establishment where grand Shorthorns, Shropshires, Hampshires and Dorsets luxuriate on the rich pastures of this Lowmore farm on the banks of the River Ure, in the above-mentioned county of Yorkshire, charming sections of Canada. Hillhurst Station is on the Perth and Ontario division of the Grand Trunk Railway, 417 miles east of Montreal, 15 hours from Toronto, and 36 from Chicago.

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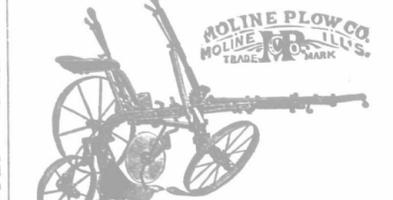
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Tues., Thur., Sat.	Mon., Wed., Fri.
4:20 p. m.	4:20 p. m. Leaves Winnipeg.
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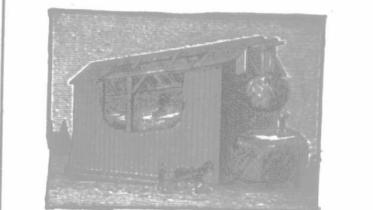
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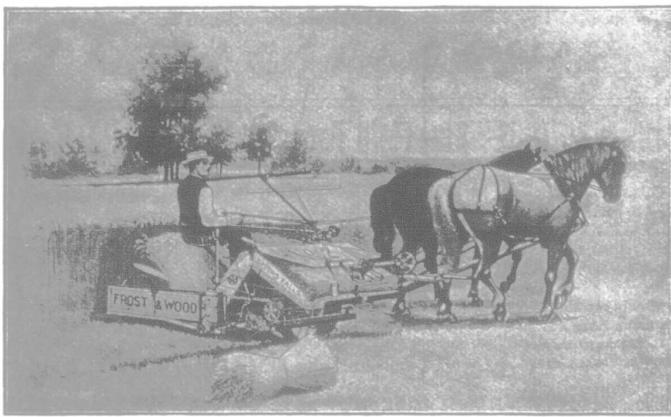
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THE MACHINES THAT MADE AMERICA FAMOUS.



Deering Harvester Company are originators. Other manufacturers are only imitators. Moral: BUY the Deering and get the best.

IT PAYS TO BUY DEERING MACHINES.

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Main Office and Factory:
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Canadian Branch Houses:
TORONTO, ONT. MONTREAL, QUE.
LONDON, ONT. WINNIPEG, MAN.

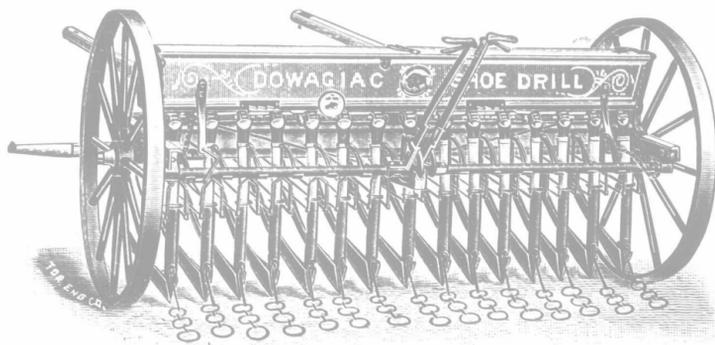


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On the Dowagiac Pattern, but with parts strengthened and improved.

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Works perfectly in wet as well as dry ground.
 Presses down stubble and trash and passes over.
 Makes furrows to any desired depth.
 Cuts sod or prairie ground better than any other device.
 Seed deposited at bottom of furrow—cannot be blown away.
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The best material in every respect.
 The best plow-share steel for shoes.
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 Malleable iron for all light castings.
 Main frame of angle iron, trussed and braced, and practically unbreakable.
 Poles and all other parts of wood made of thoroughly-seasoned stuff.
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 In workmanship and material cannot be surpassed.

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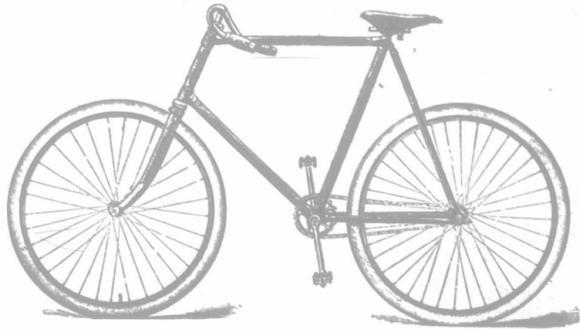
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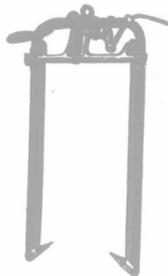
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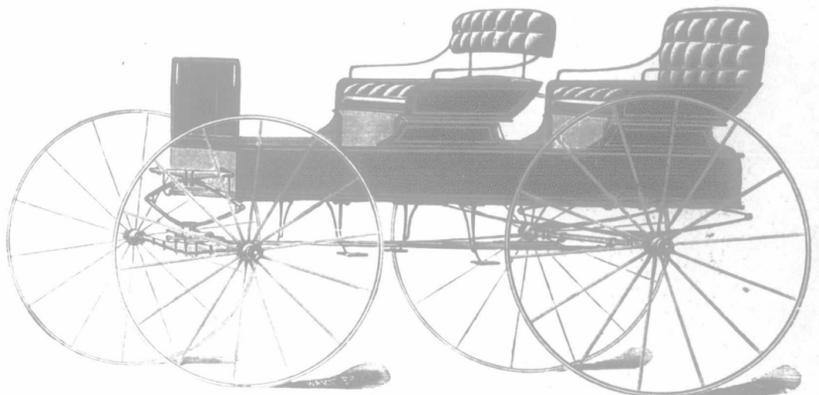
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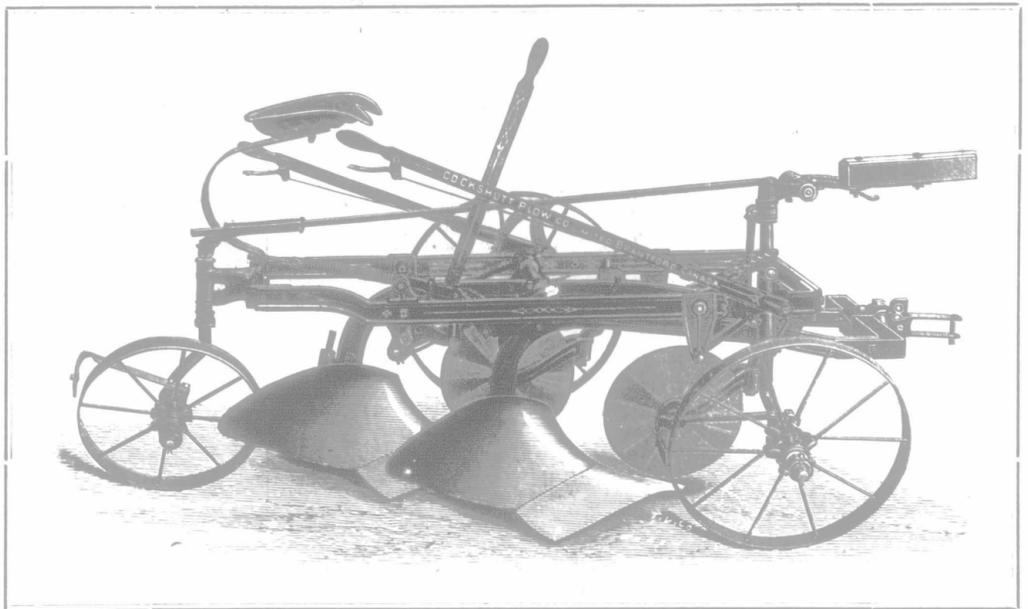
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