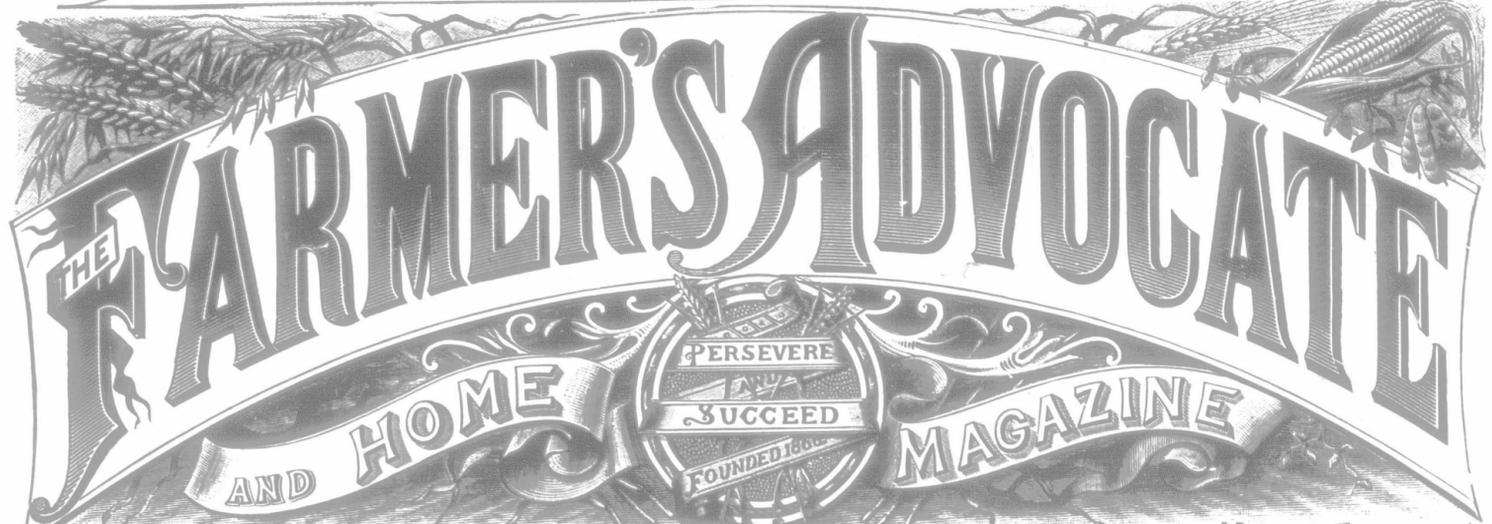


J. H. Grisdale z t feb 20, 1901
Exp Farm, Ottawa

MANITOBA AND WESTERN EDITION



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Vol. XXXV. LONDON, ONTARIO. JUNE 5, 1900. WINNIPEG, MANITOBA. No. 503

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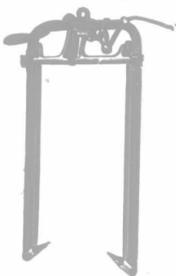
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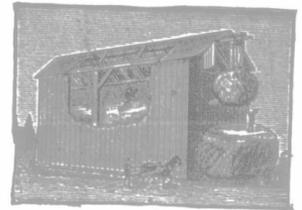
	1899.
"Death claims paid".....	\$ 109,573 50
Surplus for security of policy-holders..	665,648 01
Assets.....	1,810,155 17
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THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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VOL. XXXV.

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

No. 503

The Season.

Another exceptional season! In the 20 years of the writer's experience in the Province, there has not been a winter and spring to correspond with that of 1899 and 1900. Following a winter of light snowfall and without severe frost, spring opened early and wonderfully favorable for every department of farm work. Seeding progressed most satisfactorily, with ease to man and beast, and under peculiarly favorable soil conditions. But the dry weather continued somewhat too long, and high winds, followed by hard night frosts about the middle of May, in some districts, caused more or less injury to wheat, in some cases killing it entirely and necessitating re-seeding. A dry, warm spring is also favorable to insect life, and we have a plague of the Rocky Mountain locusts on some of the light soils bordering on the Assiniboin River south of Douglas, a visitation of cutworms in part of the Red River valley, whole fields being eaten off, and the insect enemies of trees and shrubs everywhere most numerous. Frequent rains help to wash insects off the trees, and by causing a vigorous, rapid growth of leaves, provide more abundant succulent food, and consequently the damage done by insect pests is not so noticeable nor so hard on the tree as during a protracted dry season. Spraying, and that early in the season, was the remedy.

In those parts of the Province where native swamp hay is depended upon, the supply is bound to be short, as most of these grasses only grow when covered with water during early spring. This year nearly all hay swamps were dry, and a shortage of hay will have to be faced. It is not yet too late to sow oats or barley, or some of the millets for green feed. Pasture, too, has been short and thin, and yet, as it lacks the usual washiness of spring grass, stock are reported as doing remarkably well on it.

A Grasshopper Plague.

For the past two years or so, grasshoppers, the genuine Rocky Mountain locust (*Melanoplus spretus*), has been making his presence felt in two or three localities in this Province. During the summers of '98 and '99 a careful watch was kept over these districts by Dr. Fletcher, Dominion Entomologist, as well as by the Local Department of Agriculture. Meetings were held from time to time, and farmers advised as to best means of preventing further damage. In the FARMER'S ADVOCATE of Oct. 5th, '98, and July 5th, '99, were published lengthy articles contributed by Dr. Fletcher, giving the results of his investigations, describing the nature and characteristics of the destructive hoppers, and the most approved methods of combating them. In the Turtle Mountain district, where they were present in very considerable numbers, the farmers appear to have acted upon the advice of the experts, and as a consequence there is nothing heard from that vicinity this year of the hoppers, but north of Stockton, on the light, sandy soil, on both sides of the Assiniboin River, evidently little or no attention has been paid to these warnings, and this year, favored by the early, dry and warm spring, the hoppers have hatched out in millions, and on many farms have devoured every green blade of wheat.

The Department of Agriculture, upon being notified of the trouble, took immediate action. Mr. McKellar visited the different localities affected, and Weed Inspector Braithwaite was dispatched to the scene of action with a supply of the munitions of war. Some farmers, by plowing at night, were enabled to destroy quantities. Spreading straw in rows along the lines of attack, and at night when the little hoppers had taken shelter under the straw, firing the piles, also proved helpful, but the easiest, quickest and most effective method of destroying them is by the use of what are called "hopper-dozers." A number of the machines were sent out by the Department, and proved most useful. We cannot do better at this time than reproduce from our issue of July 5th, '99, extracts from Dr. Fletcher's article on the life history of this species of hopper, and the remedies he suggests:

The Life History of the Rocky Mountain Locust.—The eggs of the insect are laid towards autumn, and each female lays an average of 100 eggs. A healthy, well-fed female lays one large pod of about

80 eggs, and two or three smaller ones of from a dozen to 40, in varying numbers. These eggs are deposited in such places as there is little root fiber in the ground, and where the soil is not too loose or too hard. The most suitable places are fields which have been under crop, bare patches in timothy fields, along roadsides, and on railway banks. They are seldom laid in land heavily cropped or on the open prairie, where the land is full of roots (which form a mechanical hindrance to the female when making the holes to lay her eggs), or where a dense crop shades the ground. There is only one brood of this insect in a year, the eggs remaining in the ground all the winter, and the dark-colored young locusts (about $\frac{1}{4}$ to $\frac{1}{2}$ inch in length, shaped much like the full-grown ones) hatching, as a rule, when the wheat is about two inches high the following year. Last season this was towards the end of May. This year, in the same place, owing to the cold, wet and backward spring, the young were only beginning to hatch by the middle of June. [This spring (1900) being dry and warm, they began hatching shortly after the middle of May.—Ed. F. A.] These grasshoppers take six or seven weeks after they leave the egg to become fully developed, during which time they pass through six stages, in the last of which alone do they possess wings with which they can fly. They are from the beginning social in their habits, and, when abundant, more like armies eating everything before them. This habit makes it possible to control them by plowing them down when young, or with mechanical contrivances.

Remedies.—All summer-fallows should be plowed at once, so as to bury the unhatched eggs and the recently-emerged young. When young are seen on stubble land, this should be plowed round from the outside, using as many teams of horses as possible, following each other in quick succession, so as to drive the young locusts to the center and bury them up as they fall into the furrows. When they have left the hatching grounds and have entered crops, these latter must be treated with the implements known as "hopper-dozers," which may be cheaply made as explained by Prof. Luggar, who has had much experience in fighting locusts in Minnesota and Dakota: Take a sheet of stovepipe iron, 12 ft. long by 2 ft. wide, and turn up the edges 2 in. all 'round. Beneath this pan attach three pieces of board 6 in. wide as runners. The two outside ones of these must project 3 or 4 in. in front and all about 2 in. behind. To the two outside runners ropes 12 to 15 ft. long are attached by means of rings on holes bored through them. On the 2 in. projecting behind a light frame rests, covered with factory cotton or canvas, about 2 ft. high and stayed by means of side pieces at the ends. In the bottom of the pan about an inch of water is placed, and in this, to prevent slopping, a piece of canvas. A small quantity of kerosene oil is then poured in, and the machine is ready for use, at a cost of a little more than \$1. This is dragged quickly over infested fields by means of horses or boys, and two or three hopper-dozers may be easily attached side by side and drawn by a single horse. About a foot in front of the pan a slack rope is attached to the two ropes, which drags along the ground and disturbs the locusts, so that they hop up and then drop into the pans. Tar has been used for the above purpose, but is far less satisfactory than kerosene oil (coal oil). It is much dirtier to use and sooner becomes thick by reason of the dust, which, on windy days or on dry land, soon thickens the contents of the pan. Kerosene oil is particularly fatal to grasshoppers. Prof. Luggar states that if the locusts fall in for a second and then jump out again, as many do, they are sure to die, for if even one foot gets into the oil a kind of paralysis soon sets in, which destroys them. Drawing the hopper-dozer over crops until they are nearly a foot high does no harm, and as a rule two treatments are sufficient to destroy the insects. In restricted areas, as gardens, or where an army is just moving into a crop, good results may be secured by burning patches of dry straw spread over the fields, upon which young locusts perch at night, or by poisoning. This may be done either by spraying a strip of crop with a very strong mixture of Paris green, London purple or arsenate of lead in water, or by sprinkling wheat bran, poisoned with Paris green, in front of the moving army.

Do the hens trouble about eating their eggs? If so, arrange the nests in dark corners, feed a little fresh meat daily, scatter some china eggs about, and, best of all, let the hens out for a run on the grass. This habit is the result of idleness and liberal feeding.

Cutworms Damaging Crops.

From various sections of the country have come reports of more or less serious damage to field crops and garden stuff from cutworms. In response to an urgent appeal from the Tenlon district (north of Stonewall), the Department of Agriculture sent Mr. Melvin Bartlett to investigate and report on the extent of damage, and, if possible, suggest a remedy. The report reads, in part, as follows:

"Reaching Mr. Woods' about 9.30, he at once took me across to the field of 32 acres which he mentioned as having been almost completely destroyed. His report was not at all exaggerated. Only about eight acres remain intact. Along the edges of this small piece the worms were at work, and by running one's hand along the drills dozens of them were found about three-fourths of an inch below the surface. I recognized these as the caterpillar of the moth known as *Hadena devastatrix*, which is described by Dr. Fletcher as one of the worst enemies of the Ontario grain crops. They were present in the field in thousands. I collected ten in the space of one foot along a wheat drill. In the area where the wheat had been destroyed, not a worm could be found. They seemed to be advancing in a sort of army formation, the only place they were found being along the edges of the, as yet, untouched crop. The same conditions were found on the farm of Mr. Castle, which was next visited. The worms were not so numerous, owing to the fact, probably, that their attack is radiating from the corner of the field, giving them a fan-shaped front, while in Mr. Wood's field they were concentrating upon the last corner of the field.

"The grub burrows into the earth about three-fourths of an inch, remaining there during the day for protection from the sun, birds, etc., and at night comes to the surface to feed. It eats the whole plant, beginning just below the surface; occasionally small, uneaten portions of attacked plants will be found. They are omnivorous in their habits, preferring the more succulent plants. Thus, small plants of lamb's-quarters (*Chenopodium album*) standing in their track are preferred to the wheat and eaten first.

"The only remedy I can suggest in such cases is to thoroughly spray the grain along the front of their attack for a space of ten feet with a solution of Paris green. This has been found successful in small fields in the east, and I can see no reason why it should not succeed here. I visited fields on Mr. Mudd's farm, and heard reports of many other farmers in the district who were suffering similar losses.

"The worm hatches from the egg in the fall, and is still small when winter comes on. Usually large numbers of these are destroyed by the frost, and it may be that their unusual numbers this season is a result of the mildness of last winter. Full growth is attained about June 1st to 10th, and the moth appears about ten days later. There are two broods annually, but the second does no great damage, as by that time it appears there is abundance of food."

The following extracts are from the 1898 report of the Dominion Entomologist, Dr. Fletcher, in reference to this same species of cutworm. His advice may well be taken where the crop has been ruined, by sowing oats for green feed, as this year, owing to the dry spring, hay will be a light crop and fodder scarce:

"Occasionally considerable harm is done in grain crops by cutworms. There are several grass-feeding species in this large family which are liable to attack cereal crops. The injuries to Indian corn are well known and can be prevented in a large measure, but when a field of small grains is attacked the only resource is to adopt some agricultural treatment founded on the known life history of the depredator. The exact identity, then, of the species is of importance, so that the life history, if recorded, may be used as a guide to escape loss.

"These are the Glassy Cutworm, the caterpillar of the Devastating Dart Moth (*Hadena devastatrix*, Brae). I have waited a day or two before answering your letter (of June 2nd) so as to be able to say—what I now believe to be the case—that you can sow oats safely on your land. If you have any convenience for turning chickens or turkeys on to the field for a day before the oats are sown, they would doubtless destroy large numbers of the caterpillars or their chrysalids. I shall be very much obliged to you if you will let me hear from you later in the season what success you obtain from sowing oats on this land so late in the season. You will, I suppose, probably cut them for green feed."

THE FARMER'S ADVOCATE AND HOME MAGAZINE.

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Swirls on Pigs.

Of what use or detriment is swirls? What is the advantage or disadvantage in black or red hair or whiskers to the owner of pigs? Will the pig with straight hair be any better or feed faster than that with a swirl providing both have hair of a good, soft quality, not bristles? I have a boar with a beautiful swirl that can give points to a lot without swirls, and I should be sorry to discard him; but if the fashion says no swirls, I suppose he should go, and be sacrificed to the good fashion—but not this year. I cannot see why people should object to the hair having a swirl in it any more than a young lady should object to a lot of curls. Usually the pig with a swirl and the girl with a curl are both furnished with a luxuriant crop of fine silky hair, and are proud of it.

I think there are many things connected with our best bred Large White pigs that want improving more than the swirl in the hair, and one is getting them ready for the butcher at as early a date as possible. I keep both Large and Middle White pigs, but I can make pork pigs of about 110 lb. dead weight from Middle White pigs sooner than I can from the Large White, and the quality gives better satisfaction, but the Large White have the preference for larger pigs for the bacon-curers.

But if you want a cross, put a Large White boar to Berkshire or Middle White sows, and you get the correct thing, but mind and be sure both are pure of their respective kinds. Let them both have all the good qualities of their respective breeds, with plenty of hair. Never mind a swirl on the boar if he only has a good square rump to carry it, and you will have the pigs that will pay to either keep or sell. The pigs to either feed in a sty or yard or roam the stubble should be bred from a sow with good level top and bottom, wide round the girth, plenty of tilt, and a good, thick, well-set on head that meets you with a pleasant look. The boar will put some length and lean meat into the pigs, and she will give them the necessary fattening propensities. *Amicus.*

Farmers' Institute Meetings.

A series of Institute meetings will be held during the last week of June and the first week of July. It is intended to cover the whole Province and provide meetings at every organized Institute and Agricultural Society. The changes in the railway timetable, that come into effect on June 15th, have delayed the completion of final arrangements, but programmes will be out shortly.

Surface Cultivation and its Action.

The value of surface tillage of the soil is becoming better understood year by year, which is showing itself in a more general adoption in practice, especially with what are termed hoed crops. The farmer that allows weeds to grow in his field, for lack of cultivation, loses a great deal more than the weeds appropriate of plant food and moisture, which is no small item. While the destruction of the weeds pays well for the cultivation that hoed crops must receive, the great value of surface tillage comes from the conservation of moisture by the arrest of evaporation that goes on when a crustlike surface is allowed to form. The object should be to make the water which seeks to escape from the surface pass through the cultivated plants. Without the circulation of water or sap, no plant can be fed, because plant food requires to be in solution before it can be appropriated. Water is the conveyer of food to the plant. If this moisture is permitted to escape from the surface by evaporation, it leaves the plant food at the surface. This food cannot nourish plants, because it is out of the range of their feeding roots. If the course of the moisture is through the plants, there is created a moisture current towards the roots, and the plant food is carried where it can be used to advantage. It will therefore appeal to any thinking person that measures should be adopted to prevent this moisture from being lost by evaporation.

The most practical and effective method is to establish and maintain a surface mulch of fine soil. By frequent use of implements of tillage which loosen the soil to a depth of two or three inches, this mulch may be preserved and the moisture saved. The drier and looser this mulch, the more effective it is, as it then successfully breaks the capillary connection between the air and the moist under-soil, having the effect of interposing a foreign body between the atmosphere and the earth. A board, a bunch of litter or a blanket laid on the earth has the same effect, and the soil is moist beneath it. So long as this mulch remains dry and loose, it serves its purpose well; but after each shower a crust will form, destroying the mulch, making a direct capillary connection between the lower moist earth and the atmosphere, which in a measure serves a purpose similar to a leak in a pail. The thing to be done, then, is to stop the evaporation leak by again breaking up the crust and creating the surface mulch by cultivation. If this is done after every shower as soon as the soil will work well, a large portion of the moisture will be secured to the growing crop. In a dry time—that is, when several weeks go by without rain—if the crops are tilled every ten days, all the benefits to be derived from surface culture may be expected, as more frequent tillage does little good, and tends to arrest growth, as rootlets are broken and the plants bruised unnecessarily.

With shallow-rooted plants, as corn, the preparatory tillage should be as deep as practicable, that the soil may be prepared thoroughly before the roots have entered it, and shallower later on, in order that the rootlets may be disturbed as little as possible. For the corn crop, as the shoots are coming through the soil, and say once afterwards, nothing equals a stroke of the harrow. After the first two weeks, it is well not to cultivate deeper than three inches, a depth which is very effective in conserving moisture. Extended and repeated trials on different soils and in different seasons have shown that invariably there is left at the end of the season a larger amount of water in the soil where stirred to the depth of three inches than when stirred to a depth less than this amount. Prof. King gives as the amount of difference in water content at the end of the growing season in four feet of soil, between that cultivated three inches and one inch, to be 167.4 tons of water per acre.

While some adhere to the old custom of hilling up such crops as potatoes and corn, those who study the subject are departing from it, giving level culture, since the flat surface, rather than the thrown-up ridges, is less wasteful of soil moisture. To hill potatoes or corn to a height of six inches when the rows are three feet apart may increase the surface exposed to the sun and evaporation five per cent., and if ridged to a height of nine inches, more than nine per cent. Under these conditions, the water must rise to a greater height under the rows before reaching the surface roots, while midway between them and where the ground is least shaded the unmulched surface lies nearest the water supply. "These being the conditions," says Prof. King in his work, "The Soil," "ridge culture must be more wasteful of soil water than level tillage, whence it becomes evident that naturally dry soils everywhere and moist soils in dry climates should, where practicable, be given level cultivation." On the other hand, on stiff, heavy soils in wet climates and during wet seasons it may become desirable to practice ridge culture with potatoes and some of the root crops, but not so much to increase the rate of evaporation from the soil as to provide a soil-bed in which it will be less difficult for fleshy tubers and roots which form beneath the surface to expand. In practice, however, we find the hilling of potatoes to be quite generally followed, not during the season of cultivation, however, but at a later date when the tops have grown to near their full height and have commenced to blossom. A light hilling at this season covers the tubers that grow at the surface,

and thus prevents their becoming sunburnt. If the land has been well tilled up to this date, it will contain sufficient moisture, which, with the addition of the showers that are almost certain to come in early autumn, provide the conditions necessary for a full yield of potatoes.

Worth of a Superior Sire.

The improvement of the general character and quality of a herd of cattle or of any other class of stock depends so largely upon the character of the sires used in building up and maintaining the herd that too much importance can hardly be attached to the selection of the head of the harem. From the fact that he plays so large a part in stamping the character of the offspring of all the females in the herd, while each of the females can only leave her impress directly upon her own produce, it is not difficult to assent to the statement that the sire, in so far as breeding is concerned, is half or more than half of the herd. Taking this view of the case, it is of the utmost importance that care be given in the choice of the sires to be used. Individual excellence should be the first consideration after being satisfied that the animal is purely bred and descended from a line of high-class individual ancestry. Masculine character and vigor of constitution are among the first essentials in a sire, the former being illustrated in the general appearance, in head and eye, in walk and carriage, and the apparent self-consciousness of superiority which proclaims him a prince among his peers. Constitution is indicated by breadth of chest and crops, thickness through the heart, well-sprung and deep ribs, flesh elastic to the touch, and skin and hair handling so soft and loose that a handful of it may be grasped. A bull of this description, especially if bred from ancestry of the same character, is tolerably certain to produce stock of the same type with a large degree of uniformity. That bulls of this class backed by good breeding exert a powerful influence in the herds in which they are used, and on their posterity when inferior sires are not used to succeed them, has been clearly demonstrated in every stage of the history of the various breeds of live stock. Taking Shorthorn cattle for an example, the early history of the breed in England proved the prepotency of such sires as Favorite, Comet, Belvedere, Duke of Northumberland and Cleveland Lad in the hands of the Colling Brothers and Mr. Bates; Ben, Twin Brother to Ben, Albion, Pilot and others in the herds of the Booths; Heir of Englishman, Champion of England and William of Orange in the evolution of the favorite Scotch type of the present day, as moulded by the honored Aberdeenshire breeders, and perpetuated in Canadian herds by such notable breeding bulls as Mr. Dryden's Royal Bampton and Bampton Hero, Mr. Johnston's Indian Chief, Mr. Russell's Stanley, Mr. Watts' Challenge and Royal Sailor and others which have left a stamp on their produce and descendants, which has bred on through succeeding generations, producing prizewinners in profusion wherever their blood has been used.

These bulls were not accidents in breeding, but were the result of the mating of high-class animals bred from ancestors of outstanding excellence of constitution, conformation and lineage, which gave them the power of prepotency, the power to stamp their individuality upon their offspring and posterity. The history of all the breeds of cattle, both beef and dairy, as well as of heavy and light horses and of sheep and swine, furnishes similar instances of the striking influence of noted sires in the improvement of their class wherever they have been employed. This fact serves to emphasize the vital importance of exercising great care and good judgment in the selection of male animals for use as breeders in the raising of any class of stock and the wisdom of utilizing to the fullest extent the services of a sire which has proved his worth by producing uniformly good stock, instead of turning him off before half his term of usefulness is over and risking an untried one, which may prove a disappointment, if not a failure. It is well to hold on to the one that has given good results until the new one has been tried and his offspring developed sufficiently to show whether they are likely to be satisfactory. It is well also to select a son of a prepotent sire from a superior dam, and having regard to the influence such a sire may exert in a herd for good or ill, the question of the purchase price is certainly but a secondary consideration, when one that fills the bill is procurable at any reasonable figure.

While sires of outstanding merit in any class or breed of stock are by no means plentiful, yet it would be a mistake to conclude that only two or three in a decade are produced in any breed. There are doubtless many diamonds in the rough that have not been discovered or estimated at their true worth, for want of judgment or appreciation, and so there are many excellent animals which have lived and died in obscurity or making no record above mediocrity, which, if they had fallen into the hands of men of skill and judgment in breeding and management, would have left their mark prominently on the honor roll of their race as producers, if not as prizewinners, and doubtless in every year in the wide field of stock-raising a good proportion of this class is born which need only the proper treatment to develop into superior animals and judicious mating to prove improvers of their sort.

Advantages of Dairying.

BY PROF. A. M. SOULE, AGRIC. EXP. STATION, TENNESSEE.

One reason why dairying is bound to come more and more into favor is because of the increased production of the cow over the steer. Laws & Gilbert, of England, found the increase of a fattening steer in one day to be as follows:

	Per Cent.
Ash.....	1.47
Protein.....	7.69
Fat.....	56.2
Water.....	24.6

On the following ration of 30 pounds ensilage, 4 pounds cotton-seed meal, 4 pounds bran, 4 pounds of corn meal, and 10 pounds mixed hay per 1,000 pounds live weight, a good dairy cow ought to produce 20 pounds of milk, and a steer should make 2 pounds of gain per day. By reference to the table given below, the returns from each can be readily ascertained:

In 20 pounds cow's milk—	Per Cent.
Sugar.....	0.91
Fat.....	0.72
Protein.....	0.80
Ash.....	0.14
Total.....	2.60

In 2 pounds increase on steer—	Per Cent.
Sugar.....	0.00
Protein.....	0.15
Fat.....	0.03
Ash.....	1.30
Total.....	1.48

The cow's milk contains over 1 per cent. more solids than in the 2 pounds gain of the steer. The cow has produced 94 per cent. of sugar against the steer's nothing, five and one-third times as much protein, and over half as much fat, and if the sugar is reduced to its fat equivalent, nearly as much fat as the steer. Practically all of the constituents of milk are digestible, and it constitutes the best and most nourishing of foods. It is thus apparent that the cow is by far the most economical machine for the condensing and manufacturing of our coarse fodders and grains into cheap food products.

In an experiment conducted at the Ontario Agricultural College, one of the group of steers fed on a ration of 53.50 pounds of ensilage and 9.64 pounds of mixed meal for 150 days gave the following financial results:

Cost of steer at commencement of test.....	\$51 92
Cost of food.....	19 60
Cost of attendance.....	3 13
Total cost.....	\$74 65
Value of steer at close of test.....	\$92 88
Value of manure.....	6 75
Total value of steer.....	\$99 63
Net gain.....	\$24 98

A good cow fed this same ration for the same period, cost of attendance the same as for steer, ought to produce twenty-five pounds of milk a day. Assuming the milk to contain 4 per cent. of fat and the cow to be worth the first cost of the steer, we have the following financial results for butter dairying:

Value of cow.....	\$51 92
Milk produced (25x150 days) 3,750 pounds.....	12 18
Equal to pounds in butter, 168.75 pounds.....	42 48
Worth at 25c. per pound.....	8 00
3,200 pounds skim milk, at 25c. per 100, for feed- ing purposes.....	6 75
Value of manure.....	6 75
Total value of cow and product.....	\$108 65
Net gain of cow over steer.....	9 22

This seems to be a fair comparison of the relative value of the cow and steer in the production of agricultural wealth.

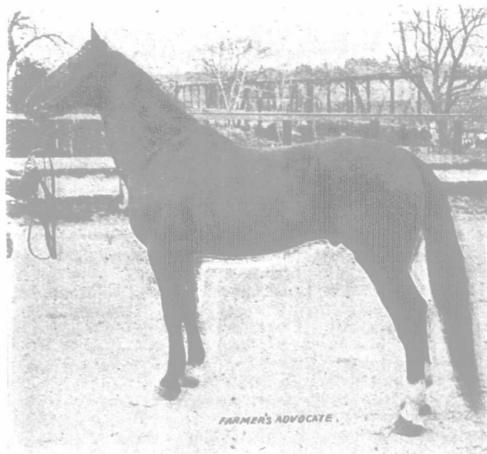
Improving Hogs.

Writing the *Prairie Farmer*, G. W. Baumgart, of Fayette Co., Iowa, says:—"There are many farmers who feed their hogs a year and then wonder why they do not weigh more than 150 pounds. I have a farmer in mind who feeds his hogs on dry corn and water, and then cannot imagine why they do not do better, as he has a fairly good breed. He might just as well feed his family on dry bread and water and expect them to get fat. I believe a pig farrowed early in the spring ought to be ready for market before cold weather sets in, and this can be done if they are given the proper food and care. It is the winter feeding that costs the most and from which the poorest results are obtained. If a hog holds his own during the coldest weather, that is about all you can expect of him. Every farmer should have a good forage pasture for the hogs to be turned on during the summer months. The small cost of seeding such pastures should not prevent the farmers from having them. In driving through the country we see many bare hog pastures, and in consequence many hungry-looking hogs are also seen. It seems as though with the number of papers that find their way into our homes there is no excuse except carelessness for the number of poor-looking hogs that find their way into our markets."

English Notes.

Once a year I visit many of the principal South-down flocks. The majority of those in my rota have now been seen, and it may be of interest to your readers if a few brief notes in this connection are given.

Around the Chichester district are to be found a number of trade-marked flocks, as those of Pagham Harbor Co., Mr. H. Penfold, Mr. F. N. Hobgen, Mr. W. Toop, Mr. A. Heannan, and Mr. E. Henty, in all of which purchasers will be able to find typical yearling sheep of both sexes, and also some exceptionally fine lambs. Near to Brighton we have the flock of Sir Thomas Barrett-Larnad, Bart., a flock of high quality, fully registered, and one from which some very fine sheep can be secured. This same owner has a second flock at Belhus. Near to Guildford we have two flocks of very high merit and quality, owned respectively by the Duke of Northumberland and Mr. E. Ellis. In the Havant, Portsmouth, district are located two flocks not generally heard of outside home circles, for they never exhibit, owned by Mr. H. Padwick and Mr. G. Peel, both of which are carefully bred. Then, near to Dover are situated several comparatively new flocks, owned by Lord Northbourne, Mr. Hampden, Mr. Miles, and Messrs. Morris & Dudney, all of which are well worthy of inspection by those who desire to obtain selections which combine merit and quality; and last, but by no means least, we have a grand flock of high-class sheep at Newmarket, Cambs., owned by Mr. McCalmont, from whence, unless appearances are misleading, some very prominent sheep in this year's showyard contests will come. This flock, only recently started, has been founded upon the best lines, and its produce will be sure to give full satisfaction, notably those by a grand ram from the Pagham Harbor Co.'s flock, which has a high reputation. From information given by public announcement and otherwise, it appears that there will be several very



STANDARD-BRED STALLION, DASHWOOD 12486.
First prize, Canadian Horse Show, 1900. (See Gossip, page 315.)
OWNED BY JAS. WETHERELL, BLAIR, ONT.

important dispersal and other sales of Southdown sheep during July and August next, amongst them being the whole of Sir James Blyth's flock, whose record is widely known. Earl Bathurst's old-established flock at Cirencester will be sold. The entire flock of Mr. W. Toop, at Aldingbourne, Cinchester, will also be sold. This flock is one well deserving the attention of buyers, as is likewise a flock of high merit and quality, though not so extensively known abroad as some of those named above, the property of Sir Thomas Barrett-Larnad, Bart., which will also be dispersed in its entirety. Then there is the bi-annual sale of the Sandringham flock, property of H. R. H. the Prince of Wales, notice of which has already been given in the columns of the *Advocate*. Several other smaller flocks are also for sale, and it may be stated that any buyer who needs only breeding sheep, not show animals, would certainly find it greatly to their advantage to attend these sales either in person or by agent who should have a free hand, for in all cases no reserves are allowed, and all are sold to the highest bidder, the values thus realized being much lower than those asked for privately. W. W. C.

The following reasons for having cows come fresh in the fall are credited to Prof. T. L. Haecker: "In the first place, the cow will give a larger yield of milk for twelve months, if she comes in the fall than if she comes in the spring; in the second place, it will cost less to rear the calf during the first six months if it is in winter time than it will in summer time; in the third place, we must feed a calf anyway from four to six months, and we might as well do that during the winter; then in spring it is let out to pasture and you have no more trouble with it. Therefore, when your calf is a year old, you have given it personal attention for from four to five months; the balance of the time it has taken care of itself."

Making the Most of the Land.

It is practically certain that on the average farm, by the adoption of a system of soiling or summer feeding of green forage, cut and carried fresh from the fields to the stock more or less confined in stables or yards, and by storing corn ensilage in sufficient supply for part of the following summer's feeding, as well as for the winter, three or four times as many cattle could be well sustained as are now kept in an indifferent way. The question of the expense of labor required in the attendance upon the animals during the summer months is the only one which could possibly militate against the success of the system, and it is by no means an insurmountable difficulty. The steady and uniform growth of flesh and flow of milk which could be produced under such a system judiciously carried out would, we are confident, far outweigh the disadvantage of the extra labor bill; indeed, we are strongly inclined to the opinion that the extra manure, made and collected in convenient form ready for application where required, would of itself more than balance the labor account. There are at least six distinct advantages in soiling cattle: First, the saving of land; second, the saving of fencing; third, the economizing of food; fourth, the better condition and greater comfort of the animals; fifth, the greater product of milk; sixth, the attainment of manure. Cattle kept in the pastures during the day in the hot months of summer, when the burning sun and the flies worry them, cannot possibly gain flesh or give a full flow of milk, but if kept in well-ventilated and darkened stables in the heat of the day, and fed liberally of cheaply-grown fodder, and pastured at night on heavy-producing forage crops, they may be kept increasing in weight of flesh if intended for beef, or producing the fullest flow of milk if they are dairy cows. The economy and profitableness of the soiling system has been well proven in European countries, and a writer in the *Breeders' Gazette* recently gave the result of his experience under this system on his 240-acre farm in Nebraska, which well confirms the opinion that soiling will grow in favor as it is more generally tried and practiced. The writer above referred to had on his farm 35 acres of permanent blue grass pasture and 7 acres of fall rye, and by sowing at intervals of time during the spring and summer, mixed grains, rye, oats and peas, also corn and rape, he successfully carried a large stock upon the produce of a few acres, as stated in his own words, as follows:

"At the beginning of the pasture season, after selling our beef cattle, our herd was reduced to sixty-five mixed cattle, such as would be expected in any breeding herd. These were put into the thirty-five acre blue grass pasture with fourteen horses and twenty-three sheep; in all, 102 animals. A slight fodder ration with the grain on it was fed up to the middle of May. At that time the animals were given access to the seven-acre lot of fall rye, which carried them well for two weeks, or to June 1. By that time the four-acre lot sown to rye, oats and rape was ready to cut. And such a crop! The lot was 220 feet wide; two swaths with the mower across it was all a heavy team could draw, and more than the stock could use at a feed. We fed morning and evening. At this time we removed our little bunch of sheep from the pasture and confined them on one acre of rye that had a slight seeding of clover. This acre was fed off, one half at a time, the hurdles being moved when the one half was fed reasonably bare and the sheep put on the other, then back again when the first had started nicely. This served them well.

"The seven acres of rye that was fed down by June 1 we immediately worked over and seeded to rye, oats and rape for pasturing again when required. We fed from the four acres two loads each day, morning and evening, to the end of the third week of July, when our first planted corn was ready to cut and feed. But the four-acre plot was by no means finished. We had still one-half to three-quarters of an acre left to make into hay, and we had never been called upon to interfere with our mixture of oats and peas. The supply had gone clean beyond our most hopeful expectation.

"Harvest had now come, and required our time without extra attention to our stock. The seven-acre field was ready with its rye, oats and rape, and when we opened the gate there was no extra inducement, further than what was there, required to coax the cattle to enter. Their wants were supplied and we were freed from their care until our grain was in shock. As we did not think it would be well to put them on a full feed of new corn at once, we, as time allowed, gave them a load of fresh cut corn. So that by Aug. 1 we had them ready to take a full feed of corn as we drew it from the field. From that time on their feed has been corn, and corn and sorghum after Sept. 20, with the liberty of a straw stack.

"The seven-acre field was plowed the second week of August, worked down and seeded to clover and Bromegrass. Thus it is growing the third crop in the same season, the first two being fed off. Our cattle have increased to eighty-six head during the summer, and we have used in supporting them, with fourteen horses and twenty-three sheep, from May 1 to Jan. 1, a period of eight months, thirty-five acres blue grass pasture, seven acres rye, re-seeded to rye, oats and rape; twenty-two acres of corn; three acres of sorghum; one acre sheep lot. In all, 68 acres.

"The blue grass could not be expected to carry more than one animal to the acre for the months of May, June and July, for then it dries up, especially

so on our table land. Making this allowance, it would show the cultivated land where the crop is taken off and fed in the way we have done equal to the carrying of one animal to the acre for at least eighteen months, or six times the length of time that the blue grass would sustain it here, or three and one-half to four times what the pasture would do under the more favorable conditions of a more moist climate. In my reckoning you will see that I place the cattle fed for the season at an average of seventy-five, and the twenty-three sheep equal to five cows, counting the eighty-six cattle we have now, the fourteen horses and twenty-three sheep, in all, equal to ninety-four cattle. I think you will agree with me that this is at least a fair estimate. A mistake was made in not continuing a slight meal ration from the time we quit feeding corn fodder in May until we began to cut corn in the last week of July. I consider that there we lost at least \$200 above what the meal would have cost us.

"The showing after carefully weighing and counting the gain at five cents a pound gives us a profit of \$30 per acre for each acre of land we have used in soiling. The hogs fed after the cattle, the surplus milk, the butter made from the cows we milk, and the growth of wool, amply compensate for the extra labor, while we have fully demonstrated that on this 240-acre farm we can safely increase our herd to 300 cattle or their equivalent in other stock, have better support for them, and at the same time have the land growing richer every year."

By a judicious use of the silo, in addition to the above system, the possibilities of the land to support large numbers of animals could be almost indefinitely increased.

How to Get Fall Lambs.

In England the ram is usually coupled with Dorset ewes during June and July, but in this climate (referring to Eastern and Middle States), that any large and uniform success in breeding Dorsets as late as June will result, we think improbable. Why? Because it is too hot then. Now, most seeds require great warmth to germinate; some, like the sweet pea, prefer cool conditions, so we plant them early. The same reasoning applies to sheep: their natural time of mating is fall, October and November, cool months. So if we want them to breed in the spring, we should select cool periods. This seems a simple thing. Yes, it is. And, like many simple things, it is overlooked. When we started with Dorsets, we read and were told they would breed any time of the year: also that June was the month to mate them for fall lambs. We tried them in June for many seasons, but with partial success only. This experiment convinced us that, while Dorsets will in isolated cases breed any time of the year, that for uniform and complete success, the "any time" must be a time when the conditions are right. We were now on the true track, and realized that for spring breeding we must select a time as near like the natural period of fall as possible, and (equally important) have the ewes as near like their natural fall condition as possible. To meet these desired conditions we suggest the observance of the following:

- 1st—Have ram with ewes not earlier than middle of March, not later than middle of May.
- 2nd—Put ram with ewes nights, not days.
- 3rd—Use young ram and feed him well while in service.
- 4th—Do not have ram too fat.
- 5th—Do not have ewes too thin.
- 6th—If ewes were not shorn early in fall, shear early as weather will allow.—*H. D. Miller in Report of Dorset Club.*

Gasoline for Stomach-Worms in Lambs.

For stomach-worms in sheep and lambs, the gasoline remedy is recommended by experienced sheep-raisers. The common fuel gasoline answers the purpose as well as the expensive benzine. Lambs should be first shut away from food for twelve or sixteen hours. The dose of gasoline is from one teaspoonful to one tablespoonful, the larger dose for mature sheep. It is not wise to guess at measures. Procure a small measuring-glass called a graduate; they are to be had of druggists and cost five cents. For a dilutant use either thin flaxseed tea or sweet milk. Four ounces of milk and two teaspoonfuls of gasoline well shaken together make a dose for a fifty-pound lamb. Care should be taken not to allow it to get into the windpipe and strangle the sheep. There is no danger if carefully given. Repeat the dose three times, at intervals of twenty-four hours. Bad cases may need further treatment after a week.

"The diet should be nourishing, but not too rich; care should be taken not to overfeed, as the digestion is much impaired by the presence of the worm. If other worms are present, gasoline will not rid the lamb of them. It should be supplemented by other treatment, such as a good worm powder. Most of the loss of lambs in humid countries comes from the stomach worms. These are minute, hairlike worms about three-quarters of an inch long, and on dissecting the lambs they are easily found in the fourth stomach."

Report of the Canadian Minister of Agriculture.

We have received from Ottawa a copy of the annual report of the Hon. Sydney Fisher, Minister of Agriculture, just issued for the year ending Oct. 31st, 1899. Mr. Fisher refers to his personal visitation of various parts of Canada, particularly Ontario and the Western Provinces, enabling him to get a better insight into their conditions and needs. He notes that during the past year production was great, prices good, with a ready sale for all commodities. The enormous increase of the export trade in agricultural and animal products is noticeable, but not more so than the great improvement in the local or home market, consequent on the development of the country everywhere and in all lines.

He was very much struck with the great interest shown in all branches of live stock, and much pleased to note the increased prices obtained for almost all classes. This has had the effect of stimulating importation of the best class of pure-bred stock, and more than ever turned the attention of breeders to careful selection of stock, and has encouraged them to unusual investment with this object in view. While there was a decrease in the exportation of cattle and horses to Britain, sheep showed an increase. But the export of cattle to the United States has largely increased, there being an enormous demand for feeding animals. The removal of the vexatious old 90-day cattle quarantine in Feb., 1897, sent the exports up from 1,646 in 1896 to 85,301, valued at \$1,278,590, in 1899, according to the customs returns, and this doubtless accounts for the decreased export to Britain of finished beeves. The number of feeders shipped to the States was slightly less in 1899 than in 1898, but their value was greater. The removal of the old restriction on trade between the two countries has had a most wholesome effect, and, with the free admission of American corn, greatly needed for feeding purposes, constitutes two of the most gratifying features of Mr. Fisher's regime, and for which he deserves great credit. Allowed a fair field, the Canadian farmer and breeder can safely be trusted to successfully develop their own business aright without any artificial or official coddling. In fact, with the demand for breeding stock, feeders and good export beeves away in excess of the supply, the Canadian live-stock industry was never in a more healthy condition than at present.

It is gratifying to note the continued healthfulness of the live stock of the country. Tuberculosis is rapidly decreasing. The Chief Veterinary Inspector reports 16,822 suspected animals throughout all Canada tested during the year, and of these but 451 reacted to the tuberculin test. With regard to the latter, experiments confirm the work of last year as to the unreliability of any but the primary tests unless a long period intervenes. Prof. Adami reports frequent examples of animals re-tested within 30 days presenting no definite reaction. He therefore ventures the suggestion that imported breeding stock be quarantined long enough to permit Government inspectors making a second test without there being any possibility of veiling the condition of the animal. The communicability of the disease from animals to man appears still to be in doubt. The most that Prof. Adami would urge is the periodical inspection of dairies, and the condemnation of animals showing emaciation and definite clinical evidence of the disease, most certainly of those showing tuberculous udders.

Hog cholera occasionally breaks out in old centers, but is also decreasing, and has almost disappeared entirely from some of the hitherto most infected centers. Diseased swine slaughtered, 2,166; in contact, 2,579; total, 4,745; compensation paid, \$15,018.82. The country is practically free from sheep scab. One owner near Ft. McLeod, N. W. T., where an outbreak occurred, voluntarily slaughtered his entire flock, thus eradicating the disease at once. No scab was discovered in the 62,308 sheep inspected at the shipping ports. Glanders is almost unknown in the older Provinces, and out of 97,014 cattle exported from Maritime ports, only 29 were found affected with actinomycosis. In the Northwest Territories 98 animals were destroyed for this ailment, and 83 successfully treated by the Mounted Police.

Allusion is made to the great increase in the export trade in butter, bacon, cheese, poultry, eggs, oatmeal, and the superiority of Canadian flour suggests the opening in Britain of bakeries for the sale of bread made from Canadian flour as a profitable commercial venture.

Three hundred creameries are now provided with cold storage, in accordance with Government regulations, and over 900 cheese factories and creameries have received certificates of registration under the Act providing for branding.

At the Central Experimental Farm, 200 acres has been set apart as a stock farm, under Mr. J. H. Crisdale, the Agriculturist. Sheep are now being kept, and more experimental live-stock work is being done.

During the year, Dr. Montizambert was transferred from Grosse Isle Quarantine Station to

Ottawa to fulfil the duties of Director-General of Public Health and General Superintendent of Quarantine.

The Patent Office, also in charge of Hon. Mr. Fisher, last year showed an increase in revenue of over \$7,800 over the previous year, the total revenue for this branch being \$107,261.56, showing a surplus of \$69,546.51.

Under health and criminal statistics we notice that during the period 1888-98 the number of convictions for crimes against the person increased 41 per cent., and against property 58 per cent., and the convictions for burglary, robbery, arson, etc., 111 per cent.; and it is also to be deplored that during the same period every province in Canada, except Ontario (which shows a marked decrease), shows increases in drunkenness.

Although about 45 per cent. of the population of Canada are in families whose heads and members are engaged in farming, and the value of all farm crops and products in Canada is not less annually than \$600,000,000, we regret to note that the Minister has not yet been able to arrange for the early, accurate and complete collection and publication of agricultural statistics, as has more than once been urged by the FARMER'S ADVOCATE, and which the report now before us practically admits should be done.

Affected Animals from the Argentine.

There arrived in the Mersey on Monday and Tuesday, from the River Plate, two steamers, named Severus and Bellagio, on both of which cattle were detected suffering from foot-and-mouth disease. The Order prohibiting the importation of live cattle from South America came into operation on Tuesday, but in accordance with the amended Order a permit was granted by the Board of Agriculture for the landing of these cargoes. The work was expeditiously carried out, and the 400 bullocks and 2,200 sheep which were on board the two vessels were at once slaughtered at the special lairage. The heads, feet, hides, and all offal were conveyed to sea and buried, and every precaution was taken by the dock authorities to prevent the disease spreading in this country. Since the order of prohibition was published by the Board of Agriculture three infected cattle and sheep cargoes have reached Liverpool. It is believed no other cattle vessels are on the voyage from South America to Liverpool, so that this trade, so far as River Plate ports are concerned, is now closed.—*Mark Lane Express of May 7th.*

[NOTE.—Great alarm was subsequently created along the Lancashire and Cheshire shores of the Mersey by the washing up from the sea of large quantities of diseased hides, sheep-skins and offal removed from South American cargoes infected with foot-and-mouth disease.]

The Water Supply in Loose Feeding.

Referring to the letter from Mr. Wm. Rennie in our last issue, on fattening cattle loose in box stalls, Mr. Thos. Baty, of Middlesex Co., Ont., who has been carefully testing that plan to his own satisfaction, advises us that he considers the suggestion by Mr. R. of the gutter behind, when cattle are stanchioned for feeding, into which the droppings can be thrown occasionally, a very valuable one in order to the saving of bedding. For watering, Mr. Baty advises a box projecting into the side or front of the stall, about 18 inches deep, with a hinged corner projecting an inch or two over the side next the animals, so that they can raise it with their noses, and so adjusted that it will fall back of its own weight when one has finished drinking. If held up with a bit of block when first put in, the cattle will soon learn that the water is there, and raise it up whenever they feel like drinking. As the lid closes itself, the objection is overcome of fodder or litter or the droppings of the animals running loose falling into the water. The opening should be large enough so that the animals can put their heads in comfortably to drink. Mr. Baty ties his cattle in stanchions when feeding, but they run loose the remainder of the time.

Sheep Dipping Tank.

In reply to a request for their plan of constructing a tank for dipping sheep, and for the dimensions of same, Messrs. Geo. Harding & Son, Waukesha, Wis., give the following:

Make an outside frame for sides and bottom of vat by setting up five pairs of 2x4s four feet long, connected at bottom with 2x4s twenty inches long, set on edge (eight inches allowed for joining). Dig a trench twenty inches wide, two feet deep and eight feet long, or any length you prefer, guided by size of your flock; we dip 100 head per hour in ten-foot vat by keeping three sheep in at one time. Set up your frames all in line in this trench with the tops twenty-two inches apart. Sheet up on the inside with two thicknesses of matched flooring. This will give you a water-tight vat. One end of the vat should slant at an angle of 40 degrees so sheep can walk out and onto drying platform, which should be made large enough for sixteen sheep, and so constructed with tight bottom that the droppings will drain back into the vat. Build a three-board railing around platform and divide into two pens, each supplied with a door so the sheep can go out on the opposite side from the vat. At the entrance to the drying pens from the vat, one gate will suffice, which will swing two ways.

The Construction of Cement Stable Floors.

BY A. E. HODGERT, HURON CO., ONT.

To lay cement floors, get a good foundation. When filling in to raise the floor up to the proper levels, throw some water on the earth as it is put in and ram it down well. You can fill up with stone or gravel, but earth is just as good if well rammed down. The cement-mixing machine saves a lot of hard labor. It is made to be run by horse power or engine. It mixes better and quicker than by hand. The proper proportions of hydraulic cement and gravel are one of cement to five of gravel, the latter from the size of mustard seeds to goose eggs. Lay down 3½ inches of this mixture, ram well, do not make it too wet. The way to tell is to take a handful and squeeze it in the hand. If it stays in a ball in the hand it is all right, if it falls down it is too dry; if the water runs out of it, it is too wet. Take one (sack) of cement to five (sacks) of gravel and put them into the machine and start your power. After the machine turns around about six times dry, start and pour in the water. By the time the water gets in your mixture is ready to wheel away to the floors. When the bottom is well pounded down, take and sift out of the same gravel, with a three-eighth mesh sieve, enough of fine stuff to put on the top, say, one-half inch thick for cattle. For horses I would put one inch, and for passages one-quarter inch will do. Make this top like good plastering mortar, one of cement to two of sifted gravel, trowel it well to bring the cement to the top; be sure and not have the water lying on the top when you are done with the piece that you are at. Do not let the bottom get too dry before you put on the top. Do not leave any bottom over dinner hour or night without you have the top on and finished. I prefer having my cattle stand three inches higher than the passage behind them, and then your gutter will be three inches drop from the passage and fourteen inches on the bottom, and six inches raise where the cattle stand.

The advantages of having cement floors over stone or plank are: you have all the liquid manure saved, and experience tells us that one ton of liquid is worth more than a ton of solid manure. With stone or plank you cannot save liquid like you can with the cement; you would not be long in saving enough to pay for the cement, and it does not cost any more than planks at \$10 per thousand, as one barrel will lay a floor sixty square feet. I find by experience that planks will not last any more than ten years, and the rats and mice cannot work under cement like other material. We lay cement floors from two to four inches deep, according to where strength is most needed. I have had cement floors in my own stable for six years, and I would not put in any other if I were putting in floors again. Some object to them, claiming them too cold, but I have had no bad results from them in any way whatever.

Treatment for Caked Udder.

To the Editor FARMER'S ADVOCATE:

SIR,—Having heard and read a great deal lately about the trouble people have with "caked udder" in cows, I thought possibly my experience might be of some use to someone. Until last summer I did nothing but rub and rub, until the cow's bag was quite soft and my arms were quite numb; but last summer I had a case that I could not rub out. This cow has a very large, fleshy bag at all times, but had never been troubled with "cake" before. However, her bag swelled to an enormous size, and as she is a vicious kicker when she goes at it, I was in despair, when my mother thought of an old remedy people used when she was a girl, if cows had "caked udder." We made a trial at once, and in two days the udder was nearly well, and I had no more bother. The remedy is: Bittersweet (roots or stems) fried in lard or new butter—no salt. Make a strong "solution" of course, and rub on three or four times a day. The bittersweet can be got in almost any woods. A. M. B. Middlesex Co., Ont.

[NOTE 1.—Bittersweet (*Solanum Dulcamara*), also known as Woody Nightshade, is a shrubby climber, with blue flowers and red berries. The stem branches several feet, climbing about hedges and thickets in low ground. The red berries are said to be poisonous.—EDITOR F. A.]

[NOTE 2.—In our experience with caked udder in cows, which has been considerable, we have, during the last ten years, adhered to the use of an ointment having the following ingredients: Lard, ½ lb.; spirits turpentine, 2 ozs.; sal ammoniac, 1 oz.; St. John's wort, 1 oz.; oil of vitriol, ½ oz.; oil of swallows, ½ oz.; oil origanum, ½ oz. Melt all together, except the vitriol, which must be put in when the remainder is nearly cold. Stir well.

We usually give a physic of one pound of Epsom salts as soon as a cow gives evidence of requiring treatment. We milk out the udder as cleanly as possible two or three times a day, bathe well for half an hour with quite warm water, and rub in the

ointment thoroughly. We have never had a case this would not relieve in two or three days.—EDITOR F. A.]

Butter Test at the Royal Jersey Show.

The following is a summary of the report of the judge in the test at the annual show at St. Heliers, May 10th, 1900:

In reporting the result of the eighth annual butter test conducted under the auspices of the English Jersey Cattle Society, at the Royal Jersey Agricultural Society's Show at St. Heliers, it is satisfactory to state that the test has not only exceeded in the number of entries all former competitions on the Island, but the cows tested have shown a marked improvement in general excellence, as out of fifty-five entries there were fifty-three tested, thirty-nine of which were awarded certificates of merit.

The cattle were stripped on Tuesday evening, May 8th, at six o'clock, the milk of the next twenty-four hours being taken for the test.

Separation commenced at seven o'clock on Wednesday evening, and the fifty-three lots of milk were finished by 8.25.

Churning commenced at 6.25 on Thursday morning, and the awards were published by 3.15. The averages of the cattle tested are as follows, from which it will be seen that, when the long period of lactation is taken into consideration, the cattle brought forward on this occasion were better than at previous shows.

SUMMARY.

	Days in milk.	Yield of milk. lb. oz.	Yield of butter. lb. oz.	Ratio, lb. milk to lb. butter.	Points.
12 prizewinners averaged	148	31 1½	1 13½	16.68	40.55
53 cows tested averaged	142	30 5½	1 12½	17.08	38.45

The gold medal and special butter prize were awarded to Mr. J. Hamon's Sweet Bread; test 32



ROADSTER PAIR, VICAR AND VICTOR, 15.11-2 AND 15.2 HANDS HIGH.
Sired by Dashwood 12186, and 2nd prize, Canadian Horse Show, 1900.
OWNED BY MISS K. WILKES, BLAIR, ONT.

lbs. 14 ozs. milk, 2 lbs. 7 ozs. butter, 165 days in milk. Ratio, viz., lb. milk to lb. butter, 13.18. Second, the silver medal, to Mr. R. Williams' Fancy. Third, the bronze medal, to Mr. C. Mourant's Lucy 8th. Thirty-nine certificates of merit were awarded. Fifty-three animals averaged 30 lbs. 5½ ozs. milk, 1 lb. 12½ ozs. butter, 142 days after calving.

The largest yield in the test was 47 lbs. 8 ozs. of milk, and 2 lbs. 3½ ozs. butter, from a 7-year-old cow 81 days in milk. A 6-year-old cow, 71 days in milk, gave 41 lbs. 14 ozs. milk and 2 lbs. 8½ ozs. butter in the 24 hours. The record speaks well for the "dairy queen."

Bloody Milk: its Cause and Cure.

Cows frequently give milk tinged with blood. Occasionally this yield of bloody milk is due to constitutional weakness; but in the majority of cases it is the result of some injury which causes a laceration or rupture of the blood vessels of the udder, and thus leads to an effusion of their contents into the sacs in which the milk is secreted, or in which it is stored after secretion. In cases of this kind no serious results need be apprehended, as quite a trifling injury often suffices to bring about the attack, and repair of the parts is equally simple, and is generally effected by nature in the course of a few days. A good dressing for the udders of cows giving milk of this description consists of an ointment made up of equal parts of camphor ointment and belladonna ointment, which should be briskly rubbed into whatever quarter of the udder the bloody milk is coming from. As a preliminary to the application of this ointment, the udder should be well fomented and then rubbed dry before the dressing is used. *Farmer and Stock Breeder.*

Technical Education.

To the Editor FARMER'S ADVOCATE:

In your issue of May 5th, "Rotary" advises young men to devote their spare time to study, but he says nothing of the difficulties a young man meets when he adopts such a course. Suppose his early education has been limited, and he wants to learn the theory of steam engineering. He buys a book and begins to study. He comes to something like this: H. P. = PLAN / 33000. "What does that mean?" he asks. "Oh," someone replies, "that is algebra." Then he sees that he must first master algebra. He buys a text-book and begins to study. He has perhaps spent a dreary month when he finds his need of more arithmetic. And so he goes on buying books that he cannot understand till the inevitable end comes—either his patience or his pocketbook gives out. He has a library of text-books. He does not know which should come first, and does not care. While studying he was alone and had no encouragement, neither did he know what progress he was making. He has studied for a year, and now he does not know the throttle from the sight-feed. Little can we blame him if he does "bewail his fate and never get above his present position."
Neepawa, Man.

Cultivating Hoed Crops.

It is the invariable practice of this locality, and has always been our own, to use the scuffler very frequently on all hoed crops from the time the plant has made its first appearance, more especially if the season be dry. A large quantity of the soil being clay loam, somewhat heavy, it requires surface tillage to keep it open and free. Mangolds, carrots and turnips are usually sown in drills, which insures a large body of loose soil to begin with, and by repeated working, if the ground is sufficiently dry, will keep it open and moist. For potatoes, we drill also and scuffle until the vines are fully developed, then mould up the loose soil to the vines, which increases the amount of soil available in which the tubers grow. If a reasonable amount of judgment is used, there is no crop which better repays cultivation than the corn crop. From the time it is a few inches above the ground until it is too large for a horse to work in, it should be worked, with possible exceptions, such as a protracted wet spell. We cultivate to a considerable depth at first after the use of the weeder has ceased, then, as the corn roots extend, make it shallow. Have tried both flat cultivation and hilling, and did not observe any difference, except that perhaps killed corn would stand up better in case of a storm.
JOSEPH MOUNTAIN.
Perth Co., Ont.

Stable Cleaning Time.

This is the season of the year when every stable should be carefully cleaned out, whitewashed and disinfected. No matter how healthy one's live stock may be, there is always a possibility of some hidden disease "bug" finding lodgment in some damp, dark corner, which may find, later on, favorable soil upon which to develop in an animal whose system, from some causes, has become susceptible. Sunlight is the great germ-destroyer; therefore, let it in. Open doors and windows, thoroughly clean out gutters, stalls and passages. Use lime freely, sprinkling it into all corners, whitewash walls and ceiling, adding, if possible, a little crude carbolic acid. A whitewashed stable is lighter, looks cleaner, more comfortable and larger, and smells sweeter. This kind of work can be done at odd times without detracting from the regular farm work, and will be appreciated by man and beast when stabling time comes next fall.

Women in the Dairy.

The *Practical Dairyman* of Indiana, in reproducing from the FARMER'S ADVOCATE an article on the dairy cow and her keep and care, adds:—"It was written by a woman (Miss Laura Rose), and it shows that she is versed in dairy matters. The time will come when woman will become more prominent in this business than she has ever been. A number of the wives of farmers in Sangamon County, Illinois, have organized a Women's Butter-making Association, which meets monthly in all-day sessions to enjoy social features and to advance the dairy interests of the county. Two butter fairs have been held, and the farmers' wives around Springfield are coming to the forefront as O. K. artists in the practical science of making gilt-edge butter."

There are thousands of chicks yet to be hatched, but the broody hens and their nests will call for extra attention to keep from vermin. Make a solemn vow that you will not feed a louse this year, and stick to it. Keep everlastingly at it and you can drive them off.

Butter--From the Stable to the Table.

BY MISS LAURA ROSE.
ARTICLE VI.

CHURNING, SALTING AND WORKING.

We have been quite a time arriving at the actual buttermaking, but patience and care are always necessary where satisfactory results are to be expected.

When starting to churn, first stir the cream thoroughly, taste and smell it to see if it be sufficiently ripened and of good flavor. This helps one locate any defect that may appear in the butter. With a tested thermometer take the temperature. If it be too cold, place the can in a pan of hot water and stir, always lifting the cream from the water when a few degrees below the desired temperature, as the hot can will bring up the temperature several degrees. Try not to have the cream so warm that it has to be cooled down before churning it is apt to give a soft-textured butter.

I cannot give any definite or fixed temperatures for churning, as there are so many conditions to be considered. The poorer the cream the higher the temperature; the less cream in the churn, the lower the temperature. Cream from cows long in milk requires a higher temperature. Feed, breed, and the individuality of the cow, all to a more or less degree influence the churnability of the cream. Avoid having too much skim milk in the cream and too much cream in the churn. These are the two chief conditions which cause long churning. With cream testing 25 per cent. butter-fat, and the churn never over half full, little difficulty should be met with in bringing butter. Where cream is properly cared for, the churning temperature in winter will vary from 56 to 62 degrees, and in summer from 54 to 60 degrees. The temperature which will bring butter in nice granular form in 30 minutes will be your churning temperature.

The churn may be either round or square, but should have no dashers or workers inside.

Scald the churn with one-half pail hot water; rinse with plenty of cold water. I find it a good plan to empty the water out of the churn instead of letting it run through the plug hole. It is a quicker way, and, besides, will carry off any dust, dead flies, etc., which otherwise would settle to the sides of the churn.

Strain the cream into the churn through a perforated strainer dipper. Every dairy should have a dipper for this purpose. A tinsmith should make a good large one (9 in. across and 7 in. deep) for 50c. The bottom should be entirely covered with perforated tin—9 or 10 perforations to the inch.

In winter it is desirable to use a little butter-color of a reliable brand—a teaspoonful to 4 gallons of ordinary cream is sufficient. Always err in having the butter under rather than over colored. Measure the color and pour directly on the cream. Put on the lid and revolve the churn 70 or 80 revolutions to the minute. Draw the plug occasionally to allow the gas to escape.

When the butter has nicely broken add two or three quarts of water, the temperature of which will depend on the condition of the butter. If it has been quick in coming, have the water 52 or 54 degrees in winter and colder in summer.

If the cream is poor and you have been a long time in getting butter, do not add the water until you have the butter the size of wheat grains and are ready to draw off the buttermilk. The water dilutes the buttermilk and causes the butter to float more readily.

Place the strainer dipper over the pail and let the buttermilk drain through it. If specks of butter come with the first drawn buttermilk, it is the surest sign I know of that the butter is not quite churned enough.

In winter always take the temperature of the wash water, which will range from 52 to 56 degrees, according to the firmness of the butter and the heat of the room the butter is to be worked in.

Use as much or rather more water than you have cream. Put a couple of thicknesses of cheese cloth over the strainer dipper and pour the water through it into the churn.

Put on the lid and revolve the churn rapidly a dozen times. One washing is sufficient unless the water comes off very milky, which it should not do. The oftener butter is washed the more it is robbed of its aroma. Let the butter drain 10 or 15 minutes.

There are several methods of salting. I prefer salting in the churn. The only drawback it has is the difficulty in determining accurately how much butter there is in the churn. Where scales are handy the churn may be lifted off and weighed, and the weight of the churn deducted from the entire weight. Where the same amount and kind of cream is churned, the maker can have a close idea how much butter there is, but do not guess at the salt, *always weigh it.*

The quantity to use will vary with the taste of the consumers. Educate them along the lines of taking less salt. They will eat more butter, and, moreover, it is a shame to completely hide the flavor of excellent butter with salt. One ounce to the pound when salting in the churn, and three-quarters of an ounce when salting on the worker, is sufficient.

After the amount of butter has been ascertained and the salt weighed use only the best dairy salt; sift the salt through the dipper, you see how many times the strainer dipper can be used; put the lid on and rotate the churn a few times; let stand for about half an hour, then gather into lumps by

slowly revolving the churn. Allow the butter to remain in the churn from two to four hours; take out and give sufficient working to remove the excessive moisture.

By salting in the churn one working is quite enough, and there is little danger of ever having streaky or mottled butter. The streaks and mottles are caused by the salt not being dissolved and evenly distributed.

If the butter be in a nice, firm condition, it may be taken immediately from the churn after draining, weighed, put on the worker, the salt sifted on, worked, and made ready for the market at once.

The buttermaker who is still using the butter bowl and ladle should abandon it, and either buy or have made a lever butter-worker. It does not cost much and is such an improvement over the old style, saving both time and strength. *Be sure to have it large enough.* One 3 ft. across the front, tapering to 4 in. at small end, and 3 ft. at the sides, works from a few to 15 lbs. of butter nicely. The worker should stand 2 ft. from the floor at the wide end, and 21 in. at the lower end. The 3 in. slant allows the water to drain while working the butter.

Do not slide or roll the lever, but press it gently down on the butter. Avoid friction, using pressure only. By so doing you can give the butter much more working without injuring the grain.

When the moisture is nearly all expelled and the butter has an even color and a close texture, it has had sufficient working.

The packing and marketing of butter will be considered in our next article.

O. A. C., Guelph.

Science and Practice in Cow Feeding.

Professor Haecker has given the method of feeding cows at the Mijgesota Station, a summary of which is made by *Practical Dairymen*. They are feeding ten parts of bran to two parts of oil meal, and are using fodder corn exclusively for roughage. The standard ration is ten parts of the bran and oil meal mixture to 15 parts in weight of the cut fodder corn. The cows are fed all they will eat up clean, but the proportion between the roughage and the grain is always maintained—once and a half as much roughage as grain. The reason cows are fed all they will eat is because we must first provide the food of maintenance, and the more they will eat over and above this the more they will have available for converting into milk or meat. Each cow is fed twice a day, half the grain feed and roughage in the morning and half in the evening. That generous feeding pays is clearly illustrated in our record for the five years ending December 30, 1897. During the years of 1893, 1895, 1896 and 1897 cows were fed all they would take, while during the year 1894 they were fed light.

	Milk.	Butter.	Cost of 1 lb. of butter.
1893	6,407	261	10.6 cents.
1894	4,969	272	10.9 cents.
1895	7,418	354	8.0 cents.
1896	7,454	349	6.3 cents.
1897	6,962	351	5.4 cents.

These are averages of the entire herd, and show that during the four years, when receiving all they would eat up clean, they averaged 354 pounds of butter each, while the average yield for the year 1894, when on comparatively light feed, was only 271 pounds. The cost of production was also the greatest that year. The kind of feed has little, if anything, to do with the yield, so long as they get the required amount of nutrients in the right proportion and in palatable form.

We get, he says, as much out of fodder corn as we do out of silage, and as much from a pound of protein in bran as we get in any other grain. Give just a trifle more milk when receiving some succulent feed, such as roots and silage, but practically the same amount of butter or other milk solids. We select the cheapest foods, and so mix them that the cow gets one pound of digestible protein to six of carbohydrates and fat equivalent. If we should feed a wider ration that is, one that contained more carbohydrates and fat equivalent than the amount above stated, she would gradually lay on fat, shrink in milk, and failure to breed would likely soon follow. But when the above-mentioned nutritive ratio is maintained no such difficulties are encountered. Our records show that changes in feed during the winter are objectionable, as changes always cause shrinkage in milk. A more uniform flow is maintained by feeding the same ration all winter, if possible. If it becomes necessary to make a change, it should be very gradual, so the system can adjust itself to the variation in bulk and the muscular action required by the stomach to digest that particular ration.

Remedy for Kicking Cow.

We have noticed several remedies in the *Advocate* recently for kicking cows, and have decided to let ours be known to your readers, which is as follows: Take a common spring leading ring for cows, and after putting it in the nostrils of course, have a rope attached to it; tie her head to something in front of her. If she continues to kick, tighten the rope until she stops. If you have no ring, have one person insert his finger and thumb in the cow's nostrils, firmly squeezing them together, while another person milks her. We have never known this remedy to fail; besides, being simple, the use of it will not injure the animal.

Huntingdon Co., Que.

GILLIES BROS.

Keeping Milk in Summer.

Many creamery and cheese-factory patrons are unable to keep milk sweet longer than 18 hours in hot weather, and either feed the milk on Saturday night and Sunday morning or else set it and make butter for family use. They are not properly equipped for making butter, and most of them do not secure nearly all the butter-fat from the milk, while at the same time, as it only comes once a week, the work is a nuisance.

The Manhattan Creamery is 1 1/2 miles from the college dairy, and during the summer of 1888 our milk was hauled to the creamery by a neighboring farmer who handled a milk route, the college milk receiving exactly the same treatment while on the road as that given the milk from the neighboring farms. We had a creamery room which cost us \$100, and was fitted with a cement floor and ice box; but farmers who had difficulty in keeping their milk said that they too could keep their milk if they had such a place, but that the average farmer could not afford the expense. We therefore abandoned this room and built what one of our farmer boys called an "every-farmer-can-afford-it" milk house. We set some posts and nailed to them old fence boards, making a room 10 by 10 by 10 feet, with a dirt floor. As the old boards could not be set close enough to keep out either sun or rain, we covered them with building paper. This building, if made of new material, would not have cost over \$10, and did not cost us over \$5. The room was built around a well. We had a windmill, but did not use it, as we wanted to keep milk under conditions where a farmer could not afford one. For tanks, in which to set the cans of milk, we used oil barrels, sawing them in two. We also took a half barrel and boxed it in, packing the spaces with wheat chaff. This box was covered with quilts made from bran bags. The frontispiece gives exterior and interior views of this milk house. The only apparatus used not generally found where milk is handled cheaply was a milk cooler. At different times we used patent milk coolers.

In handling this milk the care was taken that previous experience had taught us was necessary for keeping milk under any conditions. Every utensil touched by the milk was thoroughly washed and then sterilized with scalding water. If even a small quantity of dirt is left in the seams or corners of pail, strainer or can, it supplies an abundant source of the bacteria which cause milk to sour. No matter how clean the milker's hands seemed to be, they were washed in hot water just before milking to destroy all milk-souring germs that might be in the dust or dirt on them. The sanitary milk pail was used. This pail has a cover into which a six-inch opening is cut. In this opening fits a removable strainer. The milk is milked directly into the strainer, and the cover keeps out of the milk the fine dust which falls from the cow's body during milking. This dust is full of the bacteria which sour milk. When the milker sat down to milk, he wiped the cow's udder with a damp cloth to remove as much dirt as possible and dampen the rest so that it would adhere to the udder and not fall into the milk. The milk was strained into 40-quart cans, and as soon as a can was filled it was taken to the milk room, where it was immediately cooled to 60° to 62° by passing over a milk cooler. The cans containing it were then placed in the half barrels, and these barrels filled with freshly pumped water and barrels and cans covered with bran bags. The water was changed morning and night. With this treatment, and without ice, milk was kept and delivered regularly through our hottest Kansas weather in good condition to the creamery when 40 hours old, the time required to hold Saturday night's milk for Monday's delivery at the creamery; and much of the time we were able to keep the milk in good condition 52 hours, the time required when Saturday morning's milk is kept for Monday's delivery.

We believe that this trial, extended through the summer, proves that any farmer in the State can deliver milk in good condition to the factory in the hottest weather, and deliver Sunday's milk as well as that of other days. Most farmers can afford very much better conveniences than we had, and those who can will be able to handle their milk with less labor than we had to use.

The sooner milk is cooled after being drawn from the cow, the longer it will keep. The usual way to handle milk is to set the cans containing it in a trough of cold water and stir occasionally until the milk becomes cool. It may be an hour or two before the milk in the center of the can becomes thoroughly cooled, and all this time the milk-souring bacteria are developing rapidly. In these machines cold water flows through the interior, while the milk flows over the outside in drops, each drop being quickly and thoroughly cooled. The saving in labor over the usual method of stirring will soon pay for the cooler, while the quality of the milk is made much better. With coolers the milk is aerated while being cooled. This removes the "cowy" odors from it.

We found in hot weather that the temperature of our milk rose 10° while on the way to the creamery, and that some farmers were delivering milk as high as 97°. Milk should be kept as cool as possible while on the road, and ought not to be over 70° when delivered at the creamery. If it is, the quality of the butter from it will be injured and the creameryman will have to pay a lower price for butter-fat. *Bulletin No. 88, Kansas Agricultural College.*

The Coloring of Butter.

To existing differences of opinion on this subject there seems to be no limit, and we may pretty confidently conclude that such differences will be perennial until, haply, the Legislature puts an extinguisher upon them by prohibiting the use of artificial coloring matters altogether, not in butter only, but also in cheese, in milk, and in margarine. The use of some kind of pigment in buttermaking, to deepen the golden tint which is so much liked, is an ancient practice, and, like almost all other ancient customs, is dying hardly, slowly, reluctantly.

To condemn such a time-honored practice—a practice which is harmless enough in respect to health, and not without its practical side—is a somewhat difficult and ungracious thing to do. Fortunately, there is but little need to go in for hostile condemnation on grounds of sentiment, and we may argue against it, instead, on the ground of its being a deception—absolutely innocuous, if you will, on hygienic grounds—and on that of expediency. In the old days, which some of us are old enough to remember, the coloring of butter was perfectly harmless, and even excusable; but in those days the coloring matter was simplicity itself, and which is still more cogent—there was no competitor in the form of margarine.

Well do I mind the time, long ago, when I was a lad, seeing the dairymaid scraping and grating carrots in order to use the juice in coloring her butter—at all events in winter time. Only that part of the carrot—the outer circumference of it—which contains the desired pigment was used, the pale-tinted core being useless for the purpose. The juice was pressed out and mixed with the cream in the churn, and eventually the pigment of the carrot was incorporated in the butter.

It may, perhaps, be taken for granted that carrot juice, as coloring matter in the manipulation of butter, is unexceptionable. Possibly the same result might be obtained by giving carrots to the cows to eat, in which event it would be not only unexceptionable, but highly commendable. The only trouble is that it would take too many carrots that way.

We know not what some of the modern and really effective "butter colors" contain in the form of color pigments beyond the annatto of years ago—if, indeed, they do actually contain anything else, and this we do not intend to insinuate; but in any case it may be taken for granted that these "colors" are prepared with care on scientific lines, and that nothing injurious to health appertains to them. For all that, however, none of us would intentionally employ annatto for the love of it as an article of food, though all the while we know that, taken in infinitesimal quantities, and incorporated with such diet as butter, it can do us no harm.

But we are bound to consider, when all else is said and done with, that artificial coloring in butter, even when that color is only carrot juice, is used with intent not so much to deceive as to persuade customers. There is, in point of fact, no intention or charge of deceit, *per se*, inasmuch as everybody knows, or ought to know, if he is to be reckoned as an intelligent being, that butter is generally colored artificially, to some small extent, whenever Nature falls short of her usual custom in that respect. But how about the thousands of housewives in towns and cities who are scarcely expected to know anything definite about these wiles of the dairymaid, but who still use butter which they buy from the dealers? butter which they choose commonly enough, because of its persuasive color, and not at all on account of that less obvious property known as "quality."

We may benevolently sum the whole point up in this way—butter is artificially colored, wherever it is naturally too pale, not to deceive people, but to persuade them to buy. We will allow that the butter is none the worse because of the coloring pigment that has been put into the cream, but for all that it would be less attractive to the eye if not so colored. No doubt it is true that the food given to a herd of dairy cows may be readily made to contribute, even in winter, enough color to the butter to serve the purpose with customers. This, I say, may be done readily enough with a herd of cows from whose mixed milk the butter is made, and especially so when fresh cows are now and again coming into profit through the winter; but there are individual cows in almost every herd whose milk, used alone, will not produce butter that is deep enough in color to attract customers all the year round. One or two of these do not, however, count for much in a herd of five and twenty.

The chief reason why the question of coloring butter artificially is being so much discussed at times, in these days, is the advent of margarine as a competitor of butter. Margarine, as many of us are fain to believe, would stand a poor enough chance in the market against butter if it were not colored in imitation of butter; and it is this fraudulent point in margarine that has made people critical as to the moral right or wrong of coloring pale butter to make it look rich. Granted that it is a fraud on the public to color margarine to resemble butter, the question arises, How far is it defensible to color inferior butter to resemble superior butter? And out of this arises the further question, How can we fairly demand that more or more people should abstain from using coloring matter, while buttermakers are allowed to use it as freely as they like?

This, indeed, seems to be the crux of the whole thing as far as rival disputants are concerned. The

problem might be finally solved, perhaps, by prohibiting both parties from using such artificial color; but what would the dairymaids say to that? That the margarine people have no moral right or claim to use it may be taken as clear enough; but then, what about the right of the buttermakers? There can be but little doubt that Parliament would far more easily see its way to prohibiting the use of artificial color in margarine if only the use of it in butter did not stand in the way. Are the buttermakers prepared to facilitate the decision of Parliament by voluntarily relinquishing the practice many of them have followed so long? Much, very much, as it seems to me, depends on some such solution of the difficulty.—*J. P. Sheldon, in Live Stock Journal, London, England.*

Caring for Transplanted Trees.

Enough cannot be said in favor of mulching trees as soon as they are planted. It is all-important to protect the roots from the effect of evaporation for at least six months after planting. The small fibers must be allowed to form and get a good hold of the soil, and large feeding roots must be able to reach out, so as to make sure of a supply of food and drink for the growth that takes place. It is not enough to pour on water from above. This, of course, must be done in very dry weather, but an irregular supply of this sort does not meet the demands of the roots. Cover the soil so far as it has been distributed by the spade with a layer of three or four inches of coal ashes, or sawdust, or loose straw manure. Avoid using rich and raw manure. Tanbark is in some cases available, and where nothing else can be obtained, use weeds, fresh-cut hay or clippings from the lawn. This application will retain the moisture in the soil, and, what is equally important, will keep the roots at an equalized temperature. Without a mulch, the more you pour on water the more liable the ground is to baking and becoming impervious to a natural circulation of moisture. Above all, avoid sprinkling the soil with a slight supply of water. In addition to the foregoing, pinch off buds that start out of place, and any superfluous shoots or limbs so as to send the supply of moisture and plant-food to the part of the plant where it is most needed.

Garden Tillage.

The study of soil conditions with a view of devising means to promote perfect and rapid growth is a broad problem, and one that by reason of the widely varying conditions must largely be worked out separately for each locality. Frequency of culture, it is safe to say, is more necessary than depth, and yet impaction, frequency of rains, and the nature of the soil itself, all aid one in determining when deep stirring should accompany surface culture. If the soil is moist and it is impossible to go upon it except when it is unseasonably so, then deep stirring is generally needed. Even when the ground is dry, if there is frequent cultivation and much tramping between the rows, it is often so impacted that deep stirring becomes necessary.

Mulching the Berry Patch.

If you have a berry patch, you, of course, desire lots of fine, large berries. But you cannot expect these if you permit the weeds to grow among the bushes. It is a tiresome job to keep them out by pulling. The easiest way to keep the patch clean is by mulching. Mulching has other advantages, as it keeps the ground moist, and when the bushes are loaded with fruit and droop, the berries are kept clean. Shredded fodder makes a good mulch, as it contains no weed seeds; clean wheat straw is the next best thing. Apply it early in the season before the weeds grow, and, if possible, before a rain, for when once wet it will not blow off. Be sure to get it well around the plants or the weeds will grow; also be sure to get it thick enough. I am sure you will find it a great thing to keep weeds down and retain moisture. *L. Poulos, in P. Farmer.*

Changes in the Inspection Ports.

There has recently been a change in the points at which horses and settler's effects coming from the South are to be inspected, as follows:

All horses imported from the States for Winnipeg and beyond will be inspected at Winnipeg. All horses and settler's effects coming in on the Northern Pacific for Brandon will be inspected at Brandon, and those coming in over the Great Northern for Pembina Branch points will be inspected at Morden, Crystal City or Killarney.

A picture of three Royal past presidents of the Royal Agricultural Society of England, namely, Her Majesty the Queen, H. R. H. the Prince of Wales, and H. R. H. the Duke of York, has recently been painted by Mr. Orchardson, R. A., and will be placed in the offices of the Society in Hanover Square, London. The artist has introduced a portrait of the little Prince Edward of York as a coming president, thereby representing the four generations. The canvas represents Her Majesty the Queen seated in a corridor of Windsor Castle, little Prince Edward, his steps, guided by his father, the Duke of York, is approaching Her Majesty, carrying a bouquet of flowers, whilst the Prince of Wales looks on at the scene.

How Many Hens Should be Kept Together?

It is now well understood that for best results large flocks of hens do not give as profitable returns as when fewer are kept together and proportionately more space given them. The size of the flock which may be profitably kept together in pens of definite size has been reported on by the Main Experimental Station. The pens were 10 feet by 16, and the entire floor space of 160 square feet was available. The tests were made with four lots of 15 pullets each, four lots of 20, four lots of 25, and three lots of 30. The breeds selected were Brahmas and Barred Plymouth Rocks, there being 8 lots of the former and 7 of the latter. The experimental conditions would give the lots containing 15 pullets 10.6 feet of floor space each, the lots containing 20 pullets 8 square feet each, those containing 25 pullets 6.4 square feet, and those containing 30 pullets 5.3 square feet to each bird. The pullets were all hatched in May but 15, which were hatched two weeks earlier, and all were as uniform as possible in form, size and vigor. The results with the different lots of the same size were found to be quite uniform. The table below summarizes the more important results:

Number of hens in pen	Average floor space per hen	Number of eggs produced during six months	Value of eggs produced per pen at 20¢ each	Value of food consumed per hen, less cost of food (six months)	Net income per hen during six months
15	10.6	654	\$130.80	\$7.50	\$123.30
20	8.0	601	\$120.20	10.00	110.20
25	6.4	514	\$102.80	12.50	90.30
30	5.3	411	\$82.20	15.00	67.20

The table shows that "the lots containing 20 hens gave a greater total net profit per lot than did those containing any greater or less number of hens. Lots with 25 hens gave slightly greater net returns than did any of the others. The average net profit per hen, however, steadily decreased as the number of hens per pen increased, being 80 cents per hen during six months with the lots of 15 and only 30 cents with the lots of 30.

The tests indicate in general that the best results will be obtained by allowing each hen from 8 to 10 feet of floor space.

Animal Food for Poultry.

It is desirable to feed poultry animal matter in some form. This has long been taught by practical feeders; but the exact effect of such feeding has never been shown so clearly as in experiments recently concluded by the New York Agricultural Experiment Station at Geneva. In these tests 1,000 chicks and 170 ducklings have been grown to marketable size, and 90 hens and 40 cock-reels have been fed for lengthy periods; so that the evidence presented in Bulletin No. 171 has the weight of time and numbers. It all points in one direction: Toward superiority of rations containing animal food over those made up of grains alone. In no case has the reverse of this proven true, and in nearly all the trials the difference has been most noticeable. When the lack of mineral matter in an all-grain ration, as compared with one containing animal meal, is supplied by bone ash, the difference disappears or favors the grain ration, so far as chicks and laying hens are concerned; that is, it is the small amount of ash in the grain ration which makes this ration inferior to one containing animal meal, rather than a difference in quality of the protein.

Practically this is of little importance, for, except under rare conditions like those surrounding these experiments, it would be easier, cheaper and better to use animal meal, meat scraps or cut bone to supplement a ration for fowls in confinement, than to burn the bones or to buy bone ash. Something to supplement the ash-poor grains they must have, and it is simpler to give it in a natural form, combined with valuable protein and fats, than to burn out the organic matter and give the ash only.

With ducks, however, even the addition of the bone ash did not make the grains a perfect food. Ducks are naturally great lovers of small fish and frogs and snails and such forms of animal life found

in their water excursions. Unless they have something to take the place of this animal matter, they cannot do their best.

In farm poultry feeding, where the birds have range of orchard and pasture, of course they get animal food in the insects and worms and snails which they scratch for so vigorously; so grains may make up practically all the ration fed. The birds themselves will attend to the supply of animal food.

Subduing and Handling Bees.

BY MORLEY PETTIT.

"It is true that bees cannot bite and kick like horses, nor can they hook like cattle; but most people, after having had an experience with bee stings for the first time, are inclined to think they would rather be bitten, kicked and hooked, all together, than risk a repetition of that keen and exquisite anguish which one feels as he receives the full contents of the poison bag from a vigorous hybrid, during the height of the honey season." (A. B. C. of Bee Culture.)

The writer well remembers using an old-style smoker, manufactured by the author of the above, from which live coals would occasionally fall on the hand; and these were often mistaken for stings! However, bees do not sting, promiscuously, anyone who approaches them, nor do they know one person from another, except as one learns their whims in order to deal with them peaceably. They are often much annoyed by persons standing in their way and interfering with their work, as is aptly illustrated in the work quoted above. "If you should go into a factory, and stand in the way of the workmen until a dozen of them were blocked up with their arms full of boards and finished work, you would be pretty apt to be told to get out of the way. Now, you are to exercise the same common sense in an apiary," and not stand in front of a hive or anywhere in the bees' line of flight.

Avoid quick or agitated movements, striking at flying bees or jerking the hand back in fear of being stung. Last summer a toy windmill was placed near the yard to frighten birds from a cherry tree. It so enraged the bees, partly by its rapid motion and partly by being in their line of flight, that thirty or forty of them might be seen at any time buzzing about it, and darting at the revolving fans. Their especial enemy, as they seem to think, is the lawn mower, whose rapid motion in front of the entrances, even on cool days, often brings them out "like hot shot."

The smell of perspiration is very offensive to them. For this reason so-called sting proof clothes and gloves are objectionable in hot weather, as they cause so much extra perspiration that the bees are almost sure to get in more stings at vulnerable points than though the clothing were light and cool. For myself, I prefer a complete suit of white cotton, and a bee veil, of mosquito bar with fine black net veiling before the face, attached to the edge of a broad-rimmed straw hat, and tucked into the clothing far enough down on the breast to stand out clear of the face. This, with a good smoker filled with rotten wood, and burning well, renders a person reasonably safe from stings.

To open a hive, blow two or three gentle puffs of smoke in at the entrance, and, having removed cover and cushion, blow smoke over the frames as you gently turn back the cloth, beginning at one corner. It may be necessary to smoke some down between the frames, but too much smoke will often cause the bees to run excitedly over the combs and perhaps out of the entrance. Then they become almost unmanageable, and even the queen may run out and be lost. Black bees, or those containing some Carniolan blood, are worse for "running" than pure Italians; but even they may lose their heads at times. When they start running it is often best to quit smoking altogether, go on carefully with your work, showing no signs of fear, and they will soon quiet down. Avoid jarring the hive at any time. Much depends on letting neither bees nor beekeeper become excited. By a little observation and judgment one soon learns how little smoke may safely be used, and exactly the right moment to apply it. Before lifting out a frame push those on either side of it over far enough to allow it to come out without rubbing or crushing bees. All combs should be straight and even to manipulate nicely. "Crushing bees fills the air with the odor of poison, which irritates the bees. So also when one bee is provoked to sting, others follow because of the odor of poison." ("The Honeybee.")

Unlike other stinging insects, the honeybee leaves its sting in the wound, so is only able to sting once, and usually dies soon after. The sting should be removed immediately by scratching with the finger nail or brushing against the clothes, else it would continue working in and injecting the poison into the wound. To grasp it between the thumb and finger would be to squeeze the last bit of poison into the wound. Do not rub or irritate the part in any way, as that only increases the swelling. The best remedy is to forget; but an application of cold water or cold wet cloths with-out friction is good in bad cases.

Above all, never allow horses to enter the apiary; for the bees will rush out at them and sometimes sting them to death, even at night.

There were operated in the United States, during the season just ended, 31 beet sugar factories, with a total capacity of 19,150 tons, and six additional ones with a capacity of 3,100 tons are building for next season.

Swamp Fever.

In reference to the disease, so common among horses in the Red River Valley, known as "swamp fever" (and for the investigation of which a special grant has been made by the Local Government, as noted in our last issue), the following notes taken from the annual report of the Manitoba Veterinary Association will be of interest:

Dr. Torrance (being asked for a report of the investigations he had been carrying on) said he had not intended to say anything on this subject until he had pursued his investigation further, but as the matter had been brought up he would tell the members briefly what had been done. A number of horses affected with this disease had been placed under his charge for treatment, and he had taken the opportunity of making careful clinical notes of them all, frequent examinations of their blood and urine, and post mortems on the fatal cases. Dr. Bell, the Provincial Bacteriologist, had taken the greatest interest in the work and had made cultures from the blood and tissues of a large number of them. Like other practitioners, he had been struck with the great clinical resemblance between this disease and "surra," and had hoped to be able to discover in the blood of some at least of the cases the surra parasite, *trepanosoma Evansi*. However, in spite of countless examinations, taken at all periods of the fever, at night as well as in the daytime, they had been unable to find the parasite. He might mention that recently, through the kindness of Mr. H. L. Cooze, he had the opportunity of examining a stained specimen of blood containing the surra parasite which had been sent to Mr. Cooze from Burma, and the size and characteristic appearance of the parasite were so striking that no one could fail to observe it when present in fresh blood. He therefore felt convinced that whatever might be the cause of the disease, it was not surra. They had, however, found in the blood and tissues of these horses a large bacillus which differed in several respects from any hitherto described, and



USE OF THE VEIL AND BEE-SMOKER. (From The Honeybee.)

might prove to be the cause of the disease. Dr. Bell had several pure cultures of it, and they were only awaiting a suitable opportunity to inoculate a horse with it and see if they could reproduce the disease. The present difficulty was to procure a cheap horse that could be experimented upon. The germ might be pathogenic only to horses, so that inoculation of smaller animals could not be depended on.

An interesting discussion followed, in which Messrs. Rutherford, Thompson, Hurt, Stevenson and others took part, the consensus of opinion being that it is a very destructive disease of horses, and is prevalent in all the lower parts of the Province, causing very serious losses to the farming community. It also appeared to be more virulent in years of high water, when the meadow lands are flooded, and the connection between this disease and swamp grass and water seemed to be important.

It was then moved (and carried) by Mr. M. Young, seconded by Mr. W. A. Dunbar, "That in view of the importance to the farmers of Manitoba of discovering the cause of the diseases of horses known as 'swamp fever,' and thereby devising some means for its prevention and cure, be it resolved that this Association memorialize the Government of Manitoba to make a special grant to Drs. Bell and Torrance for the carrying on of this research."

Causes of Colic.

Horses which once suffered from colic are notoriously liable to re-attack. The disease is most frequently caused by sudden changes in food, by feeding at irregular intervals, by heavy meals given after long fasts, and by allowing the animals access to an unlimited quantity of water when in a heated condition. It is also caused by the presence in the alimentary canal of foreign bodies of various kinds; the calculi, or concretions of mineral matters often found in animals largely fed on inferior fodder or poor, badly cleaned grain being very often "at the bottom" of attacks of colic.

QUESTIONS AND ANSWERS.

Veterinary.

SWEENEY-ITCHY HEELS IN HORSE.

F. C., Durham Co., Ont.:—"I have a fine heavy mare, three years old, which got kicked on the shoulder by her mate, which was not shod. I worked her some after, for it did not seem very bad, as it was not cut nor very sore. But with working the shoulder swelled very badly down towards the front and down the breast a little, and she got very lame. I bathed the shoulder well with hot water and rubbed on 'Thomas' Electric Oil,' and the soreness, swelling and lameness is pretty well gone, but I think she is going to be sweened, for the muscle behind the shoulder blade is beginning to fall away considerably. Please tell me if you can, from information given, if I did right or wrong in first case, and what to do for to cure her of the sweeny if you think that is what is the matter?"

"2. I have also another heavy young mare, four years old, which has like an itch in her heels, and it bothers her quite a bit by biting them, and more especially by a constant kicking against the floor while standing in the stable, which I am afraid may start a spavin or something else on her. The itch seems to be less or more all over her body. I am working her all the time, feeding good timothy hay and about a gallon of oats, mixed with a little bran, three times a day. Please tell me what to do for her?"

[The treatment you adopted for mare's shoulder was fairly good, especially the bathing with warm water. It is possible a condition simulating sweeny may follow the inflammation. The treatment for such is long rest and repeated blistering of the wasted muscles. A good blister is composed of one dram powdered cantharides mixed with an ounce of lard. Clip the hairs off and rub blister well in, in 24 hours rub well again, and in 24 hours longer wash off and apply a little lard every day until the scale comes off. Blister every three weeks, and rest the mare until the muscles regain their normal condition.

2. The itchiness mentioned in legs of heavy mare is often noticed in horses with coarse, wiry hair on legs inclined to be fleshy, and is very hard to cure. Prepare her for a purgative by fasting for ten hours, then give 9 drams aloes and 2 drams ginger; feed only bran for 24 hours after giving. After purgative ceases to act feed every night and morning on her grain or chop 2 ounces Fowler's solution of arsenic. Wash heels off once weekly with strong soft-soap suds, and be sure to rub until thoroughly dry. Dress the parts twice daily with a solution of corrosive sublimate, 1 part to 1,000 of water (better get druggist to prepare solution).

J. H. REED, V. S.]

NAVICULAR DISEASE IN HORSE.

SUBSCRIBER, Wentworth Co., Ont.:—"I have an aged horse that has been lame a long time in long fore foot. He likes to keep it out in front of the other (about a foot) when in the stable. When turning out of the stall saves it all he can, and when stepping out of stable door (about 6 in.) prefers putting it first, with a slight heave, to the ground. The foot is good and hoof apparently sound, but I noticed lately that above the outside quarter of foot above the frog he is tender when pressed. Can't feel any particular heat in it. Perhaps you might suggest what causes this lameness?"

[From symptoms given, I am afraid your horse is suffering from a well-developed case of navicular disease, which is incurable, but the symptoms may be relieved considerably by keeping the foot soft by poulticing or standing in water for a few hours every day. A long rest and repeated blistering around the coronet (the soft tissues just above the hoof) would be better treatment. Anything that will encourage the growth of horn will benefit the patient. It is not probable he will ever be of much use on the road, but for slow work on the farm he may be tolerably serviceable. If he become practically useless you might get a veterinarian to perform neurolomy (removal of the nerves). This does not cure the disease, but cures the lameness by removing sensation, and as a horse may suddenly become useless at any time after the operation, it should not be performed if the horse be fairly serviceable. In some cases a horse lasts for years after operating, and sometimes fails very quickly.

J. H. REED, V. S.]

ENLARGEMENT FOLLOWING WOUND.

ENQUIRER, B. C.:—"Yearling colt gashed on side by jumping picket fence three months ago; some flow of matter, but healed quickly; bathed with bluestone solution. A hard lump, however, nearly the size of a walnut, has remained under skin; slightly tender to touch. What should be done with it?"

[It may be that some foreign body became enclosed in the tissues when wound was healing, and is causing the formation of an abscess. The tenderness to touch mentioned indicates this. Bathe with warm water frequently, or, if possible, apply a hot poultice for a few days to hasten the formation of pus. If the lump becomes soft in center, lance and allow escape of pus, and then, in all probability, the lump will disappear. After lancing, wash off and syringe cavity out well twice a day with carbolic acid one part, water seventy parts. If matter does not form, the growth is a fibrous tumor and will have to be dissected out, or it may not become sufficiently large to interfere, and may be left alone.

J. H. REED, V. S.]

SEEDY TOE IN HORSE.

J. J., JR., Simcoe Co., Ont.:—"I have a valuable horse, 12 years, that has a hole in his toe about 3 in. long and about 3 in. deep; it was very small 2 years ago, but is getting larger. When the shoe is on you would not know there was anything wrong with him. He gets very lame when shoes are left on too long. When you hit the foot with hammer it sounds hollow, and the hole looks very punky. I got the smith to fill it full of tow and tar. He goes well at present. What would you advise me to do with it?"

[Your horse is affected with what is called seedy toe, which consists of a perverted secretion of horn at the lower margin of the bone of the foot. Although called seedy toe, it is not always confined to the toe, but may extend and involve the quarters. It is often the result of laminitis, and often caused by pressure from toe clips on the shoe, and sometimes it originates from some inherent cause not well understood. From whatever cause, it consists in perverted secretion of horn by the sensitive laminae. The horn is secreted in abnormal quantities, and of poor quality; it is of a cheesy or mealy character and incapable of maintaining the connection between the sensitive parts of the foot and the wall. A separation of the crust from the laminae results, also of the sole from the lower margin of the bone; the imperfect horn dries rapidly, shrinks in bulk, causing a vacant space, which emits a hollow sound when the wall is tapped with a hammer. In extreme cases there is a bulging of the wall over the affected parts. Lameness is not always present, but may occur at any time, especially if sand or dirt become insinuated. Treatment is slow, and not always followed by success. It consists in the removal, with the knife, of all diseased parts, and the promotion of a fresh growth of healthy horn by moisture applied to the foot, and repeated blisters to the coronet. It would require an expert to operate, and a long rest—probably 8 to 10 months—to allow fresh horn to grow. As already stated, even this is not always successful, particularly if the condition be due to some congenital predisposition. Probably your best plan is careful shoeing, and not in any case allowing the shoe to remain on more than 4 weeks without removing and re-setting. If necessary, have the shoe removed every 3 weeks. Shoe with bar shoe, giving good sole and frog pressure, and do not allow toe clips on shoe. J. H. REED, V. S.]

BLEMISH ON COLT'S LEG—MARE FAVORS HER KNEES.

F. J. E., Grey Co., Ont.:—"I have a colt a year old; some time last fall, while running with larger ones, got kicked on the stifle, not on the front, but on the side of the stifle bone, causing it to swell up; there has been nothing done for it; the lump is not large, but noticeable, and he walks quite stiff. Can there be anything done to remove the lump and cure the lameness?"

"2. I have a mare three years old, general purpose; has worked some this spring. When she stands she leans forward slightly on her knees. It does not hurt her any in work, but does in looks, as she is very handsome in other respects. Can I do anything in the way of improvement by shoeing, and how should she be shod?"

[1. Clip hair off the lump and apply the following blister, which should be rubbed in well for twenty minutes (oil on the third day with sweet oil): biniodide of mercury and iodine crystals, of each one dram; lard, one ounce; well mixed.

2. Your mare may be helped by applying a shoe with heel calks five-eighths of an inch high and no toe calks. See that she has no corns or tenderness about the heels upon which the shoes are pressing. Keep her toes well pared and see that the floor in her stall is level. Blister the back tendons with caustic balsam once every three weeks for three applications.]

CONGESTED QUARTER IN COW'S UDDER.

C. W. E., Hastings Co., Ont.:—"We have a cow that we bought this spring when she had been milking about two weeks. From the very first, one teat seemed very hard to milk, but she gave a fairly good mess until lately, when a sort of caking appeared in the udder above the teat, and it became very hard to get much milk from the teat. It soon became impossible to get any milk from the quarter, and we got a milking tube, and only by the use of that could we get the milk. The caking, however, remains in the udder. In what way would you recommend her to be treated?"

[Apply the following ointment once a day to the teat and quarter: biniodide of mercury, 10 grains; lard, one ounce. Be very careful in using the tube. Remove as soon as the milk ceases to flow, so as to avoid the introduction of air into the udder. It is also very important to keep the tube very clean by boiling before using.]

CHRONIC COUGH.

FARMER, Norfolk Co., Ont.:—"I have a valuable horse, eleven years old, that has had a cough occasionally for perhaps a year; lately it has been more frequent, and just now is quite bad. I have started wetting his hay, do you think it a good plan?"

"Can you tell me what is the cause, and give me a remedy? I have always been careful about feeding musty hay, etc."

"I am feeding hay and chopped oats, and a mixture of equal parts; he is in good condition, and has never been sick."

[Your horse has chronic cough, resulting, in all probability, from an attack of influenza, which

possibly may have been so slight that you did not think treatment necessary. The present condition is hard to treat successfully, but in many cases the following treatment will effect a cure; at all events, it will relieve the symptoms: As in mostly all cases of this kind there is a tendency to heaves (the lungs becoming involved through sympathy), you should be very careful to feed well-cured hay and grain of good quality; dampen the hay slightly with lime-water, and also dampen his grain if you are feeding it dry. Give one of the following powders every night in damp or boiled food: Pulverized liquorice root, 4 ozs.; do. digitalis, 12 drs.; tartar emetic, 3 ozs.; calomel, 2 ozs.; mix, and make into 24 powders. If necessary, keep up giving the powders until 4 doz. have been given. J. H. REED.]

CALF WITH A COUGH.

SUBSCRIBER, Huron Co., Ont.:—"I have a valuable calf four months old, in good thrifty condition, eats and drinks well, and seems all right every way except for a dry sort of cough, which it took when it was about ten days old. Has no discharge at nostrils or eyes. Cough continues about the same. Do you think tuberculosis is what ails him? Will a calf take the disease at that age? What would you advise me to do with him?"

[From symptoms given, I suspect your calf is tubercular. Calves contract and develop symptoms of the disease at a very early age under favorable circumstances. The absence of any discharge from nostrils, and also of any symptoms of disease except the cough, strongly indicate that the calf is affected as stated. Still, it is impossible to say with any considerable degree of certainty, and even though a personal examination were made, it would still be impossible to state definitely whether or not he be tubercular. The disease cannot be diagnosed positively until the advanced stages in any way except by the tuberculin test. If you are thinking of keeping the calf for breeding purposes, it would be well to have him tested. Your veterinarian will doubtless understand how it is done. If not, by writing to the Bacteriological Dept., O. A. C., Guelph, he can have the tuberculin sent him along with instructions. If the calf be diseased to such an extent as to show suspicious symptoms at the age of yours, he must be considered undesirable for breeding purposes and unsafe to have with healthy cattle. It is very doubtful if tubercular parents will produce young that have congenital tuberculosis. This may occur, but very rarely. At the same time, diseased animals are unsafe to have in a herd on account of the danger of infection. I would certainly advise you to have this calf tested with tuberculin. J. H. REED.]

RATION FOR DRIVING HORSE—PINWORMS.

IGNORAMUS:—"What ration do you recommend for driving horse averaging 10 or 12 miles daily? Do you advise pasturing where possible?"

"2. What is the cause of fine, reddish colored worms, about 1 inch long, in fresh horse droppings when scouring, after being on grass? They are very lively, and wriggle down out of sight in a few minutes. What treatment is necessary? The horse seems in good condition, and does not scour easily on the road."

[1. There is no other ration that quite takes the place of good hay and oats for a driving horse. In the morning water the horse and give a gallon of clean oats, mixed with enough cut hay to cause him to masticate well. Half a gallon of wheat bran and a pinch of salt will improve the feed. Give what clean, fresh hay, chiefly timothy, he will eat in half an hour. A horse should not start out to drive on a loaded stomach; he should, therefore, have finished his breakfast more than half an hour before being hitched. At noon he should receive the same food, with less hay than in the morning, and his night meal should be the same, with all the hay he cares to eat in probably two hours. Always water before feeding. An occasional feed of grass will do the horse good, but it should not be allowed on an empty stomach.

2. We take it that the worms referred to are pinworms, which infest only the rectum of the horse. They are small, pointed at one end, and from 1 to 2 inches long. Medicine given by mouth will do very little good, although a physic will be quite in place. Give as a drench, 8 drams of Barbadoes aloes and 1 teaspoonful each of baking soda and ginger, dissolved in a pint of warm water. After this, clean out the rectum by hand and inject the following: Quassia chips, 1 lb., and soft water, 1 gallon. Boil down to half a gallon, strain off, and inject with a large syringe. Retain the injection in the rectum half an hour by holding down the tail firmly. Clean out the rectum, and give the injection once a week until the worms disappear.]

LAMINITIS OR FOUNDER.

F. B., Cumberland Co., Nova Scotia:—"I have a Clyde mare, fourteen years old, that seems to be incurably lame. I had the veterinary to her, and he said it was 'founder.' The hoofs are tough and thrifty looking, and always seem to be about the right temperature, but they are rather narrow at the heels and grown in ridges. The frog is large, and on each side of it the sole has grown thick so as to form a hump. She stands in the stable with feet braced out in front of her. Both feet are alike, and she does not favor one more than the other."

[The effects of laminitis are so many that it is impossible to give a full list. It is recognized by the fact that an animal has suffered from a slight attack and has recovered. This will, as years pass on, cause the hoof to grow and become pinched,

Bruises of the sole follow, and the secretion of the horn at the coronet varies so we get the ridges like the horn of a ram. In some cases where the animal places all his weight on the heels the ridges are wide apart at the heels and close together in the front. Animals affected with pumiced foot progress in a very slow, painful manner, and to relieve the feet often become wasted under the shoulder blades, or, as we sometimes say, become flat-chested. On no account have the soles or frog touched with a knife or rasp. While it may temporarily relieve the pain on pressure, it at the same time allows of more exudation between the coffin bone and sole, and renders it more liable to bruises. The only benefit that can possibly be effected is to apply what is known as a dish bar shoe. Get the blacksmith to make a pair of bar shoes one inch thick at the toe, tapering off to a knife edge, turned slightly up like a quoit. This will allow the animal to place the heel on the ground when progressing, with a fair amount of comfort. DR. W. MOLE, M.R.C.V.S., Toronto.]

GOITRE IN PIGS.

J. C. S., Bruce Co., Ont.:—"I wintered 11 grade Berkshire hogs, and they did very well for about three months, when four or five of them began coughing, and finally three of them died about two weeks ago. I opened them and found a growth in their throats about the size of a pig's kidney, which seemed to press on the windpipe till they choked, as the windpipe was very flat where the lump pressed on it. The lump was loose and would lift off when the throat was opened. It did not show on the outside of the skin. I had them in a stone stable. First, can you tell me what the trouble was? Second, do you think it would be safe to open the pigs' throats and take out the lump?"

[Your pigs were affected with goitre, an enlargement of the thyroid glands. This condition occasionally occurs in mostly all animals. Water containing large quantities of lime is supposed to cause it. I have frequently noticed it in pigs whose surroundings were damp. Stone stables are inclined to sweat in frosty weather and thereby produce a dampness which might be the cause in your case. As to dissecting the glands out as you mention, I may say that if the operation be skillfully performed and proper after-attention paid to the animals, it would be followed by success. The glands are ductless, and the animal will thrive without them, but there are many blood vessels in this neighborhood, and there is great danger of bleeding, unless the operation be very carefully performed. If, in the early stages, a little tincture of iodine be injected into the swelling with a hypodermic syringe, it would cause the enlargement to disappear, but when such a stage is reached that there is danger of suffocation, nothing but an operation will suffice. It is probable a change of quarters and regular exercise in the open air, when the weather be not excessively cold, would act as a preventive. J. H. REED, V. S.]

SPRAINED FETLOCK.

W. E., Simcoe Co., Ont.:—"I have a horse, 5 years old, which has been lame in his left hind leg for about a week. As far as I can judge, it is a sprain of the fetlock joint, as the joint is slightly swollen. He is not very lame, but I have kept him idle most of the time. I have been applying St. Jacob's Oil, but as yet without apparent effect. Please kindly inform me whether the treatment you prescribe in your last issue for 'sprain of the back tendons' (May 5) is applicable to this case, or whether the blistering should be omitted in view of the recent nature of the injury. It is scarcely necessary for me to add a word to what others have said in praise of the ADVOCATE, but I consider it the best farmers' paper I have seen."

[The injury to your horse, being of recent occurrence, requires rather different treatment from the case referred to. If you have made a correct diagnosis, a cure should be effected in about three weeks. Give the horse perfect rest in a comfortable box stall; feed lightly. Good practice to give a slight purgative—say 6 drs. aloes and 2 drs. ginger. Bathe the affected joint well three times daily with warm water, and apply with smart friction some of the following liniment: Spirits of ammonia, oil of turpentine and tincture of arnica, of each 2 ozs.; alcohol, 4 ozs.; water sufficient to make a pint. If, after the lameness disappears, the swelling does not also disappear in a reasonable time—say a couple of weeks—it would be well to apply a blister; or if the lameness does not disappear, as occasionally happens in severe cases, you should blister. You may use the blister referred to or the following: 2 drs. each of pulverized cantharides and biniodide of mercury, and 2 ozs. vaseline. Clip the hairs off the parts, and rub the ointment well in. Tie the head, so that he cannot bite the parts. In 24 hours rub well again with the ointment, and 24 hours longer wash off and apply a little sweet oil. Let the head down now and apply a little oil every day until the scale comes off, when, if necessary, blister again. J. H. REED, V. S.]

SORE SHOULDERS.

W. B., Norfolk Co., Ont.:—"I have a mare troubled with small boils on her neck; often as many as six at one time, and varying in size from a pea to a ten-cent piece. Some of them contain matter and others blood. I feed her oat straw, with three quarts of oats chopped and two quarts of bran, three times a day. She is in good condition, and as sleek as a ribbon. Could you please give me some idea what it is, and what to do for her?"

[There is nothing more tiresome to a good horse—

man than to be constantly troubled with sore shoulders and to small pustules or boils. It will be necessary to pluck out the hair of the mane immediately under the crutch of the collar. Have it newly lined with flannel. Then well wash with soap and water, make a paste of linseed meal and apply by means of an old large collar. As soon as the boil softens open freely with a lancet, and follow by a dressing of an ointment composed as follows: Resin ointment, 4 ounces; oxide of zinc, 1 ounce; carbolic acid, 1 ounce. This should be applied to the interior of the wounds every day. You may expect improvement in a week from commencement of treatment.

DR. W. MOLE.]

NAVEL ILL—JOINT ILL—ARTHRITIS.

W. R. R., Huntingdon Co., Que.:—"I have a colt, about 2 weeks old, with a swollen joint in off hind leg. What drew my attention to it first was its being unable to rise, and upon examining it found the off hind joint very much swollen. There is a lump on the inside, and also on the outside, immediately behind and between the main cord and joint, and also on the inside front of leg, on joint. It is a little lame, but can rise now itself to suck, otherwise it is quite bright. There is no appearance of it having been stamped on or otherwise bruised. Do you think it is a disease in colt, or would it be caused by a sprain?"

"2. Please inform me what to do with a mare that is nursing? Her blood must be in a bad state, as her legs are all scabs and hair is coming off. I would not farm without the FARMER'S ADVOCATE."

[It is possible that the colt has in some way received an injury to the joint to cause the swelling, inflammation and lameness. If so, a recovery will take place, which can be hastened by frequently bathing the affected joint with warm water, and applying the following lotion: Tincture opium, 1 ounce; sugar of lead, 1 dram; water, 8 ounces. I am, however, inclined to the opinion that the colt is affected with navel ill. This is a very serious disease in colts, being very prevalent in some sections, and occasionally met with in mostly all sections. In some sections it occasionally assumes almost an epidemic form. The symptoms presented are as follows: At a few days to a couple of weeks old, a colt that apparently has been all right and doing well is noticed to be lame in one or more limbs, in some cases unable to rise. An examination will reveal a swelling and soreness in one or more of the joints. The knees and hocks are the favorite seat. A person is inclined to think that the dam has trodden on it, or that it has been injured in some way, but a careful examination will not reveal any abrasion or other symptoms of direct injury. The swellings are usually rather soft, hot and painful. In some cases the joint at first affected, either with or without treatment, will apparently get better and some other joint become affected, the trouble to reappear, after a variable time, in the one primarily diseased. The progress made by the disease differs very much in different patients. In some it is rapid, in others slow. The animal becomes worse, the symptoms increasing in severity, and frequently fresh joints becoming affected. In some cases the swellings become soft and fluctuating, indicating the presence of a fluid; if it be lanced, or ruptured spontaneously, a considerable quantity of a dark, muddy, brownish or grayish colored fluid will escape. In other cases, the quantity of liquid formed is only small. The articular cartilages become destroyed, and when this stage is reached the animal will be very lame, and probably unable to rise; if the joint be manipulated, flexed and extended, the ends of the bones (from which the cartilage has sloughed) can be heard and felt grating against each other. In mostly all cases of this disease, the symptoms increase with greater or less rapidity, notwithstanding any treatment that can be adopted, until death occurs. In some cases very great care and nursing will save the life of the foal, but in any cases where this has occurred in my experience, the joints that were affected never regained their normal condition. A greater or less quantity of articular cartilage had become destroyed (and this cartilage will not be reproduced), the animal would thrive fairly well bodily, but would be crippled, the lameness increasing as age advanced, and eventually have to be destroyed.

Where symptoms simulating those of joint ill or navel ill appear in a colt, and any doubt as to the nature of the trouble exists, it should be treated as for a direct injury. If recovery takes place, we know that it must have been injured in some way, but if positive symptoms of joint ill appears, it is humane to destroy the little thing at once. If we decide, even when positive symptoms are present, to treat, we should be very careful in feeding the dam, and should give 1 dram potassium iodide in her bran twice daily; also give the colt 5 grains potassium iodide in a little of the dam's milk three times daily. Bathe the affected joints almost continuously with warm water, or poultice them, and apply an anodyne lotion same as mentioned for injury, or a cooling lotion, as follows: Sugar of lead, 1 ounce; sulphate of zinc, 6 drams; water, 1 pint. Keep the colt as comfortable as possible, assist it to its feet and hold (if it is not able to stand) it up to nurse. If abscesses form they must be lanced and treated as an ordinary abscess by flushing out well twice daily with warm water, and then a small quantity of, say, carbolic acid 1 part, water 10 parts, injected into cavities.

Causes. Some writers claim that the disease is caused by an impure condition of the dam's blood.

Some state that impure milk is the cause; others, that it is due to cold and dampness, etc. Pathologists at present all admit that the trouble is due to a microbe that gains entrance to the circulation of the colt by means of the navel opening after birth. This germ exists in the earth, dust, manure, etc. Some claim that it does not exist in the earth, and that there is no danger of the disease affecting a colt that is born in the field; but I have known the disease in severe forms to attack foals that never were in a building. Be this as it may, we all acknowledge the essential element of the disease, viz., a germ or microbe, and if we can prevent its entrance into the body we will prevent the disease. All stables where mares are to foal should be kept thoroughly clean. Manure should not be allowed to accumulate. The stalls should be regularly cleaned, and it is good practice to scatter a little slacked lime on the floors; also good practice to sweep off the walls and ceilings and whitewash them at least once a year. These precautions are taken with a view to prevent the propagation, or, in fact, the presence of the germ. But we are unable to tell whether or not we have succeeded in this, and hence, assuming that the germs are present, we must take means to prevent their entrance into the animal. For this purpose some good antiseptic and germicide must be used. Perhaps no preparation will answer this purpose better than corrosive sublimate. Any man who is breeding mares should have on hand at foaling time a solution of this, about 1 to 500; that is, one part corrosive sublimate dissolved in 500 parts water, or 8 grains to 8 ounces water. As soon as possible after birth, dress the navel opening with this solution, and dress 4 or 5 times daily until the opening has healed, which will usually be 3 or 4 days. This precaution, while not always necessary, is at all events advisable. It will destroy any germs with which it comes in contact, and also acts as a good disinfectant, and assists healing.

2. As to the other mare, all that will be necessary is to dress the legs twice daily with 1 part carbolic acid to 60 parts sweet oil. J. H. REED, V. S.]

STERILITY IN MARE.

O. M., Russell Co., Ont.:—"We have a mare, 12 years old this spring. For the past four years we bred her to the same stallion, and she never got in foal. We would like to raise a colt from her. Please advise me how to get her to breed?"

[All that I can suggest is to get an expert to make a manual examination to ascertain if the neck of the womb be closed, and if so, force an opening, and then breed the mare. There are many causes of sterility in mares, but the one mentioned is about the only removable one. J. H. REED, V. S.]

Miscellaneous.

REARING QUEEN BEES.

H. A. S., London, Ont.:—"I have a well-bred Golden Italian queen, and I wish to raise several queens from this hive so that I may distribute them among my neighbors. Could you describe a simple and handy method for the raising of queens?"

[To rear queens successfully requires quite a bit of experience, but here is a simple method. Take from the Italian stock two or three cards containing eggs and brood in all stages of development (replacing them with empty combs), and give to a strong colony from which you have removed the queen and all eggs and brood. On the eighth day a lot of queen cells will be started on these combs.

On the third day the three empty combs in the Italian stock will have eggs enough to be placed in another strong colony, from which you have also removed queen, eggs and brood, to start more cells. This operation may be repeated several times. All this should be done when weather becomes settled and fine and honey is coming in freely.

The queen cells can be introduced in queenless hives, or nuclei (small hives containing two combs) may be formed for the full development and perfection of the queens. MORLEY PETTIT. Middlesex Co., Ont.]

TERMS OF FREE ENTRY INTO U. S. OF PEDIGREED STOCK.

A. L., Elgin Co., Ont.:—"Who is secretary of the American Shorthorn Association? Have animals to be registered in the States before they can cross the lines free of duty? Will our local vet. do to examine the cattle for disease? Also, at what ports must they be entered?"

[J. H. Pickerell, Springfield, Illinois, is the secretary. Animals to be entitled to free entry must be registered in the American Shorthorn Herd Book, and in order to this their ancestors back to the imported animals must also be recorded in that book. The Government Veterinary Inspector of your district must apply the tuberculin test and furnish a chart of the result, to accompany shipping bill. No particular ports are named at which animals may enter.]

Dates of Summer Fairs.

Wawanesa	July 17th.
Carman	July 18th and 19th.
Portage la Prairie	July 18th and 19th.
Neepawa	July 18th and 19th.
Yorkton	July 19th and 20th.
Virden	July 23rd to 25th.
Winnipeg Industrial	July 31st to Aug. 3rd.
Brandon	Aug.
Fort Qu'Appelle	Aug.
Moosomin	Aug. 7th and 8th.
Neepawa	Aug. 7th and 8th.
Souris	Aug. 7th and 8th.
Regina	Aug. 10th.
Calgary	Sept. 12th, to 15th.

Chatty Stock Letter from Chicago.

FROM OUR OWN CORRESPONDENT.

Following table shows current and comparative live stock prices:

	Extreme prices now.	Top Prices		
		Two weeks ago.	1899	1898
Beef cattle.....	\$5 20 to 5 60	\$5 80	\$5 55	\$5 15
1500 lbs. up.....	5 00 to 5 75	5 50	5 65	5 15
1350 to 1500 lbs.....	4 75 to 5 70	5 50	5 50	5 25
1200 to 1350 lbs.....	4 50 to 5 45	5 15	5 40	4 90
1050 to 1200 lbs.....	4 25 to 5 25	4 70	5 25	4 80
Hogs.....	5 00 to 5 50	5 37 1/2	3 95	4 60
Mixed.....	5 00 to 5 52 1/2	5 40	4 05	4 70
Heavy.....	3 95 to 5 42 1/2	5 30	3 95	4 40
Light.....	4 00 to 5 10	5 00	3 85	4 25
Pigs.....	3 75 to 5 30	5 75	5 60	4 60
Sheep.....	4 75 to 5 35	5 70	5 55	4 40
Natives.....	5 25 to 5 80	6 20	5 85	5 10
Yearlings.....	4 25 to 6 60	7 40	7 00	6 10
Lambs.....	6 90 to 7 35	7 40	7 00	7 00
Colorado lambs.....	3 75 to 8 50	10 00	8 00	7 00
Spring lambs.....				

Cattle prices are not making feeders much money just now, for the simple reason that prices for store cattle and the cost of corn has been too great. The cattle market here is in good condition, however, and there is a very broad, strong demand. The hog situation is a surprise to not only packers, but producers. The supply is larger than expected, and yet the demand for pork and pork products is so very strong that prices are very much higher than a year ago.

Swift has lately bought an additional plant at Chicago, and Armour has recently installed a million-dollar electric power plant.

Canadian store cattle continue to come this way, and they outsell the majority of the States cattle, as they are better bred.

Horses on export account are selling very freely, and the market is unusually active for all desirable classes. The supply of good horses is really not equal to the home demand.

There are now only about 80 cars of Colorado lambs to come forward. Breeders have made big money on them this year.

The Greatest Meat Concern in the World Enlarges Its Chicago Plant.

By the purchase of the real estate and plant of the Chicago Packing and Provision Co. Swift & Company, the greatest meat and provision concern in the world, has made a substantial enlargement of their already mammoth Chicago establishment.

Before this addition at Chicago, Swift & Company had the following remarkable packing plant dimensions in acreage at Chicago, with comparisons at other points:

	Buildings, Acres.	Floor Space, Acres.	Land, Acres.
Chicago.....	28	67 1/2	40 1/2
Kansas City.....	6	28	19 1/2
Omaha.....	6	19 1/2	23
St. Louis.....	4 1/2	13 1/2	27 1/2
St. Joseph.....	4 1/2	16 1/2	19 1/2
St. Paul.....	3	6	16
Total.....	65	150 1/2	145 1/2

The following are some interesting items about Swift & Company, covering the fiscal year ending December 31, 1899: For the year 1899 the total sales aggregated more than \$160,000,000.

The total shipments for 1899 amounted to 110,969 carloads. The following figures give the total largest day's slaughtering in their six packing plants, Chicago, Kansas City, Omaha, St. Louis, St. Joseph, St. Paul:

Cattle.....	10,313
Sheep.....	19,607
Hogs.....	25,865
Total.....	56,815

Price of Meat Raised in England.

The prohibition of the landing of Argentine cattle in England has had the effect of increasing the price of meat in the wholesale market by from 1d. to 1 1/2d. a pound, and a further increase is anticipated. Wholesale butchers and importers of South American cattle state that the loss on recent cargoes where disease was suspected has amounted to 50s. per bullock and 6s. per sheep, and loud complaints are heard that longer notice was not given by the authorities of the Board of Agriculture. The order has, it is stated, caused consternation among the Glasgow shippers and butchers. The prices of cattle and sheep have advanced to the highest price since 1882, and the retail butchers will enforce an advance of 1d. per pound on beef and 2d. on mutton. As the poorer classes cannot afford to pay the advance, increased trade will fall on frozen meat. It is said that Argentine cattle will be shipped to Antwerp for slaughtering and transshipment to England.

Argentine Wheat Prospects.

The excellence of the wheat crop in all districts of the Argentine (writes Mr. W. Goodwin from Buenos Ayres), with the exception of Entre Rios and the north of Santa Fe, "will ensure an export surplus as large as that of last year, and the quality appears to keep up in a remarkable manner. The market has been well supplied with tonnage, many steamers having come from the Cape in ballast, but receipts are likely to fall off because the weather is now favorable for plowing. It is difficult to estimate the new maize crop yet, but we can be sure that with the satisfactory prices obtainable, it will all be gathered this year. The condition leaves much to be desired in the way of cold, dry weather."

How to Deal with Greasy Heels.

An excellent lotion for dressing greasy heels in horses consists of an ounce each of acetate of lead and sulphate of zinc, along with four ounces of glycerine thoroughly incorporated with two quarts of cold water. The affected portions should be dressed twice daily with this lotion, taking care that before every dressing the part is thoroughly washed out and then dried. Under treatment of this kind we have known some very bad cases of greasy heel to "yield" in a comparatively short time. The administration of a mild physic ball once a week will also be found conducive to beneficial results in dealing with this disease. Cleanliness is another important factor; every precaution should be taken to keep the affected part as free from dirt of all kinds as possible.

Prof. F. H. King, of the Wisconsin Agricultural College, Madison, Wis., has in preparation a bulletin giving the results of his latest investigations of silos and silage and his ideas and views of how to best construct the silo. The bulletin, which will come from the press in five or six weeks, will be profusely illustrated. Prof. Henry states that he will gladly supply a copy of this bulletin free of charge to any resident of the State, and also to any non-residents who will send in their application and address, accompanying the same with a two-cent stamp to pay cost of mailing.



The Mutiny of the "Helen Gray."

BY GEORGE MANVILLE FENN.

(Continued from page 279.)

I was going to speak, but I felt her hands catch at my arm, and that in the darkness she had sunk down, and the next moment her head was against my knee, and I could feel that she was struggling to master the wild, hysterical sobs which rose for utterance.

I thought it best to be silent for a time; then, as she grew more calm, I knelt down by her and took her hand, and told her why I had come; that there was another man on board, and that either by taking to the boat or by seeking refuge in the forest, we meant to try and save her and her child. When I could not say, but if she would trust me she must be ready at some signal that I would give, and then I waited to hear her words.

"Yes," she said, "I trust you, for you have come in answer to my prayers. But tell me—give me some hope—my husband?"

I knelt there in the darkness by her side, praying for help and that the horror that I knew might be softened to her, but I could not speak.

"Yes," she said, softly; "I know, and I would pray for death too, but there is his child. What ever happens to me you will try and save her from these fiends?"

"If I live," I said, hoarsely. "But now I must go."

"But how did you come?" she whispered. "There is always one of them overhead."

I told her, and she shuddered, but I was in good heart now, and bidding her wait until we could contrive some plan, I crept out of the cabin window, grasped the cable, and with comparative ease now reached the tree on shore. Then, more by good fortune than anything else, I succeeded in finding the other, crept back along the fore cable, and on board. I slipped down into the fore-cabin, where, to my horror, I found Joe Stacey asleep and breathing noisily, though in the next moment I read in his safety during my little journey, for any Malay who had passed the hatch would have supposed it was I.

CHAPTER VIII.

A hot, weary week went slowly by, during which I had to help land all kinds of stores, and these were carried up into the huts, one being gradually made more and more into a stronghold, while others were treated as warehouses. Sails and tarpaulings were got ashore and rigged over the dilapidated roofs, and it was evident that the ship was to be by slow degrees completely stripped.

I still noted that whenever I went ashore to work, Ismael stayed on board, and Mrs. Barton and the child were allowed to come out of the cabin and go on the poop-deck, but before I returned she was back in the cabin and under lock and key.

There was something painful in the sound of the child's merry laughter, for as soon as she was free all the trouble was forgotten and she raced about the deck perfectly happy; but I was obliged to own that it was natural, and I used to smile to myself as I heard her cheery, silvery little voice.

After a time Ismael made advances to me and suggested that I should have my meals with him and his men, but I shook my head and was allowed to take, in a sulky way, an ample supply down into the fore-cabin, so that I had no difficulty about supplying my companion's wants, Joe spending a great deal of the night-time in comparative freedom, but, retiring into his hole when I was going ashore, the board was replaced and no one ever went down.

I had crept out along the cable to the shore and by the other cable to the cabin four times in perfect safety, and said what I could to cheer the prisoner, but no plan had been made, for there was only one way of escape—down the river. As to taking to the jungle, before I had been ashore many times I had quite come to the conclusion that it would be impossible to get any distance that way. There had once been a bit of a clearing within the old village was made, but even then the forest had surrounded it like an impenetrable wall, and from this the wonderful jungle growth had pushed out till the open space had nearly all been won back.

As I afterwards learned, there was hardly a path or track in the country except such as had been made by the wild beasts. The rivers were the only roads, and up the stream we were on, or down it, were the only ways of escape.

"Well," Joe would say as we lay there in the night, smoking, "I'm dead again putting to sea in an open boat. I know what it is, messmet. We may keep so close inshore that we can get water, but food there's none, and I don't want to say to you some fine day, 'Now, my lad, it's either die or live, and there's no way o' living no longer unless we eat that poor little lass.'"

"Don't talk like an idiot," I cried, fiercely. "And look here; there is no other way. Mrs. Barton has been begging me to try and escape and take her child; not to mind her."

"An' we're not going to leave her behind," growled Joe. "Of course not. We must save up provisions, and some night get a water-cask into the boat."

"And then try uprards, lad. It's better than putting to sea."

"If we go up we shall encounter falls and rapids, and if we could pass them, where should we be going? Only further into the forest amongst savage beasts."

"Better than savage men," grunted Joe. "All right, then, my lad, downrards be it, and if it comes to the worst, why it do."

"We shall be picked up by some vessel. Only let's get away."

"Right you are, my lad. I don't want to stay here. Another year o' this life, and I should turn into a rat. I know I should. Well, what are we to do?"

"First of all, collect all the food we can here. Then some night we must get one of the boats alongside, put in our stores, run her under the cabin window, and I could get up by a rope, and lower Mrs. Barton and the child, join you, and then go down the river, of course choosing a time when the tide ran fast."

"To be sure," said Joe, "that's the way, my lad, but I don't see how it's going to be done."

"Don't throw obstacles in the way, man," I said, impatiently.

"No, lad, plenty without," he replied.

"Now," I whispered, "I see. When I'm ashore to the store I'll put a lot of the meat tins and biscuits together ready for removal. And, yes, I can arrange two guns and ammunition near at hand, so that we can get them too. The only difficulty is the water."

"Tchah!" ejaculated Joe, "only difficulty? Why, it's all difficulty, that's what it is. When are you going to do it? When the Malays go asleep?"

"I don't know," I said, sadly, "but we are going to do it, Joe Stacey, we are."

"Right you are, then, my lad. Anything for a bit o' fresh air. I'm ready, sink or swim."

I knew I could depend upon him, and the very next night I

told Mrs. Barton that I might call upon her to act at any hour. For sometimes I thought that it might be wiser to act by day than during the darkness, because the Malays would be less watchful.

There was a boat always hanging alongside by the painter, but somehow I had my eyes fixed on the one hanging by the davits. This had oars and sail, and a small cask lashed amidships. If we could get some food and water in that, I felt sure Joe and I could lower her down, and then the task, if we could elude the Malays' watchfulness, would be easy.

Joe said "all right" to everything I suggested.

"You settle it, my lad, and I'll do what you say," he always replied; and with so staunch a man I felt that I must succeed.

I set to work at once when I was ashore, and found no difficulty in bestowing a case of biscuits and can of tinned meat, and a few other stores all together, where, some dark night, they could easily be carried down to the boat. The guns and ammunition, too, were just as easy to put ready, but I could not get on so well about the water, to fill the cask in the boat. All I could do was to climb into it with a couple of bottles full every night and empty them; but it was slow work.

My plan was to carry a short rope some night along the cable to Mrs. Barton's cabin, show her how she could fasten it for me to climb up from the boat when we were beneath, and then I could lower her down. While, of course, before this, Joe and I would have fetched the stores from the hut ashore.

"All as easy as drink a glass of grog, my lad," Joe said, "if you could only give these East-Indy varmint a dose o' sleeping drops, or if they would only get well drunk."

But there was no chance of giving them the former, and as to the latter, though there was an ample supply of wine, they were abstemious to a degree. I knew that my only chance was by eluding their watchfulness, and I waited my time, after again warning Mrs. Barton to be ready and on the look-out every night.

That night was long in coming, but I did not waste time, for by degrees I managed to fill the little barrel, and by moving the boat a bit every night I shifted it so that it hung out board instead of in. The provisions and arms were ready for the fetching, and all we wanted was darkness, a good tide, and a time when the Malays were not on the alert.

That time came at last just when I was in despair; for one dark night, when I crept out of the hatchway I was quite startled by seeing that the Malays, for some reason that I did not understand, were all together in the cabin.

There was a light, and I counted them, only four, but directly after I saw the figure of another pass in—Ismael, and they became directly after earnest in conversation.

Now was my time. They would be only divided from Mrs. Barton's cabin by the bulkhead, but the daring of the attempt would, I felt, be in favor of success, and gliding back, I roused up Joe, who was asleep.

"Come on," I said.

He rose without a word and followed me on deck, where a galley showed the Malays beneath the cabin lamp all eagerly talking together.

"Ready," I whispered, and together we seized the falls, cast them loose, and the boat began to sink slowly, the noise the blocks and ropes made in the moving sending a shiver through me as I lowered away with my head turned toward the cabin.

But they did not hear us, and the boat kissed the water with a faint splash.

"Down with you," I whispered, "cast off the falls, and work your way round under the cabin window. I'll be there as soon as I can."

"But the grub, lad?"

"Afterwards, man. We'll get that when we have them safe."

Joe climbed on the bulwark, and seizing the falls, slid down into the boat, but I did not wait to see him cast off. That I knew he could easily do, and after a glance toward where the Malays were still talking eagerly, I crept across the deck, went forward, and directly after I was crawling along the mooring cable.

I was soon ashore, dropping down lightly from where the big rope was made fast to the palm-tree, and too much accustomed to make another error, I reached the second palm, climbed up, and began to travel back toward the ship.

It rose without a word and followed me on deck, where a galley showed the Malays beneath the cabin lamp all eagerly talking together.

"Ready," I whispered, and together we seized the falls, cast them loose, and the boat began to sink slowly, the noise the blocks and ropes made in the moving sending a shiver through me as I lowered away with my head turned toward the cabin.

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"Down with you," I whispered, "cast off the falls, and work your way round under the cabin window. I'll be there as soon as I can."

"But the grub, lad?"

"Afterwards, man. We'll get that when we have them safe."

For I could bear the suspense no longer and felt that something must be wrong.

At that moment, clear and sharp out of the darkness, came little Lyddy's voice:

"Mamma, mamma! Someone's there."

"Hush! my dear," whispered her mother in a broken voice.

"But I—"

The rest of the poor little thing's words were drowned by a sudden noise just as I was saying to myself "It's all over!" For there was a yell; a faint crash; the sound of the men in the next cabin leaping to their feet and a rush out on the deck.

"Keep still," I said to Mrs. Barton. "Something has happened; perhaps help has come. Tell me though, can you fasten the cabin door?"

"Yes," she whispered, with her voice trembling. "It is bolted top and bottom. What are you going to do?"

"Go back," I whispered. "I must see what is going on." I climbed out of the window and was in the act of reaching up when there came out of the darkness over my head a dull thud, such as would be produced by an axe descending on wood, something whizzed by me giving me a smart blow on the shoulder, and as I just saved myself by catching at the side of the window, I heard a loud, hissing splash.

I needed no explanation. Someone overhead had divided the stout cable with a tremendous blow from an axe where it was strained over the stern of the vessel just above the cabin window, and my retreat was cut off.

It had been a battle of wits and the Malays proved to be too cunning for me. They must have missed me from the fore-cabin, and, either by previous watching, or divining what I would do, known that I was in the cabin.

But where was Joe? and where was the boat?

CHAPTER IX.

I had climbed back into the cabin and stood thinking—trying to settle what I should do.

There seemed to be two roads open to me, but both led to death.

"Which way shall I die?" I said to myself—"swim for shore and be torn to pieces by those reptiles in the river, or die fighting like a man to save this poor creature and her child?"

It took no consideration and I turned to where I thought Mrs. Barton must be standing in the silence which had succeeded the first alarm.

"Is there anything here you can give me to fight with? Yes, you have a knife."

A whimpering cry arose.

"Hush, Lyddy, my child," came in a stern voice. Then there was a rustling sound and Mrs. Barton's hot breath was on my face.

"Take these," she whispered; "I meant to use them at the last. If you cannot save us, as you are a man and hope to see future happiness, kill us both."

A thrill of joy ran through me, for a couple of revolvers were pressed into my hands.

"Loaded?" I whispered.

"Yes! and there is a box of cartridges here on the table and another revolver."

"Loaded too?"

"Yes."

I drew a long breath full of relief.

"It is too soon to talk of dying," I whispered. "Lie down by your child, out of reach of harm."

At that moment there was a sound at the door as if an iron bar was being used to break it open, and quick as lightning I answered,

"Bang! Bang!"

Two sharp reports of the revolver, two flashes of light, and the dull tearing sound of two bullets passing through the panels.

There was a snarl like that of a wild beast, a fierce muttering, and the crackling sound ceased, while I recocked the weapons and stood listening and thinking that I had five shots more in each, but that when they were fired I did not know how to extract the empty cartridges and reload.

Just then a hand touched me and another revolver was pushed against my breast.

"My husband taught me how to load pistols," Mrs. Barton whispered. "Ah, quick! the window!"

I could see nothing, but there was a sound there as of someone climbing down to reach us that way.

I fired in the direction of the noise, when there was a terrible yell, a splash, and then the beating of the water beneath, and as I rushed to the window, trembling with horror and thinking of the crocodiles, I heard a low, hoarse groaning sound, and the regular beat of a swimmer, which was continued till there was more splashing; the sound of wading, and a shout from the deck was answered from the shore, telling me that the Malay who had tried to climb in had escaped the reptiles.

"But I must have hit him," I said.

I was touched again, and the pistol changed for one that had been re-charged, and as I stood in the darkness, listening and thinking, I had eighteen shots ready for our enemies.

I had hardly thought this, when there was a whisper outside, and a command given in Malay. Then there were three reports almost together, and as I stood in the smoke from my own pistols, three bullets whizzed by me after tearing through the door.

"Are you hurt?" I whispered.

"No."

"Creep into the berth," I said. "You will be safe there; and wondering whether the next shots would hit me, I sprang aside to the left of the door, crouched in the angle, and listened.

I had not long to wait. Three more bullets came crashing through, and a curiously savage destructive feeling came over me.

"They're wild beasts," I muttered, "and it's life for life."

Then I actually laughed to myself, as in the silence which followed I put one hand over my mouth and uttered a curious sound—a sound halfway between a cry and a groan in a smothered way, and leaped up and came down on the cabin floor with a noise which shook the floor.

My ruse had the desired effect, cunning as the enemy was, for a yell of triumph arose, and there was a rush towards the door, through which, as rapidly as I could fire, I sent four shots, two and two.

There was another shouting sound and a heavy fall. Then once more silence.

By the time I had handed the two revolvers in to be re-charged by Mrs. Barton, where she was in the berth, a couple and before I realized the danger, a shot came in by the window, and struck the floor, while I could tell that it was fired by someone reaching over from the deck.

I crept aft and felt my way to the window just as a rifle was being thrust down again.

My task was easier than the enemy's, for it was an easy thing to press the barrel aside and fire up with my revolver, splintered.

I knew that my shot had done no harm, neither had about twenty more, which were fired through the door, while I merely answered with a shot occasionally; then ceased till, after a little whispering, there was another rush at the door. Then I fired again, and all was silent.

It was very horrible to stand there in the black darkness of that cabin, expecting that the next shot sent might be through ejection kept me going, but the silence was terrible, for I knew that the wretches must be preparing some scheme.

But the hours wore on, and they made no sign, and at last I was fain to come to the conclusion that they meant to wait till daylight, and then make a combined attack.

I could not help a shudder, for I felt that four or perhaps five to one, they would master me, and if they did—

I shuddered again, for I did not dare to think on what

might be the end. I remember, though, that I put up prayer after prayer, more earnest than I had ever offered in my life, and then patiently waited, telling myself that when daylight came it was my duty to try and save that poor woman, who lay in perfect silence within a few feet of where I was on guard.

The night had seemed as if it would never end, as I listened to whisperings, howls from the jungle, then splashing from the river; but the day came suddenly at last, and I looked with horror at the battered and torn panel, and saw how little there was between us and the end.

I glanced round and saw the ghastly face of Mrs. Barton watching me as she lay there, resting on one elbow, while the startled eyes of the little child were there too, peering at me wildly.

I could not help it. I stepped back to the berth and bent down.

"Kiss me, my little darling," I said. "No one shall hurt you while I live."

Two little arms clutched my neck, and a pair of rosy lips were pressed to mine, and then the dear little thing's silvery voice said—

"You made me a ball."

A sob rose in my throat, and the tears came to my eyes. Then, as I stood back on guard, I felt as strong as a man should feel at such a time in defence of those two.

I was not kept long in suspense. I had seen that Mrs. Barton had the cartridge box in the berth, and the other pistol charged. Then I glanced through one of the shot holes, and saw something which filled me with dismay. There were the five Malays there, the one who had tried to climb in having got back to the ship. One had his arm hanging helpless by his side, and another limped; but they all seemed full of the desire to destroy, and, wounded or sound, there were five enemies to fight.

"Well," I said, "their blood be upon their own heads;" and I stood ready to fire as I realized what they were about to do.

A heavy spar had been brought forward, and three of the men were in the act of raising it, to hold by one hand, while the other hand grasped a kris. The two men not so employed each held a rifle, and the next minute I could feel that the cabin door would be burst in.

What was I to do? I should be able to shoot down one or two; but the lithe, active wretches with their kris-es would master me directly, and then—

My thoughts were cut short by a couple of rifle shots, to which I replied by firing as rapidly as I could, as, with a yell, the men dashed forward to send the butt of the spar crash through a panel.

They withdrew it, and, heedless of my firing, came on again, this time to strike the door full on one of the cross-bars, bursting out a great piece; and there was nothing now but a few ragged scraps of wood between us and death, when with a spasm of joy running through me, I shouted out:

"Thank God!"

For through the broken woodwork I could see that a party of white-frocked English sailors with rifles and fixed bayonets were swarming over the side, and the next minute they were running forward with a cheer, and then our enemies were either prisoners or dead.

The explanation was simple. Two of my messages had been picked up by trading vessels and handed to the captain of the gunboat on the station. He had come in search, and his men in a couple of small cutters were camped for the night only a few miles down the river, when, with a broken arm and astride of the capsized boat, Joe floated down and, seeing their fire, hailed them for help.

The result was that the boats were rammed, the search expedition came on and reached the *Helen Gray* just in time, and the next minute they were running forward with a cheer, and then our enemies were either prisoners or dead.

"No," I said, "I don't. But never mind—you brought help."

"But I do mind, mate," he protested. "You told me to come to you, and I was feeling my way along the ship's side when a great pig o' ballast was chucked down, smashed my left arm and went through the side of the boat, capsized her, and I had all I could do to get on her and hold on, expecting to be fetched off by the crocs; but I s'pose I wasn't tasty enough and too tough. But we saved the missus and her bairn."

"Yes," I said, feeling sick with what I had gone through; "we saved the captain's wife and child."

I need not tell you what followed; how the vessel's cargo was re-stowed by the jubilant Jacks, who were as pleased as boys at their success; how the *Helen Gray* reached her destination after all, and how in the future, Mrs. Barton and her child became the firmest friends at my home. I will only record my father's words when he took me to his breast and broke down, and cried upon my shoulder like a child.

"I know it all, my boy," he said. "My brave, true boy! England and home have rung with what you did. I knew it was all there in your heart, and you only needed one of God's great lessons to bring it out, and, thank Him, that lesson was vouchsafed. Jack, lad, I have no fear for your future now."

[THE END.]

The House of Never.

The house of Never is built, they say,
Just over the hills of the By-and-By.
Its gates are reached by a devious way,
Hidden from all but an angel's eye.
It winds about and in and out
The hills and dales to sever.
Once over the hills of the By-and-By
And you are lost in the house of Never.

The house of Never is filled with waits,
With just-in-a-minutes and pretty-soons;
The noise of their wings as they beat the gates
Comes back to earth in the afternoons,
When shadows flit across the sky
And rushes rude endeavor.
To question the hills of the By-and-By
As they ask for the house of Never.

The house of Never was built with tears,
And lost in the hills of By-and-By
Are a million hopes and a million fears,
A baby's smiles and a woman's cry.
The winding way seems bright to-day,
Then darkness falls for ever,
For over the hills of By-and-By
Sorrow waits in the house of Never.

—A fiddler gay was he
Who played the sweetest tunes,
But he sat in the mud
With a sickening thud
And spoiled his pantaloons.



Bedtime.

Three little girls are weary,
Weary of books and of play;
Sad is the world and dreary,
Slowly the time slips away.
Six little feet are aching,
Bowed is each little head,
Yet they are up and shaking
When there is mention of bed.

Bravely they laugh and chatter,
Just for a minute or two;
Then when they end their clatter,
Sleep comes quickly to woo.
Slowly their eyes are closing,
Down again drops ev'ry head,
Three little maids are dozing,
Though they're not ready for bed.

That is their method ever,
Night after night they protest,
Claiming they're sleepy never,
Never in need of their rest;
Nodding and almost dreaming,
Drowsily each little head
Still is forever scheming
Merely to keep out of bed.

The Magic Mirror.

There was once a very bad goblin. One day he



"SISTERS."

was in very good spirits, for he had made a mirror which had this peculiarity, that everything good and beautiful that was reflected in it shrank together into almost nothing, but that whatever was worthless and looked ugly became prominent and looked worse than ever. The most lovely landscapes seen in this mirror looked like boiled spinach, and the handsomest people became hideous, or stood on their heads and had no bodies; their faces were distorted, and a single freckle appeared to spread out over nose and mouth. That was very amusing, the goblin said. When a good thought passed through any person's mind, these were again shown in the mirror, so that the goblin chuckled at his artistic invention. Those who visited at the goblin school—for he kept a goblin school—declared everywhere that a wonder had been wrought. For now, they asserted, one could see, for the first time, how the world and the people in it really looked. Now they wanted to fly up to heaven, to sneer and scoff at the angels themselves. The higher they flew with the mirror, the more it grinned; they could hardly hold it fast. They flew higher and higher, and then the mirror trembled so exceedingly that it fell down out of their hands to the earth, where it was shattered into a hundred million and more fragments. And now this mirror occasioned much more unhappiness than before, for some of the fragments were scarcely larger than a barley corn, and these flew about in the world. Whenever they flew into anyone's eye, they stuck there, and those people saw everything wrongly, or had only eyes for the bad side of a thing, for every little fragment of the mirror had retained the same power which the whole glass possessed. A few persons even got a fragment of the mirror into their hearts, and that was terrible indeed, for such a heart became a block of ice. A few fragments of the mirror were so large that they were used as

window-panes, but it was a bad thing to look at some's friends through these panes. Other pieces were made into spectacles, and then it went badly when people put on these spectacles to see rightly and to be just; and then the goblin laughed loudly, for it pleased him so.

But some little fragments of glass still floated about in the air. HANS CHRISTIAN ANDERSON.

I hope, dear children, none of these little bits of glass will get into your eyes, or make your hearts cold as ice. A splinter got into one little boy's eye and he began to find fault with everybody. Nothing pleased him, he couldn't see the beauty of anything or anybody. He teased the other children and called them unkind names. He thought everyone else was disagreeable, because he was so cross and ill-tempered himself. Do you want to know whether you have already got a piece of the magic mirror in your eye? If you have, you will say sharp words instead of kind ones; you will be more ready to frown than to smile, you will whine instead of laughing, you will be gloomy instead of jolly; you will find troubles instead of pleasures all the day long. Perhaps you will understand this better if I tell you about two little girls.

This little girl is very poor;
She has troubles, she finds, she can scarce endure;
And yet, my dear, she has playthings plenty—
Dolls as many as two and twenty,
Houses and arks and picture-books,
Something pretty wherever she looks.
But half the time she's puzzled to know
What to do with the wonderful show.
Tired of her dollies two and twenty,
And bored with her various toys a-plenty.

That little girl is very rich,
With an old doll like a perfect witch,
A broken chair and a bit of delf,
And a wee cracked cup on the closet shelf.
She can play with only a row of pins;
Houses and gardens, arks and bins,
She makes with her chubby fingers small,
And she never asks for a toy at all.
Unseen, around her the fairies stray,
Giving her bright thoughts every day.

Poor little girl and rich little girl,
How nice it would be if in time's swift whirl
You could, perhaps not change your places,
But catch a glimpse of each other's faces;
For each to the other could something give
Which would make the child-life sweeter to live,
For both could give and both could share
Something the other had to spare."

Now you understand what I mean, don't you? To have plenty of money and lots of toys is not to be rich. The really rich people are those who know how to be happy, those who can find pleasure in everything. The poor people are those who are tired of everything, and don't know what to do with their time.
COUSIN DOROTHY.

A Literary Curiosity.

The following is one of the most remarkable compositions we have ever met with. It evinces an ingenuity of arrangement peculiarly its own. Explanation: The initial capitals spell, "My boast is in the glorious cross of Christ." The words in *italic*, when read from top to bottom and bottom to top, form the Lord's prayer complete.

Make known the gospel truths, our father King,
Yield us thy hearts, Father, from above,
Bless us with graces which feelingly can sing,
"Our life thou art for ever, God of love;"
Assuage our grief in love for Christ, we pray,
Since the bright Prince of Heaven and glory died.

Took all our sins and *hallowed* the display,
In being first a man and then was crucified,
Stupendous God! Thy grace and power make known;
In Jesus' name let all the world rejoice,
Now, labour in Thy heavenly kingdom own;
That blessed kingdom, for Thy saints the choice,
How vile to come to Thee is all our cry,
Enemies to Thyself and all that's *Thine*;
Graceless our will; we live for vanity,
Loathing our being evil in design,
God, Thy will be done from earth to Heaven,
Reclining on the Gospel let us live,
In earth from sin delivered and forgiven,
Oh! us Thyself but teach us to forgive,
Unless Thy power *temptation* doth destroy,
Sure is our fall into the depths of woe,
Carnal in mind, we've not a glimpse of joy
Raised against Heaven; to us hope cannot flow,
Give us grace and lead us on Thy way;
Shine on us with Thy love and give us peace,
Self and this sin that rise against us slay,
Oh, grant each day our trespasses may cease,
Forgive our evil deeds that oft we do,
Convince us daily of them to our shame,
Help us with heavenly bread; forgive us, too,
Recurrent lusts, and we'll adore Thy name;
In Thy forgiveness we as saints can die,
Since for us our trespasses so high,
Thy Son, our Saviour, bled on Calvary.

"Sisters."

The unaffected attitudes of these two are very well drawn, especially the easy clasp of the hands and the upward glance of the eyes, in the one girl, contrasting with the downward glance of the other. Both sweet faces are full of expression, and one can well imagine that this is perhaps a quiet twilight hour, when thoughts are exchanged and sisterly confidences revealed, to the subdued accompaniment of the mandolin. The dresses, too, are so simple, yet graceful—a well-drawn and charming picture.

Work with all the speed and ease you can, without breaking your head.

THE QUIET HOUR.

Lift Up Your Hearts.

"Lift up your hearts;" I hear the summons pealing
Forth from the golden altar where He stands;
Our great High Priest, the Father's love revealing
In priestly act, with pleading, outspread hands.

"Lift up your hearts;" with hearts to heaven soaring
I hear the Church shout forth her glad reply;
"We lift them up unto the Lord adoring,
Our God and Thine, through Thee, we glorify."

"Lift up your hearts;" Alas, O Lord, I cannot
Lift up aright my burdened heart to Thee,
Thou knowest, Lord, the care that presses on it,
The chains that bind it struggling to be free.

O Lord, Divine! Thy promise comes to cheer me;
O Voice of pity! blessing and thrice blest,
"Come unto Me, ye laden hearts and weary,
Take up my yoke, trust Me, I pledge you rest."

I dare not waver by such grace invited,
I yield to Thee my heart, I close the strife;
Lift Thou my heart until, with Thine united,
I taste anew the joys of endless life.

—John Macleod, D. D.

Drawing Near to God.

There is a great deal of discussion in these days about the neglect of public worship, and every inducement is held out to attract people to church. Music, decorations, popular preachers, are advertised to draw a crowd, until it seems as though God's House were a theatre intended for entertainment only, or a charity bazaar which people must be bribed to attend.

Is not this a terrible state of things? When the Lord is in His holy temple, instead of all the earth keeping silence before Him and coming into His presence with awe and reverence, like Moses warned that it is holy ground, what do we see and hear? The multitudes drawn to this church or that by various attractions, struggling for the best seats, eager to see and be seen. They come away, not with the trembling gladness or holy fear of souls that have been face to face with God, but with good-natured ridicule of the singers, criticism of other people's clothes or manner, an inclination to pick the sermon to pieces, or often with the bored feeling that a wearisome duty has been performed. Surely there is something wrong when our public worship is ever degraded to such a condition as this. What is the matter? We are naturally religious, we have felt, sometimes at least, the marvellous joy of drawing near to God, of real communion with Him. We are dissatisfied with such a sham as our church-going often is. How can we improve our own plot of ground?

Let us remove the weeds first, beginning with Selfishness. A common excuse for staying away is,—"I don't find that it does me any good." Now, that may sound very satisfactory, but think a moment. If you heard a man say, "I don't often visit my father, because he doesn't give me anything when I go, it doesn't do me any good," wouldn't you think that man a monster of selfishness? Do we go to meet our father only because we hope for a gift from him, and do we come away vexed and disappointed if he does not give us anything, or if we fancy he does not—sometimes the full value of his gifts is not discovered for years.

The only way to kill this weed of Selfishness is to plant Love in its place. Instead of going to church principally for our own good, let us go to meet our Father, to praise and thank Him, to listen to His words, to ask pardon for our sins, to intercede for others more than for ourselves, to be drawn more closely together in the mysterious spiritual unity of the one body.

Then there is the weed of Irreverence. Think of the irreverent behavior of many people in our churches. The giggling and whispering, the turning round to stare at newcomers, the inattentive words of prayer and praise which we dare to offer to the Most High, the pretence of kneeling which is such a mockery of Him who cannot be deceived. God is very jealous of His honor. He smote Uzza for touching the sacred ark, and the men of Bethshemesh because they looked into it. When king Uzziah ventured rashly and unlawfully into the Temple he was struck with leprosy. Can we fancy that our irreverent behavior is unnoticed or disregarded when "the eyes of the Lord are in every place, beholding the evil and the good."

The best way of overcoming irreverence is to remember that we are in the presence of God. Where two or three are gathered together in His name, He is specially present. If our bodily eyes were opened to see His glory we might be like St. John who "fell at his feet as dead." But the thought of His presence should bring joy rather than fear, as He says:—"Fear not, for I am with thee," and again:—"It is I, be not afraid."

There is another weed which threatens to choke religion out of our hearts, the pursuit of novelty. Like the Athenians, we are ready enough to listen to a popular preacher, and will flock in crowds after him if we hope to "hear some new thing." It is a good thing to hear sermons, but that should not be the object of meeting together in the House of God. As the sacrifices were offered in the Temple, so we should offer our "sacrifice of praise and thanksgiving." We ought to be more eager to give than to get when coming into the presence of our King. "The kings of Tarshish and of the isles shall bring presents; the kings of Sheba and Seba shall offer gifts. Yea, all kings shall fall down before Him: all nations shall serve Him."

Do not fancy that a restless craving for novelty,

or a selfish seeking after your own good, and indifference to other people, indicate a truly devotional spirit.

"Prayer was not meant for luxury
Or selfish pastime sweet;
It is the prostrate creature's place
At his Creator's feet."

We should not come regularly to church, then, only for the good we may get there, or because the service is attractive and we like the preacher. To stay away, without good and sufficient reason, is to disregard the invitation of the King of Kings. When even an earthly monarch invites a subject to an interview with him, the invitation is really a command. Our King has declared that the people who disregard His invitation shall in the end be shut out. If they refuse the invitation they will find at last that the door is shut, for "none of those men which were bidden shall taste of My supper." Remember, the excuses made by the men in the parable were what people might consider reasonable excuses for staying away from church. One had his farm to look after, another was busy with his cattle, another was married and must stay at home with his wife. God has declared that He will not accept such excuses; it is likely that the Sunday headache—which would be unnoticed on Monday—the desire for a walk or drive, the fear of a shower, the cold or heat, the "having company," etc. will be accepted? As I said, man is naturally religious, and cannot help reaching up to God while there is a trace of the Divine image left in his nature. The surest way to attract him to church is not to make it a place of entertainment, but to make him understand that God will meet him there.

"What is it that I hunger for but God?
My God, my God! let me for once look on Thee,
As though none else existed—We alone!
I need Thee, and I feel Thee and I love Thee!"

HOPE.

Recipes.

BUTTERED BEETROOTS.

Six moderate-sized beets; wash carefully, so as not to bruise the skin; put into a pan, cover with cold water, bring to a boil, and cook an hour, or a little longer, if very thick. Throw them into cold water; rub off the skins with the hands; cut in slices about a quarter of an inch thick; put two or three ounces of butter in a frying pan, and when hot, put in the beets. Sprinkle over them a small teaspoonful each of salt, sugar, and lemon juice, one tablespoonful of vinegar, and two of good stock or gravy. Simmer gently for 10 minutes. Serve as hot as possible.

A NICE BREAKFAST DISH.

Tomatoes now often accompany bacon, the slight acid of the former counteracting the fat of the latter. The following is very nice, and the addition of the rice makes the dish resemble a "pilau"—that favorite dainty of Anglo-Indians.

Cut $\frac{1}{2}$ lb. of streaky breakfast bacon into thin rashers, and fry slowly till done through, but not crisp; add pint of tomatoes; then stir in half a pint well-boiled rice. Stir all over a gentle heat till nearly dry, seasoning with pepper, cayenne, a pinch of dried herbs, and salt (omitting the latter unless the bacon is very mild). Cut thin slices of dry toast into sippets; pile up the "pilau" in the center of a very hot dish, and arrange the sippets all around.

CREAM CAKE.

Three eggs, 3 tablespoons of water, 2 teaspoons baking powder stirred into $1\frac{1}{2}$ cups of flour. Take one cup of white sugar, put in the water, add the yolks of the eggs well beaten, then the flour, and lastly the whites of the eggs beaten to a stiff froth. For the cream filling: 1 egg, $\frac{1}{2}$ cup white sugar, $\frac{1}{2}$ cup of butter, $\frac{1}{2}$ pint of milk, heat to the boiling point, and add 1 tablespoon cornstarch, previously stirred in milk; when it has boiled add the flavoring to suit the taste; spread this dressing between the layers of the cake, icing the top if desired.

STRAWBERRY SHORTCAKE.

In preparing strawberries, be sure and wash them in cold water before the hulls are removed, for if hulled and then washed the flavor is spoiled.

Sift two cups of flour with two teaspoonfuls of baking powder and half teaspoonful of salt. Rub in one teaspoonful of shortening. With a fork stir in lightly and quickly enough sweet milk to make a soft dough (too soft to roll). Turn into a greased tin and cook in a hot oven, turning it about to make it rise evenly. When done, remove from the oven and split it in two, liberally butter the inside and fill with berries that have been standing crushed in sugar enough to sweeten them. Replace the crust and cover the top with berries. Serve with whipped cream.

A MORE SIMPLE CAKE.

Make a good rich layer cake filled in with whipped cream, and whole berries, arranged close together.

ASPARAGUS SOUP.

Use the tough ends of the asparagus, and save the water in which the asparagus has been boiled. Put the ends in the water and cook for half an hour. Press through a colander. To each pint of liquid add one of milk, add a tablespoonful of butter and two of flour that have been rubbed together, a little salt, a dash of pepper, and serve.

Travelling Notes.

AUSTRALIA.

Now that our stay in Australia is drawing to a close, it seems as though so many things which deserve mention have been left unsaid. When one is literally overwhelmed with hospitality, with delightful surprises, with specially-got-up entertainments, luncheons, teas, garden parties, etc., etc., and all accompanied by the loving kindness of our dear belongings, who don't want us to go—all this makes one's brains somewhat confused, especially when there is a very tight pull at our own heart—several pulls, in fact—and all pulling different ways! One pull for Australia, another for Vancouver, another for England, and, oh! that other one for home—for Canada—our own dear, dear land, never forgotten amidst all our travels—never, never!

Well, we must not begin in too sentimental a mood, the mood perhaps accentuated by the recent embarkation to England of a big Australian ocean liner with 1,000 passengers, amongst them an Australian cousin, going to take in, with so many others, the great Paris Exposition. What crowds are going from all points this year, not that it will be, by any means, the best time for seeing the different points of interest of the city itself—these exhibition times never are. Even when no one belonging to you is on board, there is, somehow, always a feeling of desolation as we watch the great steamer slowly get free from her moorings, then faster, faster, faster, until she seems but a mere speck on the boundless sea. Such a big thing when near, so important, so majestic; and now a small, small habitation for many (comparatively) souls in the midst and at the mercy of unspeakable vastness, for what can give a greater impression of vastness than God's ocean?

Amongst the many interesting things we have seen here were some remarkably good fairs. Although there is always a certain similarity in all such things, still, to those really interested there is much that is new, and especially in other countries than one's own. Mount Barker Show (Mount Barker is where we are staying) was opened by its patron, Lord Tennyson, and was a great success. It was the 53rd annual show of the Agricultural Society, which is naturally very proud of the fact that at the two great English exhibitions of 1851 and 1862 the first prize for wheat was awarded to South Australia. This fact was announced in the address to Lord Tennyson (the Governor of South Australia, as has been already mentioned) by the Chairman of the Council, and His Excellency, in reply, said: "It may interest you to know that from wheat grown somewhere in this part of Australia, wheat was raised on my estate in the Isle of Wight which gained the first prize in the English International Exhibition of 1862."

The buildings are very fine, and this year a magnificent pair of iron gates have been added, the funds having been raised by local ladies at a fair held last October. The exhibitions here are not kept open as long as with us, and many of the exhibits are, of course, different to ours, such as the quantity of beautiful wool specimens, which are so soft and luxuriant that one feels like tumbling onto them and taking a good comfortable nap, but perhaps it would be a little too warm a couch, with the thermometer above the hundreds. The fruit is more varied than ours, and such bunches of grapes! One can only wonder how these fruits and flowers grow in so dry a climate. Certainly that fair was most instructive, most interesting, and what a privilege to be able to compare the natural productions of our own Dominion of Canada and its far North-west, and now of our big sister far, far-off colonies.

Another delightful feature here, too, is the intensely blue and clear skies, absolutely cloudless for days together. As we have said before, every fresh beauty seems as though it were the very best, but in reality we doubt if many skies can beat our own, but perhaps we are prejudiced. Well, anyway these Australian skies are absolutely lovely.

One most delightful week we spent at the sea, enjoying the bathing, the big boulders and monster breakers, and the fresh, invigorating air. Truly we have been, as it were, passing through one long dream of enjoyment—no, not a dream, but a vivid reality, the dreaming of which will be afterwards—and what a dream of large-hearted hospitality, of generosity, of loving kindness, will it be.

The Light of the Church.

There is a little church on a lonely hillside where they have neither gas nor lamps, and yet on the darkest nights they hold Divine service. Each worshipper, coming a great distance from village or moorland home, brings with him a taper and lights it from one supplied and carried by the minister of the little church. The building is thronged, and the scene is said to be "most brilliant." Let each one of our lives be but a little taper—lighted from the Life of Christ, and carrying His flame—and we shall help to fill this great temple of human need and human sin with the light of the knowledge of the glory of God.

Merely Curious.

Stranger—I noticed your advertisement in the paper this morning for a man to retail imported canaries.

Proprietor of Bird Store—Yes, sir. Are you looking for a job?

Stranger—Oh, no; I merely had a curiosity to know how the canaries lost their tails.

UNCLE TOM'S DEPARTMENT.

MY DEAR NEPHEWS AND NIECES,—

June, the queen of months, with its balmy air and glorious wealth of roses, has slipped adown Time's jewelled chapter, and now lies within our reach; so

"No matter how barren the past has been, 'Tis enough for us now that the leaves are green. Every clod feels a stir of might, An instinct within it that reaches and towers, And groping blindly above it for light, Climbs to a soul in grass and flowers."

What a pretty idea of Lowell's, and what a train of thought it evokes! Did you ever in planting-time think of the wondrous possibilities bound up in the very tiniest seed? Take, for example, a single grain of timothy seed, or the very much smaller seed of the poppy or petunia. Would not one suppose that so frail a thing cast to the ground and buried beneath it must inevitably perish? But instead we see it not only lifting its head, but bravely surmounting the difficulties that surround it, and in time, growing into a thrifty plant, faithfully fulfilling its duty by beautifying its own particular corner of the great old earth.

Can we truthfully say as much of ourselves—is the world in which we live better or more beautiful because of our being in it? The simple phrase, "doing one's duty," is the epitome of successful living. Every act we perform and every speech we utter are seeds replete with life, ready to germinate, grow and perpetuate, for good or evil, their own particular kinds. Is not the thought appalling? It behooves us to be very careful in the selection of our seed, that useful and beautiful plants may flourish to our memory, instead of weeds, for, as the old adage says, "Ill weeds grow apace," and if we allow them to gain a foothold, they may smother the grain and flowers.

Wisely have we been recommended to "Consider the lilies of the field," for they show us an example of patient trustfulness and of an ever-upward tendency, which is the secret of the most beautiful lives that have ever adorned this earth. We can learn many salutary lessons from these simple plants. If they, springing from the cold, dark earth, can yet produce snowy, sweet-scented flowers, should not we, even amid somewhat sordid surroundings, bring forth fair blossoms of virtue and fruit of good deeds? The tiny rootlets underground reach out in every direction searching for, and drawing from the soil, the elements most necessary to the plant; so should we strive to absorb as much as possible of all that is good and beautiful around us to promote the growth of our mental life. We may, if willing, close eyes and ears to much that is unlovely, for we see very much as we wish to see.

"Two men looked forth from the prison bars, One saw mud, and the other stars."

That the fair and true may ever predominate in the life-view of my boys and girls, is the sincere wish of UNCLE TOM.

The Power and Goodness of God.

The man who forgets the wonders and mercies of the Lord is without any excuse; for we are continually surrounded with objects which may serve to bring the power and goodness of God strikingly to mind. The light, how beautiful and wonderful and necessary to our well-being! The sun and moon and all the heavenly bodies, how glorious in their constant order! The mild and fruitful shower, what a token of the loving-kindness of our Creator, while the raging storm proclaims his terrible might! Every day let our mind and heart be open to such truths, and we shall never fail to behold the glory of Jehovah in his works. Let us only think of the thousands and millions of living creatures in the air, upon the earth, and in the waters, all instructed how to make or where to seek their dwellings, and all provided for, in due season, by their Maker's never-failing bounty, and all preserved by that ever-watchful Providence, without whose knowledge and permission "not a sparrow falleth to the ground." Every one of these created objects, whether with or without life, may be said, in its own way, to celebrate the Creator's glory, rejoicing in His goodness, though unknown, and answering the purposes of His will. And shall man, the head of all—man, blessed with reason—man, taught by his Maker—shall he be wanting in praise, and gratitude, and love? Forbid it, "O God, the God of the spirits of all flesh."

Bugler and Hero.

"After the battle of Inkerman, in the Crimean war, no one attracted more attention on the field than a bugler boy, ten years old, by name Thomas John Keep. The fight was stubborn and long, and many men were killed and wounded. During the night, in spite of a running fire still kept up by the Russians, young Keep went about helping the injured. He built a big fire of sticks, gathered at some risk, and made tea for the poor fellows. His unselfish conduct gained him the name of "The Boy Hero." As has been too often the case with men who have fought and bled for their country, Keep suffered a good deal of hardship in later life, and died through an accident at the early age of fifty." Our readers who were interested in the late anecdote of Bugler Dunn, will also find interest in the above account of so long ago.

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—INITIAL CHANGES.

A ONE is valued for its fur By miss, master, madam, sir. Two is a bond, or measures land; Its length—the length of a person's hand.

At the THREE one hears in winter-time The skaters' merry laughing chime.

FOUR is a flower which lends its name To a color pleasing to girl and dame.

In FIVE is washed the dirty plate By Mary, Lucy, Maud and Kate.

A gnarl in a winding thread is SIX; One's temper is tried by such a fix.

A SEVEN draws a veil o'er the eye In a manner quite sudden and sly.

F. L. S.

2—SQUARE.

1, that in which one excels; 2, a particular kind of writing practised by the ancient Irish and other Celtic nations; 3, to accord in sound; 4, one who subdues; 5, corundum blended with oxide of iron, used in the arts for grinding and polishing metals, hard stones and glass.

ROLLY.

3—CHARADE.

LAST the end of a rotten railway bridge The smith FIRST bath his seat. The smith, a mighty man is he, With large and sinewy feet, And the shoes he wears upon the same Would cover half a street, And TOTAL he doesn't mind a bit, For what cares he for heat.

IKE ICICLE.

4—HALF SQUARE.

1, quick; 2, natives of Natal; 3, a raised floor; 4, metals at the ends of laces; 5, a beverage; 6, Nova Scotia (abbr.); 7, a beverage (phon).

L. B. FORCE.

5—DROP-WORD PUZZLE.

So you—what I— And what my wife doesn't—, She doesn't—what you— And I—, you—, But to tell her what— And likewise what I— She'd—then what you— And I—, you—,

IKE ICICLE.

6—CHARADE.

I wish you SECOND, dear cousins, I'm going to leave you now. May the laurel crown of happiness Adorn each cousin's brow. Daily strife to earn my FIRST Leaves no time to visit you, So after six months' companionship, I must bid you all adieu. TOTAL, TOTAL, cousins dear, The sun shines on the veldt, And cruel fate sets its decree— Ike Icicle must melt.

IKE ICICLE.

7—DIAMOND.

1, a letter; 2, the black beetle; 3, Napoleon's favorite marshal; 4, a Japanese palanquin; 5, a native of an ancient country; 6, to think wisely; 7, a letter.

ROLLY.

8—NUMERICAL ENIGMA.

My 1, 2, 3, 9 is just and right, " 6, 7, 8, 5 is great warmth, " 10, 17, 4 is a mode, " 22, 21, 13, 14, 15 is a current, " 16, 24, 11 is a light color, " 19, 20, 18 is an instrument, " 25, 24, 21, 23, 26 is "being every day." WHOLE is one of our British general's mottoes, Known and repeated by 'em Canadian heroes.

MURIEL DAY.

Answers to May 5th Puzzles.

1—One is slight of waist and the other is slight of hand. 2—Pardon.

3— k t h e k h a k i e k e i 4—Hopeless.

5— u s I c m s T E A k I E R N E c A N T S m k E s o 6—Discontent.

7— m u l s e u z e m a l e r o t s m o k e e a t e n 8—Wauchope.

9— n e s t e n t e r s t o n e s t e n a n t s r e n t s s t s

SOLVERS TO MAY 5TH PUZZLES.

M. R. G., "Sartor," "McGinty," Sila Jackson, "Diana,"

ADDITIONAL SOLVER TO APRIL 20TH PUZZLES.

Sila Jackson.

COUSINLY CHAT.

"McGinty."—I really thought you had gone "to the bottom of the sea," but I am pleased to see you bobbing up serenely. Sila.—Patience and perseverance ensure success. You began late this quarter, but in time for the special contest. "Diana."—You are debarred only from the special contest, so I hope you will continue your good solutions. "Sartor."—Our "new member" is very welcome, especially as she (?) makes an excellent beginning. "Ike I."—Must you really dissolve in tears, Ike? Take a less sensitive form next time. ADA A.

Conundrums and Answers.

- 1. Why does a negro not have the cap on his knee that a white man does? Because he has one of his own. 2. When does a cow become real estate? When she is turned into a field. 3. When did the rooster crow where everyone in the world heard him? In the ark. 4. What two letters do boys delight in, to the annoyance of their elders? Two T's (to tease). 5. What relation is the door mat to the scraper? A stepfather (farther). 6. Why was Paul like a horse? Because he loved Timothy. 7. What is the best way to make a coat last? Make the pants and vest first.

Sealed Orders.

Out she swung from her moorings, And over the harbor bar, As the moon was slowly rising She faded from sight afar— And we traced her gleaming canvas By the twinkling evening star.

None knew the port she sailed for, Nor whether her cruise would be; Her future course was shrouded In silence and mystery; She was sailing beneath "sealed orders"— To be opened out at sea.

Some souls, cut off from moorings, Go drifting into the night, Darkness before and around them, With scarce a glimmer of light. They are acting beneath "sealed orders"— And sailing by faith, not sight.

Keeping the line of duty Through good and evil report; They shall ride the storms out safely, Be the voyage long or short; For the ship that carries God's orders Shall anchor at last in port.

—Helen Chauncey.

Household Helps.

Everyone who has much standing to do knows what foot-weariness is, and yet few people seem to think of relieving it. Two or three folds of old carpet compressed so as to form a good-sized pad two or three inches thick, with a piece of oil-cloth or cheap leather on the bottom, so that it may slide easily along the floor. Make it wide enough to stand on comfortably, and rather long, so that in ironing, etc., one need not be moving it all the time. Also amongst the kitchen chairs there should always be one low one with a cushion, which will often be found most restful, and in which much work can be done not requiring standing or a higher chair.

Wheelwomen may like to know the reason why rubber perishes when lying idle. All vulcanized rubber contains sulphur, which combines with the oxygen of the air to form the destructive agent known as sulphuric acid (H₂SO₄). In the case of pneumatic tires, if they are left unused for some time, during the winter, for instance, the sulphuric acid accumulates and gradually rots the rubber. To prevent this, the covers and inner tubes should be well washed every fortnight or so with warm water and ammonia. Before replacing the inner tube, wipe it dry, and dust both it and the inside of the cover with French chalk. Patching rubber, rubber bands, etc., not in use can be preserved by being kept in ammonia water. Before washing the tire covers, be sure to plug every cut with bits of cotton wool, soaked in rubber solution, allowing them to set; otherwise the wet will get in and rot the fabric. This is a precaution for wet weather also.

Life.

Life is not living just for to-day, Life is not dreaming all the short way, To live is to do what must be done, To work and be true, for work is soon done, 'Tis living for others to lighten their load; 'Tis helping your brothers and trusting in God.

Death.

Death is not ceasing ever to be; Death is not sleeping eternally, To die is beginning Really to be Freed from all sinning Immortally, 'Tis passing from darkness Into the light; Just putting off weakness, Putting on might.

Teacher—What happens when a man's temperature goes down as far as it can go? Smart Scholar—He has cold feet, ma'am.

Our Agricultural Library Offer.

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

SOIL AND CROP.

THE FERTILITY OF THE LAND.—Roberts. 372 pages. \$1.25.
A BOOK ON SILAGE.—Woll. 185 pages. \$1.00.
SOILS AND CROPS.—Morrow & Hunt. \$1.00.
FORAGE CROPS.—Thos. Shaw. \$1.00.

LIVE STOCK.

THE STUDY OF BREEDS (CATTLE, SHEEP, AND SWINE).—Prof. Shaw. 400 pages; 60 engravings. \$1.50.
HORSE BREEDING.—Sanders. 422 pages. \$1.50.
LIGHT HORSES—BREEDS AND MANAGEMENT. 226 pages. \$1.00.
HEAVY HORSES—BREEDS AND MANAGEMENT. 219 pages. \$1.00. } Vinton
CATTLE—BREEDS AND MANAGEMENT. 270 pages. \$1.00. } Series.
SHEEP—BREEDS AND MANAGEMENT. 232 pages. \$1.00.
CATTLE BREEDING.—Warfield. 386 pages. \$2.00.
THE DOMESTIC SHEEP.—Stewart. 371 pages. \$1.75.
PIGS—BREEDS AND MANAGEMENT.—Sanders Spencer. 175 pages. \$1.00.
FEEDS AND FEEDING.—Henry. 600 pages. \$2.00.

GENERAL AGRICULTURE.

AGRICULTURE.—C. C. James. 200 pages. 30 cents.
FIRST PRINCIPLES OF AGRICULTURE.—Voorhees. 207 pages. \$1.00.
AGRICULTURE.—Storer. 1,875 pages, in three volumes. \$5.00.
CHEMISTRY OF THE FARM.—Warrington. 183 pages. 90 cents.
FARMYARD MANURE.—Aikman. 65 pages. 50 cents.
BARN BUILDING.—Sanders. 280 pages. \$2.00.
IRRIGATION AND DRAINAGE.—King. 502 pages. \$1.50.
IRRIGATION FOR THE FARM GARDEN AND ORCHARD.—Henry Stewart. \$1.00.

DAIRYING.

AMERICAN DAIRYING.—H. B. Gurter. 252 pages. \$1.00.
THE BOOK OF THE DAIRY.—Fleischmann. 330 pages. \$2.75.
MILK AND ITS PRODUCTS.—Wing. 230 pages. \$1.00.
TESTING MILK AND ITS PRODUCTS.—Farrington & Woll. 255 pages. \$1.00.

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ARTIFICIAL INCUBATING AND BROODING.—Cypher. 146 pages. 50 cents.
PRACTICAL POULTRY-KEEPER.—Wright. \$2.00.

APIARY.

THE HONEYBEE.—Langstroth. 521 pages. \$1.40.

FRUIT, FLOWERS, AND VEGETABLES.

VEGETABLE GARDENING.—Green. 224 pages. \$1.25.
FLOWERS AND HOW TO GROW THEM.—Roxford. 175 pages. 50 cents.
THE PRINCIPLES OF FRUIT-GROWING.—Bailey. 514 pages. \$1.25.
BUSH FRUITS.—Card. 337 pages. \$1.50.
HORTICULTURIST'S RULE BOOK.—Bailey. 312 pages. 75 cents.
THE NURSERY BOOK.—Bailey. 365 pages; 152 illustrations. \$1.00.
AMATEUR FRUIT-GROWING.—Samuel B. Green. 5x7 inches; 134 pages, with numerous fly leaves for notes; bound in cloth, and profusely illustrated. 50 cents.

PLANT AND ANIMAL LIFE.

THE STORY OF THE PLANTS.—Grant Allen. 213 pages. 40 cents.
THE STUDY OF ANIMAL LIFE.—J. A. Thomson. 375 pages. \$1.75.
INSECTS INJURIOUS TO FRUITS.—Stammers. 136 pages. \$2.00.

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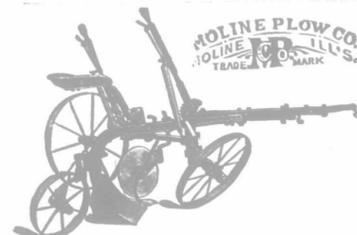
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GOSSIP.

In writing to advertisers, mention the "Farmer's Advocate."

At the auction sale of range-bred Herefords from the San Rafael ranch of Mr. Colin Campbell, Lochiel, Arizona, held at Kansas City, May 15th, 87 head sold for an average of \$145.45. From the fact that the cattle were branded, under size, and in ordinary flesh, the sale was a remarkable one. The range of prices was from \$35 to \$280. All were females except bull calves at foot.

In addition to the Clydesdale stallion, Jubilee Prince, brought out from Ontario by D. Fraser & Sons, reported in our last issue, the following Short-horns were included in the sale: Crown Jewel 25th 3084—a roan bull, calved Sept., 1888; bred by Messrs. Nicholson, Sylvan, Ont. He is by Indian Brave, he by Indian Chief (imp.) out of Leonore of Sylvan 16th, by Norseman, also by Indian Chief, grandam by Nonpareil Chief, another son of Imp. Indian Chief. The heifer, Rose Saxon 3rd, bred by F. A. Gardner, Britannia, Ont.; sired by Bold Britain 2037—dam by Royal Saxon—1637—by (imp.) Baron Lenton—Bold Britain is by (imp.) Golden Crown, out of a Mina dam, also by (imp.) Baron Lenton. The roan heifer calf, Marchioness 9th, is by White Oak—2330—out of Marchioness 9th, by Scotsman. The bull, White Oak, is by a son of (imp.) British Statesman, out of a Missie dam, by (imp.) Prince Royal. Mr. Fraser writes that these are 3 choice animals, the heifer, Rose Saxon 3rd, being a particularly good one and hard to duplicate. Her full sister was sold a year ago to an Oregon breeder for \$350, at the same age.

TERRITORIAL GOVERNMENT SWINE SALE.

Friday's train brought the swine for the Government sale. The officials in charge were: Mr. Honeyman, representing the Department of Agriculture at Regina; Mr. J. J. Foster, of Moira, Ontario, who had charge of the importation; and Mr. Paisley, of Leacombe, the auctioneer employed by the Government. The swine brought through to Strathcona numbered 62 head (57 sows and 5 boars), and were the last of the whole shipment for Alberta, 210 head. The breeds represented were Berkshire, Yorkshire, and Tamworth. The Berkshires were all bred at the Bow Park Farm, near Brantford, Ontario, the leading farm of its kind in Canada. The Yorkshires were mostly bred by J. E. Brethour, the leading Canadian breeder of that class of swine. The Tamworths were also from leading breeders of their class. Of the five boars brought in, four were Yorkshires and one Berkshire. The former were purchased by Maxwell Johnson and Harry Bell, of Edmonton; Thos. Stacey, of New Lannon, and Daniel Brox, of Spruce Grove. The Berk. was sold to F. W. Lines. The highest price paid for any of these was \$21.50, and the lowest, \$19.00.—Edmonton Plaindealer.

NOTICE.

For Threshers and Farmers.—On another page of this issue appears an announcement by the Sawyer-Massey Company, illustrated with an engraving of their 1900 "Peerless" threshing machine with very many strong points to commend it, such as durability, ease of adjustment and large capacity for thorough separation of the grain. The detailed construction both of the separators and engines built by this old and successful establishment are very fully described in the engravings as well as the letterpress of their valuable new catalogue, a copy of which we would strongly advise our readers to obtain either from the company's representatives or the offices in Winnipeg. It is not only a useful, but an exceedingly attractive catalogue that presents in a clear and straightforward manner the many well-recognized excellencies of the Sawyer-Massey threshing machinery, for which there is bound to be a continued great call in Manitoba and the Northwest during the present season.

The Veterinary Association of Manitoba.

Under the authority of Secs. 18, 19, 20, 22 and 26 of the Veterinary Association Act, 1890 (53 Vic., Chap. 60), the following persons only are entitled to practice as Veterinary Surgeons in the Province of Manitoba, or to collect fees for the service rendered as such:—

- Alton, A. L. Sydney.
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Brocken, G. E. Cian William.
Clark, J. L. Russell.
Cook, H. S. Virden, Man.
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Coxe, S. A. Brandon.
Cruikshank, J. G. Deloraine.
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Leslie, W. Melita.
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Torrance, F. Winnipeg.
Waldon, T. Killarney.
Walker, J. St. C. Minto.
Welch, J. Roland.
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The practice of the veterinary profession in Manitoba by any other person is in direct contravention of the statute, and renders him liable for prosecution.

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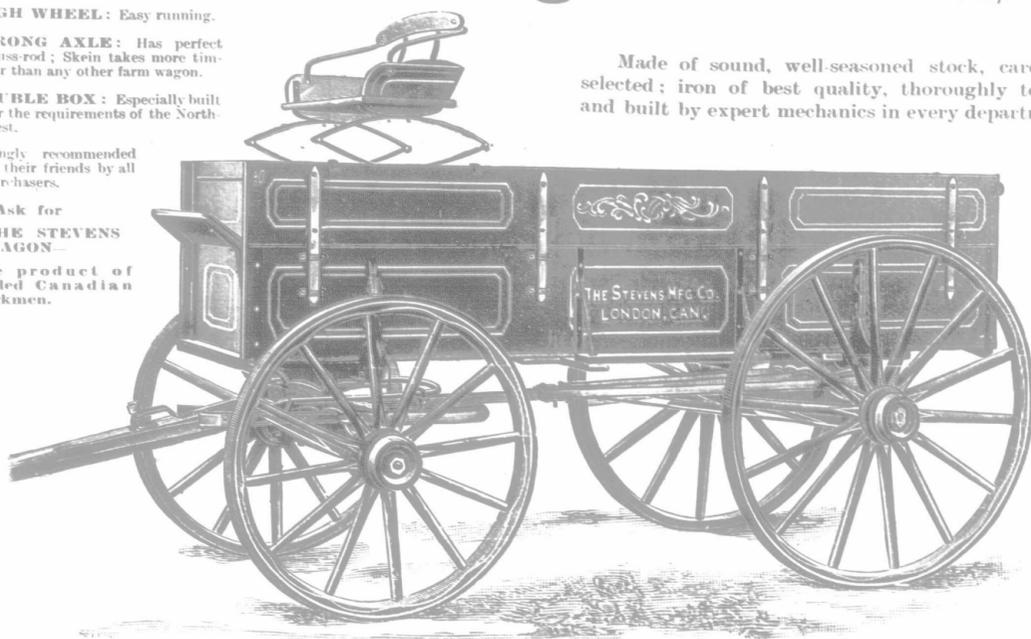
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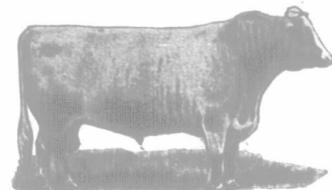
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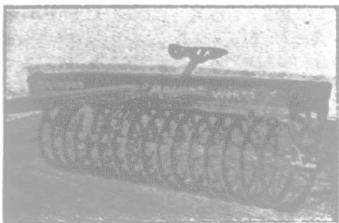
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H. R. REYES, 4-y-m Midway, Man.

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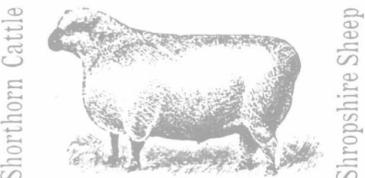
BRANDON, MAN.

J. A. S. MACMILLAN,

IMPORTER AND BREEDER OF PURE-BRED

Glydesdales, Shires, Hackneys.

STALLIONS AND MARES.



INSPECTION INVITED.

CORRESPONDENCE SOLICITED. Prices Right.

TERMS EASY.

FULL PARTICULARS ON APPLICATION.

APPLY **P. O. BOX 403.**

Rare Chance

to obtain winners for Winnipeg's greatest Industrial yet held. Our entire flock of grand Cotswolds at snap bargain prices. Some good Shorthorn bulls yet. Speak quick. **D. HYSOP & SONS, Killarney, Man.**

LEICESTERS!

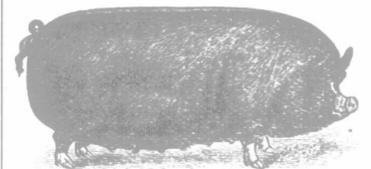
Young rams and ewes for sale. Write or call on

A. D. GAMLEY,

Box 193. BRANDON, MANITOBA.

SWEPESTAKES HERD OF
LARGE ENGLISH BERKSHIRES

WINNIPEG INDUSTRIAL EXHIBITION, 1899.



Herd headed by Perfection (4760), Proud Victor (4601), Prince (4660). 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.

THE GOLD STANDARD HERD

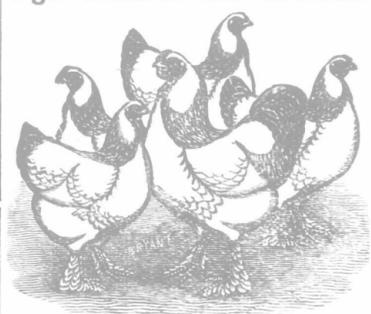
OF LARGE ENGLISH BERKSHIRES.



Does quality count with you? If so, and you want the best up-to-date lacon type, come to head-quarters and place your order. I am now booking orders for spring pigs, bred from large mature stock, from boars weighing 800 lbs., and sows from 500 to 750 lbs. No better Berkshire blood in America. Pairs unrelated, and single animals of either sex supplied.

Address—**J. A. MCGILL, Neepawa, Man.**

Light Brahmans and Anconas.



My Light Brahmans won 1st and cup at Winnipeg Industrial, and my Anconas were 1st-prize winners in U. S. A. Cockerels for sale also. Eggs at \$3.00 per setting of 13. Write for particulars to

E. R. COLLIER, NORQUAY ST., WINNIPEG.

Eggs for Hatching:

Silver Laced Wyandottes; prizewinners for years and now improved by imported English stock. Eggs \$2.00 per setting; \$3.50 two settings.

W. D. LAWRENCE,

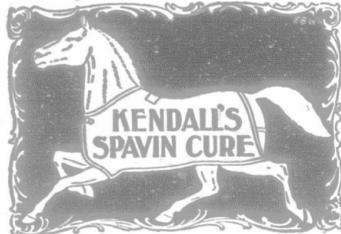
354 Donald St., Winnipeg.

PLYMOUTH ROCKS

HIGH-CLASS STOCK.

WILLIAM LAUGHLAND, - Hartney, Man.

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 book 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.

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.

CONTAGIOUS ABORTION

HAS BEEN CURED BY WEST'S FLUID

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, Agents Wanted, on TORONTO, ONT.

BLACK MINORCAS.

Young stock for sale—some beauties. Satisfaction guaranteed. A. M. ROBERTSON, KEEWATIN, ONT.

Norwood Bridge Poultry Yards, WINNIPEG, MAN.

Breeder of high-class S. C. B. Minorcas, Houdans, and White Wyandottes; also Bronze turkeys, Pekin fountains, Pekin ducks. Young stock for sale of all varieties. Write or call.

Eggs for Hatching.

From prizewinning Golden Wyandottes, Black Langshans, Indian Games, Black Cochins, Black Minorcas, Houdans, Plymouth Rocks, White Wyandottes, Guinea Fowls. \$1.50 per setting of 15 eggs.

Pekin Ducks, \$1 for 13. Bronze Turkeys, \$2 for 11. A few birds for sale. Also fancy pigeons and Belgian hares. Write.

S. LING, Fort Rouge Poultry Yards, Winnipeg, Man.

"See My Writing."

"I revel in my freedom. Compare it with the first you saw from my pen." So writes a teacher from N. Simcoe, who spent a term with us last summer. We can develop good business writers because we have two of the best penmen in the country on our staff. We are quite as strong handed in every other Department. Enter any time. No vacations. Special Summer Term from July 3rd. Our circulars explain; write for them.

Central Business College, W. H. SHAW, PRINCIPAL. TORONTO.



PLACE FOR THE FARMER'S SON TO SPEND THE WINTER MONTHS IS AT THE

Winnipeg Business College.

WRITE FOR HANDSOME CATALOGUE (FREE). G. W. DONALD, SECRETARY.

GOSSIP.

Wellington Hardy, of Pomeroy, has recently added to his Ayrshire herd the imported 5-year-old bull, Craigielea of Auchenbrain, for several years in the herd of Mr. W. W. Ballantyne, who imported him. Mr. Hardy has also got the cow, Princess Maud, from Wm. Thorn, Lynedoch, Ont.

Messrs. T. Lloyd-Jones, Burford, Ont., advertise in this issue 8 head of choice registered Galloway bulls and heifers, including the grand young bull, College Gambler, winner of 1st prize at Toronto Exhibition the last two years, and probably the best bull of the breed in the Dominion. Note the ad, and write them for prices.

The Pure-bred Cattle Breeders' Association is again this year taking charge of shipments of bulls to the West, under the auspices of the Territorial Government. Two carloads of bulls are being forwarded, one starting from Morris, going via Deloraine branch to Brandon; the other from Westbourne, via Portage la Prairie, joining the other car at Brandon. Stock destined to Prince Albert, Morley, Edmonton, and intermediate points.

We regret to learn of the death, on May 12th, of Mr. James Riley, of Thorntown, Indiana, a well-known and highly-esteemed breeder of Berkshire swine, whose life work in this connection was both successful and honorable. He had the true genius of a breeder, and was upright in his dealings. He was also a high-class farmer, giving special attention to experimenting with and introducing improved varieties of corn and other farm grains.

A right good sale of Shorthorns was that of the administrator of the estate of T. J. Wallace, Bunceton, Mo., held at Kansas City, May 17th. The offering brought together a large gathering of breeders. One of the chief attractions of the sale, Sir Abbot, son of Young Abbotburn, the World's Fair champion, died a few days before the sale, which circumstance lowered the average very considerably. The 59 head sold averaged \$268.65. The 7 bulls averaged \$289.30, the highest price for a bull being \$600 for Butcherly Abbotburn, a 2-year-old son of the champion. The highest-priced cow was the 7-year-old Rosedale Violet 9th, by Scottish Chief, sold for \$725; two others sold for \$700 and \$715, and seven females brought \$400 and upwards.

Combination sales of stock, under the auspices of local organizations, have been tried at Orillia and Brampton, in Ontario, this spring, and have not proved successful. The second sale at Orillia was held in April, and a company of officials and others who went from Toronto to see how it worked reported that it was not a success, but few animals finding purchasers, the failure being evidently due to want of confidence. At the second sale of horses at Brampton, May 19th, a local paper states some 30 were offered, and of these one-half were sold at the sale or afterwards. One difficulty the promoters have to contend with is the indisposition of some farmers to give the lowest price they will accept as their reserve bid.

DALMOOR WINS THE QUEEN'S PLATE. In the great race for the Queen's Plate at the annual tournament of the Ontario Jockey Club on the Woodbine course at Toronto, May 24th, Mr. Seagram's 6-year-old bay horse, Dalmoor, proved the victor in the keenest contest of the last ten years, winning by only a neck over Mr. Hendrie's The Provost and Mr. N. Dymont's Brave Bellecourt. Dalmoor was imported in utero by Mr. E. H. Haines, of Owen Sound, for Mr. Seagram, of Waterloo, Ont.; sired by Louis XIII, by St. Simon, dam Lady Dalmeny imp., by Townmoor. Mr. Seagram has furnished the Queen's Plate winner nine times in the last ten years, being beaten only in that time last year by Mr. Hendrie's Butter Scotch.

K. Melvor, Roselea Farm, Virden, reports the following sales of Shorthorns: "One bull to the C. P. R. Company; 1 to Jos. Cole, of Red Deer, Alta.; through Wm. Sharman, 1 to W. A. Doyle, Beulah. This latter is by Sir Victor 21812, out of Lady Boshill, a deep milker. He is what I consider a good bull, combining quality with substance. Mr. Doyle evidently knows a good beast, and is not afraid to pay a fair price for what suits him. Also, an in-calf heifer to James Anderson, Michs. I also sold four-yearling grades for \$200 each. In Western Rye grass seed (Agropyrum taenarum), sales have been very satisfactory. The following statement may be of interest: Up to the time the paper I prepared for the Breeders' Convention appeared in print, I had only 4 orders booked, calling for 2,150 pounds of seed; last year same date I had 13 orders, calling for 3,200 pounds, while to the date of writing, May 22nd, orders exceed by 75 per cent. any previous year."

Owing to the decision arrived at by Mr. W. D. Flatt, of Hamilton, Ont., to sell his show cattle, together with some 60 head of other imported and home-bred animals, at Chicago on August 7th, he will not be in the competition with his Shorthorns at the Toronto Industrial Exhibition this year as he had purposed. While this is regrettable from the standpoint of those who glory in our great show and had hoped to see another added to the list of plucky exhibitors, yet it is hoped that in the interest of the breed, the enterprise of Mr. Flatt in importing so heavily of high-class cattle will be well rewarded by the realization of good prices for his cattle, of which we have not the slightest doubt. The cattle he will offer will, we feel confident, commend themselves to their merits, and we trust that the best of them will not all find their way into United States herds, but that Canadians will claim a fair share of them. The offering will include the champion female at last year's Toronto Exhibition, and the 1st prize 3-year-old, 2nd-prize 2-year-old, and 1st-prize heifer calf, now a yearling, as well as the 1st- and 2nd-prize yearling bulls at the same show, and about 50 imported bulls, cows and heifers, selected from the best herds in Britain. Mr. Flatt has a number of really useful young bulls, heifers and cows which will not be included in the sale, which he is open to sell at reasonable prices now, as only those in the best condition will be catalogued for sale.

SHIPMENT OF SHORTHORNS TO CANADA. On May 5th, Messrs. Alfred Mansell & Co., live stock exporters, Shrewsbury, shipped per the S. S. "Lakonia," from Glasgow, 7 yearling bulls, 2 heifers and a calf, to Quebec, on account of Mr. Robert Miller, of Canada.

H. CARGILL & SON,

CARGILL, ONTARIO.

The largest herd of Imported Scotch Shorthorn Cattle in Canada.

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.

W. G. Pettit & Son,

FREEMAN, ONT.

IMPORTERS AND BREEDERS OF

Scotch Shorthorns and Shropshire Sheep

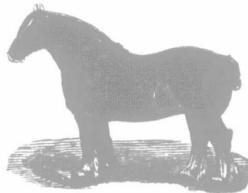
OFFER FOR SALE: 1 imported bull, extra good; 3 imported cows, with calves at their side and in calf again; 6 home-bred bulls, from 5 to 15 months; 40 home-bred cows and heifers. All of breeding age have been bred to imported bulls. Our Shropshires have wintered well, and our lambs this season are a strong, thrifty bunch. 5 rams carried over from last season are in good shape. Correspondence or a personal visit solicited. Catalogues on application.

Burlington Junction Station and Telegraph Office, G. T. R., within half a mile of farm.

THORNCLIFFE Stock Farm

The largest stud of Clydesdales in Canada, headed by the Champion Stallion of all ages,

"LYON MACGREGOR."



Stallions and Colts

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 tests. Terms reasonable. A visit to Thorncliffe will well repay you.

ROBT. DAVIES, om Thorncliffe Stock Farm, TORONTO.

ROBT. NESS & SONS, HOWICK, QUE., BREEDERS AND IMPORTERS OF om Clydesdale Horses & Ayrshire Cattle Also the leading breeds for of fowls the farmers.

Hillhurst Farm. ESTABLISHED 1861.

Scotch Shorthorns.

SIREN IN SERVICE: Scottish Hero and Joy of Morning.

BRED BY W. DUTHIE, COLLYNIE. Oldest Stud of Hackneys in America. Shropshire, Dorset Horn and Hampshire Down Sheep. om

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

FOR SALE: The roan Scotch-bred Shorthorn bull, Golden Robe 20396,

By Knight of St. John (17102); dam, Golden Bud (imp.) 29015. Having sold most of my females, I can dispose of Golden Robe. He is sure and quiet.

ISRAEL GROFF, om Alma, Ont.

SCOTCH SHORTHORN BULLS AND HEIFERS

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. A. & D. BROWN, om ELGIN COUNTY. om IONA, ONTARIO.

PLEASE MENTION FARMER'S ADVOCATE.

H. SMITH, - Hay, Ont. Shorthorn Cattle.

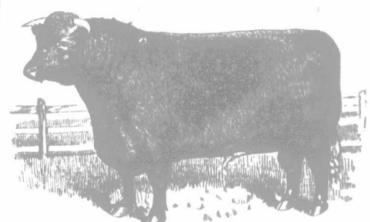
Two good roan bulls and a fine bunch of heifers FOR SALE. Exeter Station on G. T. R., half a mile from farm. om

JOHN DRYDEN. BROOKLIN, ONTARIO.

BREEDER OF Scotch Shorthorns, AND Choice Shropshire Sheep.

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

Shorthorn Cattle.



GOLDEN FAME (IMP.)—26056—(72610). My herd is one of the largest in America, both imported and Canadian-bred. A very choice selection of both sexes always on hand for sale. Personal inspection invited. Address all communications: JAMES SMITH, Mgr., Millgrove, Ont. R. R. Station and Telegraph, Hamilton, on main line Grand Trunk RR. om

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

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

Claremont Stn., Pickering Stn., C.P.R. G.T.R. om Correspondence Invited.

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), om D. H. RUSSELL, Stouffville, Ont.

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

Kicking Cows.

Stop your cows kicking, increase the flow of milk by the use of
SORE TEAT SALVE.
 Positively prevents chapped teats, warts, and caked bag or udder. Price, 25c., 50c., and \$1. per tin.
WM. MOLE, Veterinary Surgeon,
 -om 443 Bathurst St., TORONTO.

SHORTHORNS

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

SPRING GROVE STOCK FARM

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.
 Apply
T. E. ROBSON, Ilderton, Ont.

Maple Lodge Stock Farm

ESTABLISHED 1854.
SHORTHORNS—An excellent lot of young bulls, and a special value in young cows and heifers in calf to our imported Knuckle Duster.
LEICESTERS—Imported and home bred—the best.
ALEX. W. SMITH,
 -om MAPLE LODGE P. O., ONT.

HAWTHORN HERD OF DEEP-MILKING SHORTHORNS.

We are offering 5 young bulls for sale, of first-class quality, and A1 breeding.
 -om **Wm. Grainger & Son, - Londonboro, Ont.**

SHORTHORN CATTLE AND LINCOLN SHEEP.

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

5 SHORTHORN BULLS

Of the most noted Scotch families, and choice individuals. For prices and particulars write
SHORE BROS.,
 -om White Oak.

Pure Scotch Shorthorns for Sale. Two bulls and fifteen months old, and three two-year-old and two one-year-old heifers. All right. Good ones. Meadowdale station, C. P. R. S. J. PEARSON & SON, Meadowdale.
 -om

5-- Shorthorn Bulls--5

From 9 to 15 months. Also a few choice yearling and 12 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.
G. A. BRODIE,
 -om STONEYVILLE STATION, G. T. R., BETHESDA, ONT.

R. & S. NICHOLSON

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 (72213). Inspection invited.
 -om

Scotch Shorthorns FOR SALE.

100 head to select from; 15 grand young bulls by Valkyrie—21896—, 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,
 -om Strathroy Station and P. O., Farm 1 mile north of the town.

SHORTHORNS

Choice bulls ready for service, by Scotch Chief—2211—, by Scottish Pride (imp.)—Diamond's Gem, by Grand Champion.
BERKSHIRES.
 Modern type, well bred, bears and sows, all ages.
ALEXANDER LOVE,
 -om EAGLE, ELGIN CO., ONT.

Your Orchard

Is it apples, peaches, pears, plums or small fruits and berries? Why is it not more profitable? How can you make it more profitable?

Nitrate of Soda

and agricultural chemicals do the work. Make healthier, hardier, disease resisting trees, plants and vines. Fully explained in free pamphlet, secured by addressing **John A. Myers, 12 RJohn St., New York.** Nitrate for sale by fertilizer dealers everywhere.

Write at once for List of Dealers.

GUERNSEYS.

This is the dairy breed for ordinary farmers. Large, vigorous, and hardy, giving plenty of rich milk. Several fine young bulls for sale at very reasonable prices. A few heifers can be spared.
 Address—**SYDNEY FISHER,**
 17-y-o ALVA FARM, KNOWLTON, P. Q.

Herefords for Sale

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

Moreton Lodge Farm,
 Next O. A. College.

Plains Farm, Arkell,
 Containing from 200 to 250 acres each. -om

The F. W. Stone Stock Co.,
 GUELPH, ONT., CANADA.



75 HEAD
 High-quality, Early maturing
Herefords
 Prizewinners, Producers of Money-makers in the feed lot.

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

H. D. SMITH, COMPTON, QUE.

FOR SALE:

Jersey bulls from tested and prizewinning dams, and sired by our champion bull. They are fit to head any show and dairy herd. Also a number of young A. J. C. C. cows, and a few unregistered cows and heifers—grand family cows. Write now for prices, stating what you want. -om

B. H. BULL & SON, Brampton, Ont.
 G. T. R. & C. P. R. Stations. 20 miles from Toronto.

GLEN ROUGE JERSEYS.

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

JERSEY CATTLE

That will put
Money in your pocket.

MRS. E. M. JONES,
 Brockville, Ontario, Can.
 -om Box 324.

JERSEY BULLS.

High-class show bull, **Prince Frank's Son 48758, A.J.C.C.,** 3 years old. 1st prize at Western Fair, London, as a calf, and as a yearling. Probably the best show bull in Canada to-day. Sire 3 times a sweepstakes winner at Western Fair; dam a pure St. Lambert. Also yearling bull, St. Lambert of Ettrick 33835, A.J.C.C. Handsome and richly-bred. Also handsome bull calf, eligible to register. Prices right for quality. Come and see, or write. -om

W. G. LAIDLAW, Wilton Grove, Ont.

BROOKBANK

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

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

NOTICE.

Sheep Shearing. The following is from the *Shepherd's Bulletin*: "Power shearing machines are rapidly going into operation, and the companies manufacturing these machines are very busy shipping them as fast as they can be put up. These machines have now reached a degree of perfection which will justify their being put in by every wool grower or sheep owner who has 500 head of sheep to shear, or is saving in wool and sheep will pay for the extra expense."

GOSSIP.

At the sale of Jerseys, property of J. L. Shallcross & Son, Anchorage, Ky., May 17th, buyers were present from eleven States, and good prices were realized, the 57 head catalogued making an average of \$111 each. The highest price (\$385) was paid for the cow, King of St. Lambert's Hope. The bull, King of Kings, by the same sire, brought \$380, and the cow, Miss Teeny, \$375. Another cow, Oonan of St. Lambert, sold for \$310.

NO SWINE AT THE ROYAL SHOW.

Owing to the existence of swine fever in the district of York, the Council of the Royal Agricultural Society of England, acting on the advice of their veterinarians, have decided to abandon the exhibition of pigs in connection with their show at York this year.

SALE OF THE BALMEDIÉ CLYDESDALES.

The dispersion of the noted stud of Clydesdales, owned by the late Mr. W. H. Lumisden, of Balmédie, Aberdeenshire, took place on May 4th, when the 18 head sold brought an average of £110 6s. 2d.; seven brood mares averaged £136 13s., and seven stallions, £116 14s. The highest price (280 guineas) was made by the mare, Balmédie Queen Mab, and Sir John Gilmour was the purchaser. The 4-year-old stallion, Balmédie May King, brought 240 guineas and went to Mr. Davidson, Old Hall, Watten. The yearling colt, Balmédie Lucifer, by Baron's Pride, fell to A. & W. Montgomery at 200 guineas.

NOTICES.

Lime and Sulphur Sheep Dips.—The American Woolen Co., of Boston, Mass., (known as the Wool Trust, and controlling many of the large mills) has issued instructions to its numerous buying agents to decline the purchase of wools which have been damaged by the lime and sulphur dip. This step, it is explained, has become necessary in consequence of the difficulty of working up wools so injured. Thus it would seem that the producer has not advanced in his methods at the same pace as the manufacturer in the matter of sheep dips. It is thought the action of the trust will work beneficially for the sheepmen. Good wools will fetch the highest market prices; the poor, faulty wools will hang on hand, and thus sheepmen will be forced to adopt the best methods to obtain good prices. Formerly there was some truth in the claim often made by progressive wool-growers that they could not obtain better prices than their neighbors who used lime and sulphur, but the situation is rapidly changing.

For the Amateur Fruit Grower.—From the Farm Stock and Home Publishing Co., Minneapolis, Minn., we have received a copy of "Amateur Fruit Growing," by Prof. Samuel B. Green, of the University of Minnesota, author of that other admirable work, "Vegetable Gardening," referred to in our last issue. The volume now under review does not profess to be a complete manual of horticulture, but is an excellent work for the constituency which it professes to serve—the beginner, and is particularly well adapted for those living in the northerly climes. It not only deals with all the principal varieties of large and small fruits, but deals fully in a practical, common-sense way with methods of cultivation, propagation, planting, pruning, etc., and the treatment of insect and other pests. The latter portions of the book are exceedingly useful to the fruit-growing farmer.

With regard to varieties, newer ones are continually coming to the front, and each Province of Canada or district, or each State, will have its special favorites, so that this portion of the volume is not, perhaps, as important as the rest; but our readers in colder districts will be specially interested in the appendix by Prof. J. L. Budd, of the Iowa Agricultural College, giving a list of the varieties which he considers hardiest and best adapted for the extreme north. The volume is bound in cloth, contains many illustrations of a useful character, and over 130 pages, with here and there a few blank pages on which notes of value from the readers' own experience and observation may be added. It may be ordered through this office at 50 cents.

Windmill Bearings.

To the Editor FARMER'S ADVOCATE:
 With your permission we would like to reply briefly to Mr. David Lawrence's letter, in your issue of May 21st, about the relative merits of babbitt, graphite or roller bearings. For over six years we have made roller-bearing windmills, with the bearings interchangeable, so that every customer could, if they proved unsatisfactory, change to babbitt or graphite bearings. We have put out many thousands of these patent roller bearings, and have never had to put in babbitt bearings in their stead. During the first year, when the rollers were put close together and had no cage to separate them, a few gave trouble, but we adopted the end cages and replaced the defective bearings with the improved roller bearings, and have had practically no trouble or difficulty since. Over 95 per cent. of our output is fitted with roller bearings, and every one is sold under a positive guarantee. Our patent roller bearings have proved so satisfactory that we have adopted them for factory use and have equipped our own new factory and several more with them.

Mr. Lawrence is wrongly informed about roller bearings having been discarded by several firms. We only know of two firms who have ever used them on windmills. Our Company was the first, and we hold a Canadian patent on our roller bearings running in an outer-steel casing. We began their use in 1893, and have found them a thorough success, and our sales have increased one-third each year firm adopted them, but could not use the outer hard steel casing (this casing forms a sleeve or track for the rollers to run in, because protected by our patent, and they allowed the rollers to run in cast iron, and as a result, met with a sad disappointment and failure, and are crawling out of their difficulty as rapidly as they can. We tried the same plan at the outset, but found it a failure, and invented the that a proper roller bearing can rest satisfied that a proper roller bearing can rest satisfied that a proper roller bearing can rest satisfied to be a more satisfactory than on a mower or horse, but, because elevated above the sand and dirt.

ROBERT HUNTER & SONS, LTD.,

HORSEMEN! THE ONLY GENUINE IS

GOMBAULT'S CAUSTIC BALSAM.

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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, SUPPRESSES 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.

Maple Glen Stock Farm.

Special Offer: An August bull calf, sired by Gem Pieterje 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 1888 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. Gilroy & Son, Glen Buell, Ont. Brockville, on C. P. R. or G. T. R. -om

MAPLE HILL HOLSTEIN-FRIESIANS

Three Yearling Heifers, sired by Colanthus Abbekerk 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 Madge Merton. -om

G. W. CLEMONS, St. George, Ont.

WE WANT TO SELL A FEW

Holstein Heifers, coming 2 years old
 or a few young Cows.

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. -om

HENRY STEVENS & SONS.

LACONA, OSWEGO CO., N. Y.

KEEP THE BOYS ON THE FARM

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. **J. YUILL & SONS, Props., Carleton Place.** -om

Maple Cliff Dairy and Stock Farm.

Breeders of **FOR SALE:**
AYRSHIRES, 1 yearling and 6 bull calves from 2 to 8 months old.
TAMWORTHS, Boars and sows, 6 to 8 months old, improved and sucking pigs.
BERKSHIRES. Booking orders for young pigs.

R. REID & CO., Hintonburg.
 Farm 1 mile from Ottawa. Electric cars to farm. -om

Choice Ayrshires, Barred Rocks and Eggs.

FINE BULLS fit for service. Bull calves, and heifers. A few Barred Rock cockerels. Eggs for hatching from choice matings in Barred Rocks, at \$2 per 15; incubator eggs, \$4 per 100; Cayuga duck eggs, \$1 per 11.



JAS. McCORMACK & SON,
 -om ROCKTON, ONTARIO.

Ayrshire Bull Calves of 1899

One bull 5 months and young calves 2 to 3 weeks, from some of our best imported cows. Will sell at reasonable prices. Address:

ROBT. HUNTER,
 -om Manager to W. W. Ogilvie. LACHINE RAPIDS, QUE.

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. -om

WM. STEWART & SON, MENIE, ONT.

METAL EAR LABELS

Used by all Live Stock Record Associations.
BURCH
 Sheep size, per 100, ... \$1.50
 Hog size, per 100, ... 1.50
 Cattle size, per 100, ... 2.00
 Punch and Pliers for attaching labels to ear, each \$1.00. Name on one side and any numbers wanted on reverse side.
F. S. BURCH & CO.,
 -om 178 Michigan St., CHICAGO, ILL.

Summer Hill Herd

HEADQUARTERS FOR THE IDEAL BACON HOG.



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.

D. C. FLATT, MILLGROVE, ONT.

Ayrshires, Guernseys, Yorkshires and Shropshires are our leaders.



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—



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

Persianic Sheep Dip and Animal Wash.

A NON-POISONOUS LIQUID "DIP."

Kills Ticks. Kills Red Lice. Heals Wounds.

Greatly Improves quality of WOOL.

For Horses, Cattle, and Pigs.

Removes all insects. Thoroughly cleanses the skin.

Leading "STOCKMEN" endorse it as the CHEAPEST and most EFFECTIVE "Dip" on the market.

SOLD BY ALL DRUGGISTS, 50 cents PER QT. Special rates in larger quantities.

MADE ONLY BY The Pickhardt Renfrew Co. LIMITED, STOUFFVILLE, ONT.

NOTICE.

"Ellwood" Steel Fences.—The "Ellwood" Fence has come to stay. It is what the manufacturers say of it. The "Ellwood" fence, it is claimed, was among the first woven wire fences to obtain popularity, and since its introduction, about ten years ago, not a season has elapsed in which the sales have failed to increase very materially over preceding seasons. Barbed wire makes a good fence and for certain purposes is still desirable. For general fencing purposes, however, something better and more durable than the barbed wire fence, and something that will not injure stock, is positively demanded. Thousands of farms have been fenced in whole or in part with the "Ellwood" fences, but the fact remains that the country still requires to be fenced, because the proportion enclosed with wire fences is very small as compared with the total acreage. The manufacturers state that "Ellwood" fences are made of the very best hard steel wire which is practical for fencing purposes. The wire is thoroughly galvanized before the fence is woven, and the weaving makes ample provision for the greatest amount of expansion and contraction possible by reason of heat or cold. It is a strong, well-put-together, thoroughly efficient and durable fence, requiring only to be properly put up to insure its lasting a lifetime. The American Steel & Wire Co. issues a very neat little catalogue describing the "Ellwood" fences, and giving instructions on how to put them up, which will be mailed you for the asking, and readers are urged to send for this catalogue in order that they may study the merits of woven wire fencing for general farm and ranch purposes. "Ellwood" fences are sold by agents everywhere. Thousands of dealers throughout the country are able to supply the fence in any quantity, but as it is possible some towns have not yet secured an agency, in case of inability to find an agent, write for full particulars to the American Steel & Wire Co., The Rookery, Chicago, Ill., or Empire Building, New York.

GOSSIP.

The stallion, Dashwood 12488, Vol. IX., A. T. R., portrayed on page 297, has a 4-year-old trotting race record of 2:22. He is Standardbred, under rules 1 and 6. He was bred by H. T. and F. D. Stout, Highland Farm, Dubuque, Iowa, and foaled in 1888. He was sired by Sentinel Wilkes 2499; 1st dam Nutwood Queen, by Nutwood 600; 2nd dam Lady M., by Almont 33; 3rd dam Black Girl, by Cassius M. Clay Jr., 22; 4th dam by Grey Eagle.

The prize list of the Brandon summer fair has been issued. The prizes in the different classes of live stock and farm produce are, as usual, such as will doubtless attract a large number of exhibitors. In the Shorthorn class, \$250 has been contributed towards the prize list by the Dominion Shorthorn Breeders' Association, and this is divided among all the sections, both of the home-bred and open classes, the home-bred class for Shorthorns being continued by the Brandon Association. A good list of attractions is promised, and there is no doubt that the Brandon Fair will this year be a greater success than ever. An important announcement is made that free transportation of exhibits has been arranged for. The dates are July 31st and August 1st, 2nd and 3rd.

LINCOLN RED SHORTHORN SALE. On April 26th the Lincoln Red Shorthorn Society held an auction sale at Lincoln, England, at which 239 bulls were entered at an upset price of \$75 per head. Of these, 201 were sold at an average of \$120, the range of prices being from \$81 to \$325, and the highest average of the consignment of any individual breeder, \$239. These cattle are to all intents and purposes Shorthorns in appearance, and large y so in pedigree, uniformly red in color, and noted for their good milking qualities. They have gained a high reputation locally, and have a herd book register.

DEATH OF MR. JAMES COWAN. The death is announced, on May 22nd, of Mr. James Cowan, of Galt, at his residence, "Craigie Lea," in that town, in the 98th year of his age. Mr. Cowan was for many years a successful and extensive breeder of Shorthorn cattle and Leicester sheep, on the homestead farm, "Clochmor," and was probably at the time of his death the oldest breeder of pure-bred stock in Canada. He was an excellent farmer, and at one time took a prominent part in public life, having for several years represented one of the ridings of Waterloo County in the Canadian Parliament, and subsequently for many years held the position of Dominion Arbitrator.

OFFICIAL TESTS OF HOLSTEIN FRIESIAN COWS FROM APRIL 1 TO MAY 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 83.7-per-cent. rule. Summary.—During the month of April of the present year, 31 reports of such tests were received by the Secretary. Thirteen of these were of cows 4 years old or over. Of these cows, the average product of milk was 269.9 pounds, the average per cent. of fat 3.75, and the average product of fat 13.86 pounds, equivalent to 17 lbs. 5.9 ozs., butter 80 per cent. fat to a lb., or 16 lbs. 3.4 ozs., at 85.7 per cent. fat to a lb. There were also thirteen between 3 and 4 years old, of which the average milk product was 339.2 lbs., with an average per cent. of fat, 3.82, and an average product of fat of 11.91 lbs., equivalent to 14 lbs. 11.2 ozs., butter at 80 per cent. fat to the lb., or 13 lbs. 11.3 ozs., at 85.7 per cent. to the lb. The remaining cows, 8 in number, ranged from 1 year 8 months and 29 days to 3 years old, of which the average milk product was 272.8 lbs., the average per cent. fat, 3.47, and the average product of fat, 9.62 lbs., equivalent to 11 lbs. 13.2 ozs., butter at 80 per cent. fat to the lb., or 11 lbs. 9.6 ozs., at 85.7 per cent. fat to the lb. Four net profit tests were reported: Two cows of full age, of which one produced a net profit of \$3.71, and the other a net profit of \$2.91; one 3-year-old cow produced a net profit of \$3.21, and one 2-year-old a net profit of \$2.91 in the seven days.

THE PROVINCIAL Mutual Hail Insurance Co.

Incorporated in 1891 by [Manitoba Government]. 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 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.

David Maxwell & Sons, ST. MARY'S, ONT.

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.	6 gal.	Capacity	Churns from
0	6 gal.	1 to 3 gal. 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.

COMPLETE REORGANIZATION.

The Manitoba Farmers' Mutual Hail Insurance Co.

A MUTUAL Hail Insurance Co. of the farmers, for the farmers.

CROP ACREAGE ONLY INSURED. REMUNERATION \$5.00 PER ACRE. Limit of assessment reduced to Four per cent. (equals 20 cents per acre). \$2,000,000 Insurance in force. Good reliable local agents wanted. Correspondence solicited.

Address: W. C. GRAHAM, MANAGER, BOX 672, WINNIPEG.

Shropshire Rams and Ewes

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 ROBERT MILLER, STOUFFVILLE, ONT.

IMPORTATION

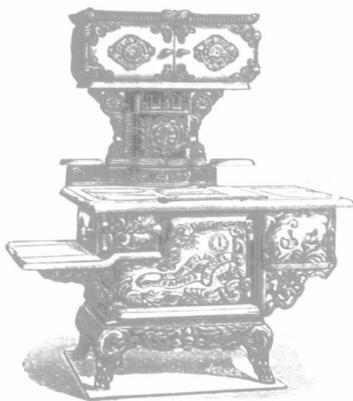
Of Shropshires for Fairview Farm in July. Our D. J. Campbell will select and import. Only choice rams and ewes will be brought out. The good ones that please customers first and last. We breed them and import them. Orders can now be looked for imported stock, and some good rams are now at Fairview. JOHN CAMPBELL, Woodville, Ont., Canada.

W. W. Chapman,

Secretary of the National Sheep Breeders' Association, Secretary of the Kent or Romney Marsh Sheep Breeders' Association, and late Secretary of the Southdown Sheep Society. Pedigree Live Stock Agent, Exporter and shipper. All kinds of registered stock personally selected and exported on commission; quotations given, and all enquiries answered. Address: FITZALAN HOUSE, ARUNDEL ST., STRAND, LONDON W. W. Cables—Sheepcote, London.

SAVE FUEL BY USING A

Famous Model Range FOR WOOD.



CAN BE FITTED FOR COAL IF REQUIRED.

THERMOMETER in oven door shows EXACT COOKING HEAT for pies, cakes, bread, etc.
VENTILATED OVEN allows of a constant circulation of PURE WARM AIR.
STEEL OVEN BOTTOM (that cannot crack or warp) heats oven quickly.
CEMENTED BOTTOM causes even baking of food.
ASBESTOS OVEN FRONT prevents heat escaping.

EXTRA HEAVY FIRE EXPOSED PARTS.
SECTIONAL FIRE-BOX LININGS AND STOVE TOP THAT CANNOT WARP.

THE McCLARY MFG. CO.,

LONDON, TORONTO, MONTREAL, WINNIPEG, VANCOUVER.

FOR **FATTER SHEEP** AND **MORE WOOL**

DIP YOUR SHEEP IN COOPER'S DIP

BENEFITS THE FLOCK ERADICATES INSECTS AND DISEASE

Used and endorsed by Hon. John Dryden, Minister of Agriculture, Toronto, and leading breeders everywhere.

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

EVANS & SONS,
 Montreal or Toronto.

Premiums on application to—
COOPER & NEPHEWS,
 142 Illinois St., Chicago.
 Write for pamphlet. om

Snelgrove Berkshires.

When others fail to please you with a good pig, come to us. Our herd is bred from the best strains of the Large English Berkshires. We now have a very promising lot of young pigs, April farrow, sired by Colonel Brant 5950 (first prize under 12 months, Toronto, 1900) and Dictator 5944. Write for prices.

SNELL & LYONS,
 Snelgrove, Ont.

We lead, others follow.



Oak Lodge Yorkshires have a special type of their own, and are acknowledged to be the highest class of bacon hogs. Grand sweepstakes over all other breeds on foot and for dressed carcasses at Provincial Winter Show. Won all herd prizes offered at the largest Canadian exhibitions.

Improve the quality of your pigs by securing some of Oak Lodge blood. **Quality! quality!** our motto. All stock fully guaranteed. om

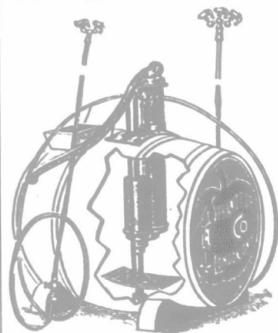
Brethour & Saunders, Burford, Ont., Can.

DUROC-JERSEY SWINE.

We have a fine lot of all ages and either sex. Address, om **TAPE BROS.,** Ridgetown, Ont.

PLEASE MENTION FARMER'S ADVOCATE.

THE SPRAMOTOR CO.



Shipped export consignments on the 25th May, 1900, to the Department of Agriculture at St. Petersburg, Russia; to the president of the High Council of Agriculture, Belgium, and to Dunedin, New Zealand, and Cape Town, South Africa. The capabilities of the Spramotor are being appreciated all over the world.

Write for their copyrighted treatise on spraying. It is the latest and best information on the subject, and is free at any agency of the Spramotor, or by mail.

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.

H. J. Davis Judges.

Address—**SPRAMOTOR CO.,**
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THINK !!

Three pounds of impure salt will spoil one hundred pounds of butter or cheese. Buttermakers and cheesemakers, the salt for you is

Windsor Salt.

Perfectly pure and satisfactory in every respect.

THE **Windsor Salt Co.,**
 LIMITED,
 WINDSOR, ONTARIO.

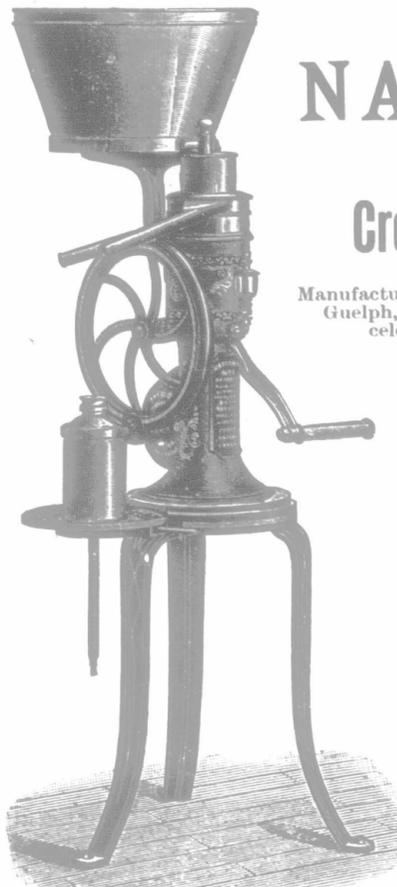
Large White Yorkshires.

An offering during this month a grand lot of boars and sows ready for breeding, pairs supplied, not skin from show stock; also several sows in pig to imported boar. Young pigs from 2 to 3 months old, all of the most improved type. Registers furnished. Express prepaid. Address:

H. J. DAVIS,
 BOX 290, WOODSTOCK, ONT.

THE **NATIONAL** FARM Cream Separator

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



"NATIONAL" NO. 1 HAND POWER. Capacity, 330 to 350 lbs. per hour.

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.

THE CREAMERY SUPPLY CO.,
 GUELPH, ONT.,
 General agents for Ontario.

MESSRS. CAMPBELL & GLENN,
 381 TALBOT ST.,
 LONDON, ONT.,

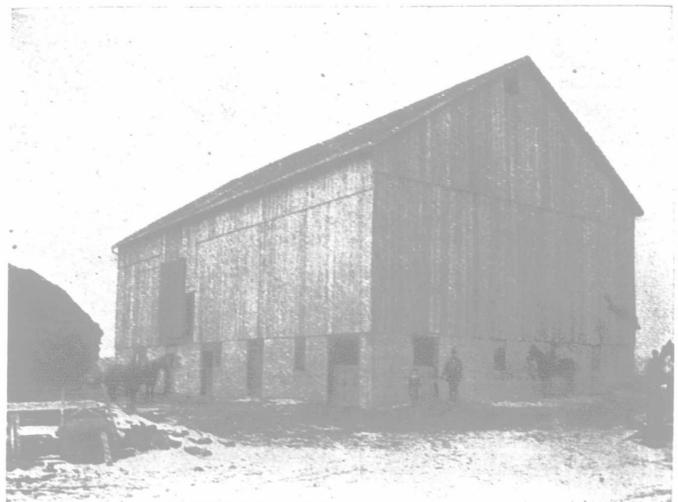
Agents for the Counties of Middlesex and West.

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

A GOOD BARN.

With walls 11 feet high, and arched roof-house under driveway. Walls

Built With **THOROLD CEMENT**



Barn of John McFarlan, Leeshoro, Ont. Size, 50x80 feet; walls 11 feet high. Walls and Floors built with Battle's Thorold Cement.

READ WHAT MR. MCFARLAN SAYS:

ESTATE OF JOHN BATTLE, CEMENT MANUFACTURERS, THOROLD, ONT.: LEESHORO, ONT., DEC. 22, 1899.
 Dear Sirs,—It is with pleasure I testify to the good qualities of your Thorold Cement, having used it in building the concrete walls of my barn, size 50x80, walls 11 feet high, with roof-house under driveway 11x42 feet, arched roof. The work was done under the supervision of Mr. Walter Lambert, and the floors under Mr. N. E. Hazar. I consider the work a credit both to them and to you. I have no hesitation in recommending your Cement to those requiring its use. JOHN MCFARLAN.

Estate of John Battle, Thorold, Ontario.

GOSSIP.

S. J. Pearson & Son, Meadowvale, Ont., advertise in this issue Scotch-bred Shorthorn bulls and heifers of fine quality and in good condition. Note the ad., and write them for prices.

A portion of the dairy herd of Shorthorn cattle, the property of Mr. Scott-Murray, Henley-on-Thames, England, sold at auction May 3rd by John Thornton & Co., realized an average of £10 5s. 8d., the highest price for a female being 50 guineas for French Rose 3rd, and the highest for a bull, 130 guineas, for Hopeful Beau, bought by Mr. Lovell.

Mr. Peter Bathgate, a retired farmer, formerly of the township of Eramosa, a breeder of Shorthorn cattle and a progressive farmer, died suddenly in the city of Guelph on May 20th, in his 72nd year. He had only a few days previously removed from the country to the city, where he and his wife intended to spend the remainder of their days.

At the auction sale of Shorthorns from the herd of Mr. J. T. Hobbs, Maisey Hampton, England, May 4th, the 33 head sold brought an average of £11 6s. 5d. The highest price of the sale was paid by Mr. R. Henderson for Quicksilver 10th, a fine roan cow by Royal Nottingham, and Mr. Deane Willis paid 100 guineas for Ruby 20th, by the same sire.

The prohibition of the importation of cattle from South America has caused consternation among shippers and butchers at Glasgow. The prices of cattle and sheep have advanced to the highest quotation since 1882. The frozen meat trade is expected to reap benefit, and it is anticipated that an attempt will be made to defeat the Board of Agriculture's decree by shipping Argentine cattle to Antwerp for slaughter and transhipment to England.

On Saturday, April 21st, Messrs. Alfred Mansell & Co., live stock exporters, Shrewsbury, England, shipped per the S. S. "Westphalia" from Hamburg 245 Rambouillet Merinos, on account of Messrs. Harting & Son, of Waukesha, Wis. All these animals were selected with the assistance of Mr. Alfred Mansell from the leading Merino flocks in Germany, and included 52 rams and 193 ewes, and a certain proportion of them were Polled Merinos.

At the sale of 70 Hackneys, property of four breeders, held at Eccleshill, England, last month, an average on the whole number of £52 was made. The 3-year-old brown stallion, Copley Master, by Grand Master II., brought the highest price (450 guineas) and fell to Mr. C. Briggs, Islington; a bay 2-year-old by the same sire went to Alex. Gemmill at 290 guineas, and Copleymede, by Gannymede, made 270 guineas, Mr. Briggs being the buyer. Eighty-two guineas was the highest for a mare.

Those of our readers who are disposed to improve their stock and are not within convenient reach of pure-bred sires, will do well to consult the advertising columns of the FARMER'S ADVOCATE, where they will find what they need, offered by breeders of nearly every class of stock. While the demand has been unusually good for pure-bred males, there are yet a considerable number in the hands of breeders unsold, and which are held at moderate prices, such as a farmer can afford to pay.

One of the earliest of the English summer shows is that of the Wharfedale Agricultural Society, which was held this year at Otley, May 4th and 5th. In the class for Shorthorn bulls, 2 years or upwards, Mr. John Handley's Lord James Douglass was placed first, Mr. G. Harrison's Favorite of Sanguinar second, and Mr. F. Thompson's Royal Boy third. In yearling bulls Mr. T. Harrison, of Preston, won first with Colonial, Mr. W. Atkinson, of Milnthorpe, second with Merry Victor, and Mr. G. Harrison third with Emperor of Waterloo 3rd. Mr. Handley was first with bull calf, Mr. H. Williams second, and Lord Middleton third. Mr. G. Harrison won first honors in all three sections for females, his Welcome being the winning cow. Welfare winning first as a 2-year-old heifer, and Village Queen first as a yearling.

At the recent third annual meeting of the Continental Dorset Club at Pittsburg, Pa., Mr. J. F. Hickman was elected President and Jos. E. Wing Secretary. Mr. H. H. Miller reported that the committee appointed, of which he was chairman, to confer with the other association to see if a basis for consolidation could not be found, had received no encouragement from the committee of the said association, and recommending that we make no other advances. The report was accepted and the committee discharged. The publication of the flock book was put in the hands of the Secretary and Executive Committee, and ordered to be completed and the first volume published as soon as practicable.

The great demand for Shorthorn cattle for breeding and show purposes from the United States has made such heavy drifts upon Ontario herds that the prospect is that the breed may not make as strong a showing as usual at the exhibitions this year, unless a special effort is made by breeders to prepare for filling up the ranks by fitting a few for the shows. To our mind it is a mistake for breeders to refrain from showing because they can't enter a herd that is likely to win. If every breeder who has one or two animals good enough to make a creditable show would fit and bring them out, it would add greatly to the interest of the shows and to the reputation of the breed. There are few herds which could not contribute one or more that would do honor to their class, and we hope to see a large number of competitors. The prizes are numerous and liberal, and there is a fighting chance to get a share of it. Let us have a good showing.

We understand that the last of the vessels which left Buenos Ayres before the prohibitory order was passed has arrived at Deptford, and that altogether somewhere about twenty-three cargoes have arrived in which foot-and-mouth disease was discovered. In some instances the animals died on the voyage, and in a few the whole of the cattle were thrown overboard in consequence of the serious condition into which they fell during the voyage. In nearly every instance the sheep were also affected. We are anxiously waiting the next few days to pass to hear whether the admirable precautions taken have succeeded in preventing the escape of the disease, and should this be so the agriculturists and public will doubtless feel a great sense of relief, and the Board of Agriculture will justly be congratulated. No further outbreak has been reported from Norfolk, which is good news.—London Live Stock Journal, May 11th.

A \$3000. STOCK BOOK FREE

It contains 183 large colored engravings of Horses, Cattle, Sheep, Hogs and Poultry with an illustrated veterinary department. The engravings cost us \$3000. We will mail you one copy free, postage prepaid, if you write us and answer these four questions: 1st—Did you ever use "International Stock Food" for Horses, Cattle, Sheep or Hogs? 2nd—Is it for sale in your town in 35-lb. pairs? 3rd—How many head of stock do you own? 4th—Name this paper. "International Stock Food" is a safe vegetable stimulating tonic and blood purifier. It fattens stock in 30 days less time and saves grain. Aids digestion and assimilation. Thousands of farmers feed 500 to 300 lbs. every year. It makes colts, calves, lambs and pigs grow very rapidly and only costs 3¢. Feeds for One Cent. Makes hogs weigh 300 lbs. at 6 months. It cures and prevents many diseases. Always sold on a guarantee to refund your money if it ever fails. Cheap and inferior imitations are on the market. Our dealers give this book free with "International Stock Food" in pairs or barrels.

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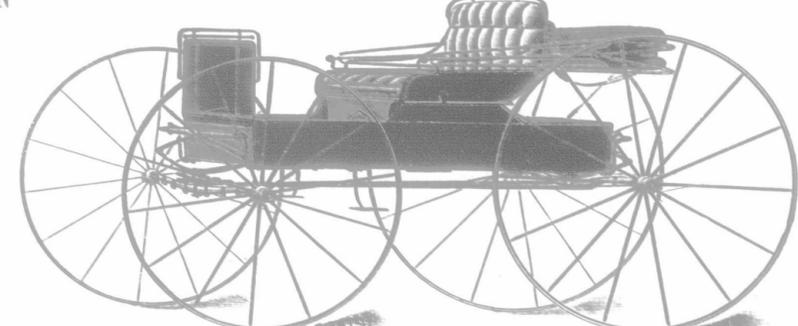
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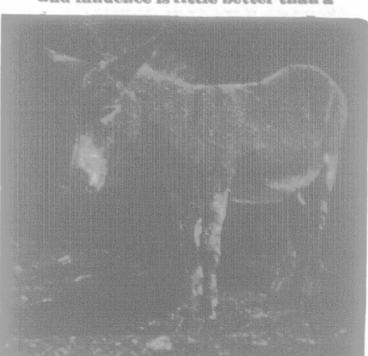
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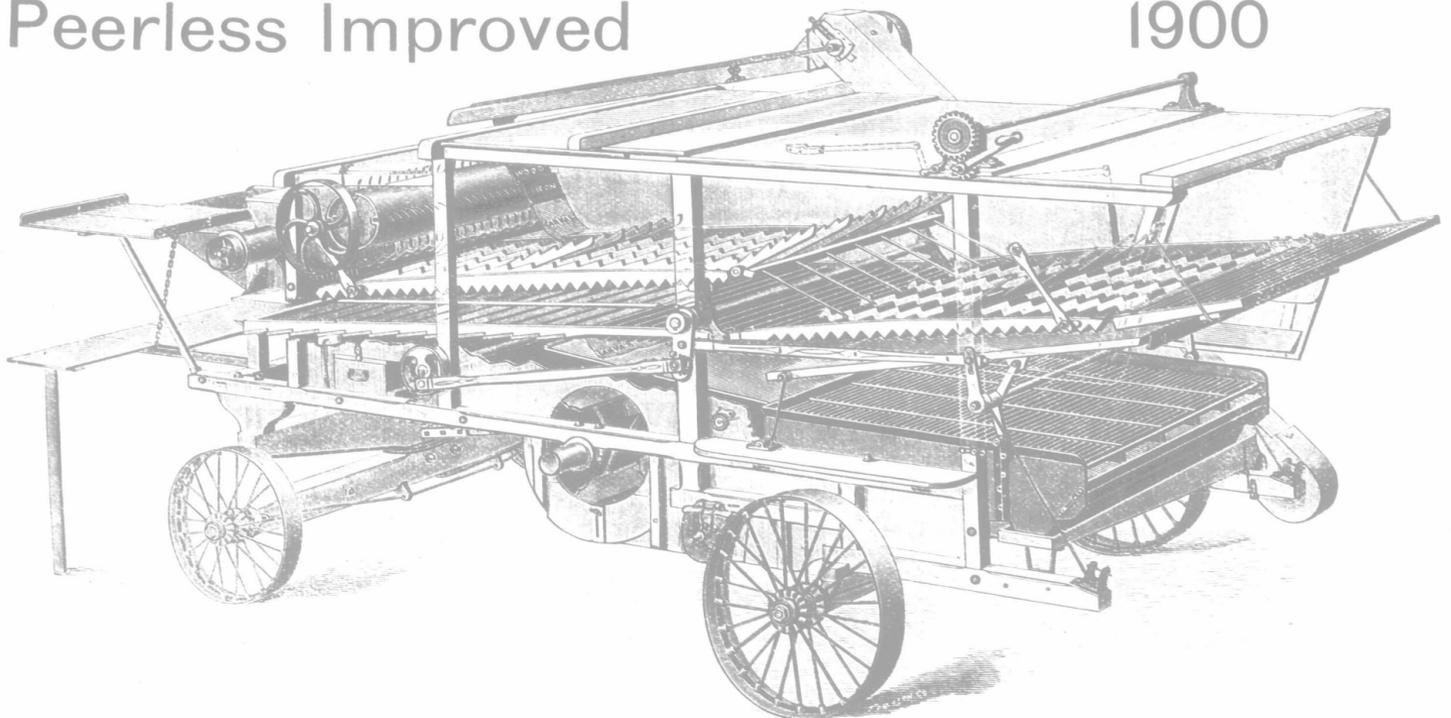
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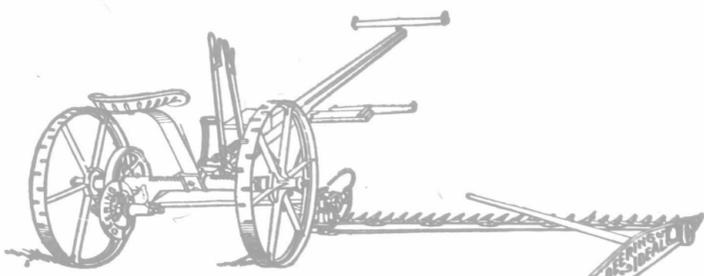
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