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# THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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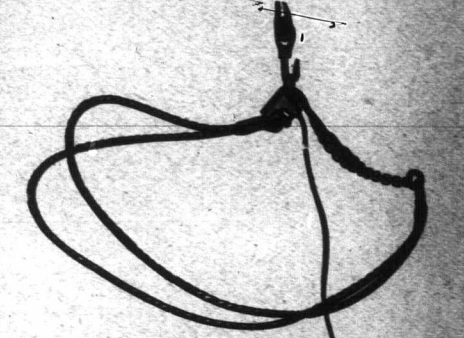
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AND HOME MAGAZINE

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

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## EDITORIAL.

### 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.

### Improving the Country Road.

It must surely be now very generally recognized that the three great means of road improvement are: 1st, drainage; 2nd, grading, and 3rd, graveling or coating with broken stone. To expect a good and durable driveway where water fills the open ditches, unprovided with any proper outlet, and lies underneath the roadbed itself, is altogether out of the question. Such conditions render the road soft, and a break-up into ruts is inevitable with every spell of wet weather. In the next place, providing the road is properly drained, the driveway itself must not be allowed to remain wide and flat, but be carefully graded up to a moderate crown and kept smooth so as to quickly shed the water which falls during rain storms; and, lastly, if a permanently smooth road is expected, it must also be well coated with gravel or broken stone, the latter being especially desirable where the traffic is heavy. Much might be said on each of these three fundamental principles of roadmaking, but we pass on to call attention to another point recently brought forcibly to our mind by a reference to the unsightly state in which the sides of many roads are maintained, particularly the portion between the roadway and the fence. In too many cases that bit of the way so much used by young and old going to the neighbors', the store, post office, church or school, still continues in all the unevenness it had when the land was first cleared, humps and hollows, added to which is a mass of thistles and other weeds, which make most unpleasant walking, especially when the weather is wet. This is neither right nor just to those who are compelled to walk. In the winter the snow banks cover up this unsightly and untidy appearance, but now the covering has gone, and there it is again in all its ugliness. Then, again, many make a practice of dumping brush from the orchard and other rubbish on the roadside. We should have not only a good road for horses and vehicles, but the sides ought to be cleared of stones and weeds, levelled down smooth, so that pedestrians might walk along comfortably and not have to go up and down, in and out, to avoid the obstructions mentioned and the little hills that were made by the up-turned roots of trees a hundred years ago. Such improvements can be made for very little outlay, and would add vastly to the comfort of travel and to the appearance and value of the adjacent farms. This is a matter deserving the careful attention of pathmasters, commissioners or councilmen, as the case may be, who are responsible for the condition of the country roads.

### 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

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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 filled 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.

### The Guelph Experimental Farm.

The thousands of excursionists that will visit the Ontario Agricultural College farm at Guelph during the coming few weeks will find much of real interest and profit if they will but look into the work in which they feel a special concern. One cannot hope to take in in a single day more than a small portion of the lessons that are to be learned at such an institution. The field experimental plots alone could easily occupy a week of careful study in order to gain anything like a comprehensive view of the work so well conducted under the supervision of the energetic and keenly discriminating Experimentalist, Mr. C. A. Zavitz. At this season the plots, covering almost half a hundred acres, present a motley appearance, with their variety of crops, covering grasses, clovers, fall and spring grains, fodders, etc., in various stages of development. The fall wheats are particularly luxuriant, having come through the winter with almost every plant alive, except in a few spots where ice lodged for an extended period. While definite crop results are not yet determinable, fairly positive deductions can be drawn from the condition of one long range of fall wheat stretching across plots of 1899, where various leguminous and other crops were plowed under for manure. The wheat growing where the Common Red, Mammoth Red, Sweet and Alsike clovers were plowed down is decidedly darker and more luxuriant than where such crops as buckwheat, rape, etc., were turned under. Another range shows a comparison between the use of such annual crops as peas, rape, buckwheat, Crimson clover, and bare summer-fallow with twenty tons of yard manure per acre, and bare summer-fallow with no manure. At present the crop following fallow with 20 tons of manure presents the most promising appearance, with that manured with growing peas next in order. These plots and all others are plainly labeled, so that visitors can easily study out for themselves the results of various treatments.

Another interesting range of plots indicate at this season a wide difference between various varieties of grasses for spring pasture. Compared with timothy and Blue grass, which are our standard grasses, there are several sorts that are quite a week earlier. Lyme grass (*Elymus Virginicus*) and Western Rye grass (*Agropyrum tenerum*) are Western grasses that promise well. The plots of these are thick, luxuriant and well advanced. Tall oat grass (*Arrhenatherum averaceum*) is very early and also hardy, but it does not stool out sufficiently to be considered equal to the above sorts, except, perhaps, in a mixture. Brome grass (*Bromus inermis*) at the time of our visit, May 18th, presented an appearance equal to timothy. Western Rye grass (*Lolium perenne*) is a hardy sort, quite as dense as timothy, and about a week or ten days earlier. Orchard grass (*Dactylis glomerata*) proves itself a tender variety at Guelph. Of the many grasses tested, it seemed about the worst killed out of any of those seeded last year. It is very early where it does well, but inclines to grow in bunches. Both the Canadian and Kentucky Blue varieties were dense, but short and late.

Another interesting test, and one which is being given its first trial this year—and, by the way, it was suggested by the FARMER'S ADVOCATE—is to determine in various ways the relative values of several forage crops for pasture. This is to meet a demand for information as to what crops to sow in spring for summer forage in case of a failure of grasses and clovers sown the previous year. The crops being tested are the following, and are sown in triplicate or in three ranges: Oats, oats and peas, oats and vetches, oats and hairy vetches, barley, spring wheat, buckwheat, spring rye, Hungarian grass, corn, sorghum, Kaffir corn, common Red clover, Crimson clover, common vetches, hairy vetches, peas, grass peas, cow peas, yellow soy beans, and Dwarf Essex rape. These crops will be tested for earliness, bulk of crop, and palatability, in the following ways: Range 1 will be all cut at the same time and weighed, as early as a number of the crops are fit for pasture. This range will again be cut and weighed as soon as they again reach a pasturing size. Range 2 will not all be cut at the same time, but each crop will be taken off as it becomes ready. Range 3 will have a hurdle fence surrounding all the crops, to enclose cattle, in order to learn the preferences animals may have for the various crops. It is hoped that many valuable lessons will be learned from these comparisons of forage catch crops for pasture.

The Farm, which is now under the supervision of Prof. G. E. Day, B. S. A., presents a promising appearance. The fall wheat areas, chiefly of Dawson's Golden Chaff, promise a full harvest, while considerable of the new seeds look exceedingly well considering the summer drought of 1899. Spring grains were all nicely up, having been sown under very favorable conditions. The corn land had been well manured and cultivated ready for the drill, which was to commence on the 19th inst. The variety being sown is Wisconsin Earliest White Dent, a sort that matures well in Central Ontario, producing a heavy crop of fodder and ears. It is sown about 10 inches apart, at the rate of about 25 pounds per acre. The 18 head of first-class export steers in this department are a grand lot, that will average upwards of 1,100 lbs. each. They are soon to be shipped at top market figures.

The Poultry Department, in charge of Mr. W. R. Graham, B. S. A., presents evidences of energetic effort. At the time of our visit some 600 birds had been hatched since Feb. 8th, and it was estimated

that in two weeks later fully 1,000 chickens would be hatched, by incubators and hens. As was referred to in our issue of May 15, some attention is being given to winter-hatched broilers. Those that were sold in Toronto at the end of April brought a profit equal to \$1.20 per dozen for the eggs, had they been sold in that form. Experiments are being conducted with various foods for young chicks, and with foods and conditions best suited to prepare fowls for the British market.

Some attention is being given to egg records. A Eureka Patent nest box is used in a pen of Barred Plymouth Rocks. The fronts of the row of nests are hinged at the top, and swing inward as the hens go in to lay. The hens cannot escape from the nest, however, without assistance, so that when a hen has laid, she is taken out and a record made of her production. The use of this box has revealed some interesting facts. The pen of ten pullets commenced to lay on Nov. 2nd. Up till the 1st of March they laid an average of four dozen eggs each. Since that later date three have made individual records of 60 eggs each up till May 18th, while two others had produced only 16 eggs each, and two others no eggs at all. Without making this test, it might easily have been concluded that all the pullets were laying about equally well, as they all appeared thrifty and about equally vigorous. Mr. Graham considers it as important to have hens with egg records as to have cows with milk records, and it is his purpose to pursue this sort of investigation with all the breeds under his charge, and thus be able to improve the laying stock by selecting breeding hens that have made good records, and by setting only the eggs of the heaviest producers. Just here, however, Mr. Graham expressed a caution that should be observed in selecting eggs for setting. When a hen has laid heavily for an extended period there is a probability that some of the eggs will be infertile, and also that the germs in the fertile eggs will be weak. So that judgment must be exercised apart from selecting eggs from the heaviest layers.

Various substances and preparations have been tested for the preservation of eggs. Between water glass and vaseline there was no room for doubt as to which was superior. Eggs coated with vaseline for one year were stale and murky, quite unfit for use; while those kept in water glass for a like period broke as fresh and firm as newly-laid stock. These latter would do to boil, poach or cook in any form, and appeared quite as fresh in the shell as new-laid eggs.

A casual glance through the dairy, horticultural and other departments indicated to us that the work in these departments was being ably conducted. Visitors to the farm who are especially interested in these branches of farm work will learn considerable by giving attention to these departments during their stay at the farm.

## STOCK.

### 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.

### None Like It.

DEAR SIRS,—I received the premium, "Flowers, and how to grow them," all in good order. Am very much pleased with it. I think there is no paper like the FARMER'S ADVOCATE; we like it very much. I remain, Yours Truly,  
York County, Ont. MR. WM. ROWE.

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:

Table with 2 columns: Component (Ash, Protein, Fat, Water) and Per Cent. values.

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:

Table for 'In 20 pounds cow's milk' with components Sugar, Fat, Protein, Ash and their Per Cent. values.

Table for 'In 20 pounds increase on steer' with components Sugar, Fat, Protein, Ash and their Per Cent. values.

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:

Financial results table for the Ontario Agricultural College experiment, showing costs and values for a steer.

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:

Financial results table for butter dairying, comparing the value of a cow and its products against a steer.

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. Baumwart, 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

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 profitability of the soiling system has been well proved 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 Brome grass. 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



STANDARD-BRED STALLION, "DASHWOOD 12486. First prize, Canadian Horse Show, 1900. (See Gossip, page 339.) 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."

chickens would... As was re... attention is... Those that... brought a... eggs, had they... are being... chicks, and... to prepare... records. A... of Barred... row of nests... ward as the... escape from... so that when... record made... x has revealed... n pullets com... 1st of March... gs each. Since... d records... le two others... wo others no... test, it might... e pullets were... all appeared... Mr. Graham... ens with egg... records, and it... investigation... e, and thus be... lecting breed... rds, and by... est producera... essed a caution... gs for setting... tended period... e eggs will be... e fertile eggs... st be exercised... eaviest layers... ons have been... Between water... n for doubt as... with vaseline... quite unfit for... or a like period... stock. These... k in any form... well as new-laid... horticultural... o us that the... eing ably con... are especially... work will learn... these depart...

rls? What is... ck or red hair... Will the pig... ed faster than... ve hair of a... I have a boar... points to a lot... rry to discard... s, I suppose he... good fashion... people should... it any more... o a lot of curls... ne girl with a... uriant crop of... connected with... t want improv... ir, and one is... er at as early... e and Middle... pigs of about... ate pigs sooner... and the quality... Large White... s for the bacon... ge White boar... s, and you get... sure both are... et them both... their respective... r mind a swirl... square rump to... gs that will pay... either feed in a... should be bred... l bottom, wide... a good, thick... with a pleasant... length and lean... give them the... Amicus.

ium, "Flowers... od order. Am... nk there is no... TE: we like it... Truly,  
W. W. ROWE.

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 we made was 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 benzene. 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 heaves. 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 heaves 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, \$15,043.82. 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. Grisdale, 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.

FARM.

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 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 3 1/2 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.

Rape for Fall Pasture.

Only those who have had experience with a crop of rape for forage for sheep and lambs and for young cattle in the fall months can fully appreciate its value in the growth of flesh, and as a wholesome and invigorating food for stock. For fattening lambs it is especially valuable, as well as for feeding off old sheep or putting the ewe flock in the best condition for breeding early and strong lambs; while young cattle also improve rapidly on it and are brought into the best condition for entering upon winter fare. It is a crop that is easily grown, the seed costing, as a rule, not more than ten cents a pound, and requires no special skill in its cultivation. Any fairly fertile land will produce a good crop of rape if it is reduced to a fine tilth, the seed not covered too deeply, and the soil between the rows worked two or three times with the horse hoe. In very clean, loamy land, in a favorable season, a very good crop may be secured by sowing the seed broadcast, at the rate of about 4 lbs. to the acre, and covering with a light harrow. But, as a rule, the best results follow sowing in drills, about 24 or 26 inches apart, either on the level or on slightly-elevated ridges, when 2 lbs. per acre of seed is sufficient. The seed, being very similar to turnip seed, is generally sown with a turnip drill. Hand hoeing is seldom necessary unless thistles or other strong weeds are numerous, but the horse hoe used two or three times to keep down weeds and to keep the moisture in the land will give the crop such a start that it will require no further attention. Sowing from the 20th of June to 1st of July usually gives the most satisfactory crop, but a good deal of feed can be got by sowing any time up to the middle of August. In a moist season, wheat or barley stubble may be plowed after harvest, and a fair crop of rape grown. When the rape is about a foot high is a good time to turn in the lambs, giving them the run of a grass field as well, and putting them in the rape only when it is dry, till they get used to it. The stronger and more fully it is grown

the better feed it makes, and frost does not hurt, but rather improves, its feeding qualities, and sheep relish it and grow fat on it right up to winter, when the snow buries it out of sight.

Grass Adds No Fertility.

Many farmers misapprehend the effect of grass in its relation to fertility. They seem to think that if they can only get a stand of grass it will restore and maintain fertility, even though they cut the grass for hay and sell it in the market. This is not exactly the fact, although it is true that land in continuous cultivation declines in fertility more rapidly than when in grass. To sell hay off the farm, however, is selling the fertility of the land equally with selling grain. The only advantage the grass land has is that it does not suffer the losses from leaching, washing and oxidation that land under cultivation does. If the latter is kept covered constantly there is not much to choose between it and grass land even in this respect.

Grass makes no actual gain for the soil, although its roots do bring up from lower levels the fertility that is there—placing it near the surface where it is more accessible, and there is thus a seeming recovery from the effects of continuous cultivation. If the grass is pastured, or if it is made first into hay and then into manure that is saved and restored to the land, there is an actual increase in the surface or available supply of the elements of fertility, but there is no such addition as takes place when clover or other legumes are grown and pains is taken to restore the elements taken from the land by carefully saving and applying manure. Going to grass "rests the land" and rests the farmer, for it does not require the labor that cultivated crops demand; it prevents leaching and washing, and brings up fertility from lower strata so far as the roots are of the deeper penetrating kind; the decaying roots will add humus, a very essential element in fertile soil; if the annual product goes

Turnip Seed and Turpentine.

In our issue of May 15th we quoted from the Irish Farmer's Gazette a treatment for turnip seed, which was to soak the seed in spirits of turpentine for five hours. Lest some should fear that such a treatment would interfere with germination, we made a test with turnip—also rape—seed soaked for varying intervals. One lot of turnip seed was soaked for two hours, another lot for eight hours, and a lot of rape seed for five hours, in pure spirits of turpentine. Each of these lots, as well as untreated lots of turnip and rape seed, were sown on May 14th. On the 17th inst. each lot of rape seed was well up above ground, and on the 18th all the turnip seeds had made uniform and vigorous growth, there being no perceptible difference between the seeds which were soaked in turpentine for 2, 5 and 8 hours, and those which were not treated at all. So that no one need fear trying a few rows at least of turpentine-treated seed in order to test its efficiency in preventing the turnip fly from eating the young plants. After removing the seed from the turpentine it quickly dries when spread out thinly and occasionally stirred. A little dry ashes or land plaster rubbed amongst the seed after it becomes dry will counteract a slight stickiness that is liable to remain on the seed.

Cultivating Hoed Crops.

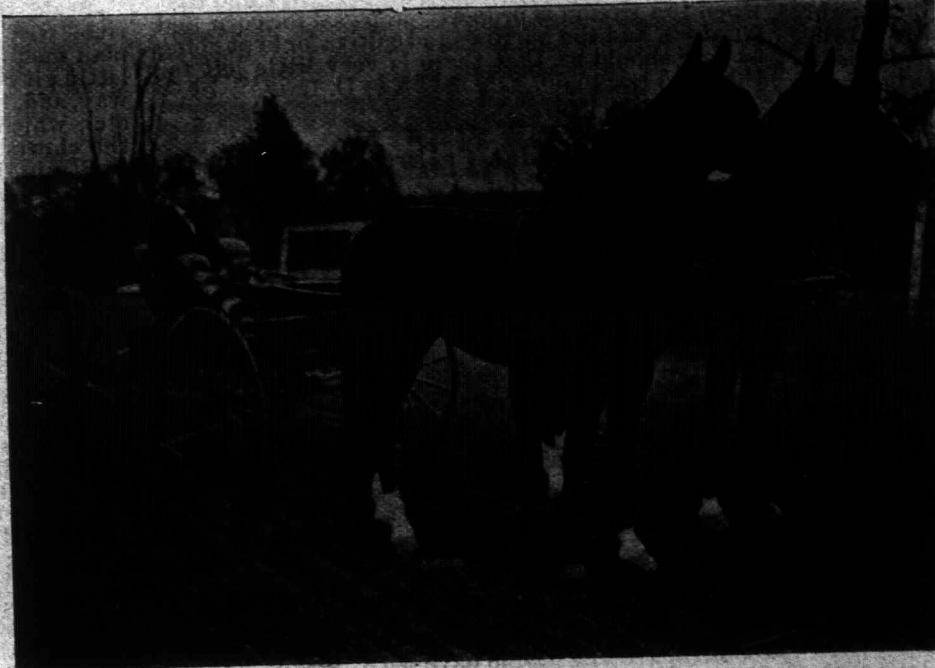
It is the invariable practice of this locality, and has always been our own, to use the scuffler very frequently on all hoed crops from the time the plant has made its first appearance, more especially if the season be dry. A large quantity of the soil being clay loam, somewhat heavy, it requires surface 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 hilled 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.

Clover Silage.

Mr. D. D. Andrews, who owns a farm in the Leland valley in Jefferson county, Western Washington, built a silo in 1890, and, with the exception of a single season when his second crop of clover was lighter than usual, has filled it with second-growth clover every year. The silo is built outside, and when it has been filled, a covering of plank is laid over the top. There are three doors, one above the other. Mr. Andrews, on being interviewed, said as follows: "The first few years I put a board cover on the silage and weighted it down carefully, but in recent years this is left off entirely, simply tramping down the spread while filling in. The clover is not run through a cutter, but is pitched directly into the silo through the doors until it is full above the doors. It is then pitched up on a platform, where another man throws it over the top into the silo. If the clover is cut and put in while nice and green, no extra moisture is added, but if it is rather ripe and dry, one man sprays water over it with an ordinary spray pump as it is put down in the silo. We fill the silo as rapidly as possible with one wagon and a crew of four men. If the clover is very green and has dew on it, we want it to dry off, because we think it would sour



ROADSTER PAIR, VICAR AND VICTOR, 15.1-2 AND 15.2 HANDS HIGH. Sired by Dashwood 12486, and 2nd prize, Canadian Horse Show, 1900. OWNED BY MISS E. WILKES, BLAIR, ONT.

back to the land in the manure, it will make the available supply of fertilizing elements greater at the surface, but there is no true grass that will do for land what clover and other legumes in a good rotation will do for it.

Mustard Spraying is Worthy of a Trial.

Both at the Guelph and Ottawa Experimental Stations, trials were given last year to the spraying of mustard-infested grain fields with various solutions, in order to determine their actions upon the mustard plants. At Guelph, three different strengths of iron sulphate and three of copper sulphate were used. Iron sulphate did no injury to the crop, nor did it entirely destroy the mustard. Copper sulphate, on the other hand, completely killed the mustard and did a very slight damage to the grain. The 2 per cent. solution of copper sulphate (2 pounds in 10 gallons of water), sprayed on the crop just as the mustard was commencing to blossom, gave entirely satisfactory results.

At Ottawa, the same conclusions were arrived at with regard to the material used and the strength to use it. Prof. Shutt, who conducted the tests, concludes that about 50 gallons are necessary for an acre of crop, and that if heavy rain comes within 24 hours after the spraying, the operation should be repeated. He also concludes that the spraying should not be delayed after the mustard plants have reached a height of 6 to 9 inches.

Just why a chemical like copper sulphate should destroy the mustard plant without injuring the grain crop is not yet thoroughly understood, nor need we worry over the reason nor disbelieve the evidence we have of its effects. So to those who have farms infested with mustard, we would say by all means give the treatment a trial on at least a few lands, in order to learn the real effects of the treatment.

too much, and where that takes place it gives a strong odor, which is objectionable." Mr. Andrews regards the silo as a valuable adjunct to a dairy farm, and says his experience leads him to believe that clover in the silo is a distinct success.

### Earth Roads.

From a bulletin recently issued by the Wisconsin Experiment Station, we clip the following extracts on the construction of earth roads. The suggestions offered will be of interest at this season when road work is in progress. One point worthy of special notice is the importance attached to the use of the roller in roadmaking. The general practice in this country is to throw up the grades and leave the packing of the soil to time and traffic. On some soils this plan may answer well enough, but on clay soils there can be no doubt of the benefit that would be derived from the proper use of the roller.

**Earth Roads.**—In the country in most parts of this country the greatest number of miles of travel for a long time to come must be made over earth roads. It is therefore of great importance that they should be built in the best possible manner. The proper construction of earth roads is made the more important through the fact that when well built and well maintained there is no road easier on the team, the carriage or the parties riding, where speed is an important consideration, than an earth road.

**Forming the Roadbed.**—After the grade has been established and underdrainage provided where necessary, all organic material and stone should be cleared out of the way and the road given the form and width desired by a modern road machine or by other means.

The road itself should have a width of 16 or 18 feet, bordered on either side by a strip of grass three feet wide, outside of which should be the surface drains, where needed, five feet wide at the top, two feet at the bottom, and 24 inches deep, making a total width of 32 or 34 feet.

The center of the roadbed should be thoroughly rolled with as heavy a roller as practicable in order to compact it and to discover in it any soft places. If soft places are found, these should be filled and brought to the proper level. If the soft place is due to a different kind of material, this should be removed and replaced by other and better.

The center of the finished road should be two to six inches higher than the margins at the grass border, varying with the width of the track, in order to give quick, complete surface drainage, and this should be built up in thin successive layers of as uniform material as possible. If earth is brought in from the sides and ditches, great care should be exercised in distributing it evenly and thoroughly harrowing it ahead of the roller, so as to secure the necessary uniformity of texture. This is of the utmost importance in order to prevent the formation of ruts. Thorough rolling should follow the addition of each layer of material, and should be kept up until a hard, even surface has been secured.

In making earth roads it is particularly important not to make them wider than necessary, because the narrow road is always more quickly and better drained, and lack of drainage more than anything else will destroy the earth road.

If the soil contains cobble stones, everything larger than one inch in diameter should be thrown out, otherwise they will form ruts.

If, in establishing the necessary grades on the earth roads, fills must be made, this filling should be done systematically, distributing the earth in uniform layers, which are thoroughly firmed with the roller as the work progresses.

**Preparing the Roadbed a Year or More in Advance.**—It will generally be found advantageous to get the roadbed into proper shape to receive the surfacing material, whether this be gravel or crushed rock, a year or more in advance, utilizing the weathering of rains, the frost of winter and the traffic to settle the roadbed, but directing and assisting these agencies by a timely and judicious use of the harrow, road machine and roller. It is particularly important to allow time to intervene where there has been much filling necessary.

**Roads on Gravelly Loam.**—Where the soils are a gravelly loam, the best earth roads are possible. The reason for this is found in the fact that a gravelly loam is made up of large and small grains in such proportions that when they are thoroughly worked and compacted the coarser sand particles work in between the gravel, and the fine clay particles between those of sand, in such a way that there is left almost no open space; under these conditions the water is shed the most rapidly and completely so that the road is less liable to soften under the travel over it, and it is less liable to be injured by frost.

**Roads in Fine Clay Soil.**—Where the soil is a fine adhesive clay it is hardly possible to make a good road without the aid of foreign material. Of course, by grading it into proper form so as to secure the needed drainage, the road will be good when it is not wet, and under these conditions it will remain fair much longer than if not so prepared, because, when this soil has been once thoroughly compacted and dry, water enters it very slowly, so that it is only during long wet spells and when the frost is going out that the most serious injury to the road comes.

**Clay Roads Surfaced with Gravel.**—Where gravel of suitable quality is available, a covering of three or four inches, thoroughly rolled and packed,

will very greatly improve the surface of a clay road, preventing it from softening so readily with every rain and with the action of frost. Even sand and good loam, where nothing better is available, will improve the quality.

### Practical Pointers on Hoed Crops.

We find it to be of the greatest advantage to have the ground prepared as early as possible. If it can be manured the previous fall, so much the better. Our ground for mangolds and carrots was plowed twice last fall and manured at the last plowing, and this spring we cultivated twice and got the ground in good shape, and the mangolds are up now very nicely. For our corn and turnip ground we haul the manure out in the winter, spreading from the sleigh or wagon, and plow down as soon as we can get at it, and then harrow or roll about once a week until time to plant or sow. After the corn and potatoes are planted we generally harrow twice, once shortly after planting, and again as the crop is coming up, if it does not come up so soon that we cannot get it done. We try to have the ground as fine and mellow as possible before planting. Roll the ground and then mark off 3 feet each way. Plant the potatoes with the hoe and the corn with the corn planter. We endeavor to cultivate the growing corn and roots at least once a week, but generally about twice a week, one way at a time for the corn and potatoes; but the time of cultivation depends a good deal upon how the showers come in, as we try to cultivate as soon after a shower as possible. Several years ago we made a practice of hilling up everything, corn, potatoes, carrots, mangolds and turnips. Now we only hill up the potatoes, and we leave that as late as possible. If the tubers would not get sunburnt, perhaps it would be better not to hill at all. For the corn, after the first or second cultivation, we run the cultivator as lightly as possible, but for roots I approve of going down much deeper. We find that when the ground is properly prepared for corn and potatoes, and the harrows and cultivator kept going as they should be, that there is very little left for the hand hoe to do.

Oxford Co., Ont.

### Advocates Flat Culture of Roots.

To the Editor FARMER'S ADVOCATE:

For years I have been an ardent advocate of flat cultivation of hoed crops, and was for years the first to adopt drilling of turnips and mangels on the flat in my neighborhood, over 20 years ago, since which time I've seen no reason to change my mind upon that method. I don't claim any originality in such cultivation, but was convinced on my trip to England in 1871. Surface cultivation was being entirely adopted at that time in the very district where, when I was a boy, ridging was the only plan.

Middlesex Co., Ont.

RICHARD GIBSON.

## DAIRY.

### 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.

[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--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 Minnesota 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	361	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	6,982	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 1/4 miles from the college dairy, and during the summer of 1898 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 front piece 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 deception—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 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 annato 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 annato 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 margarine people shall desist 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.*

#### 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.

	Days in milk.	Yield of milk.		Yield of butter.		Ratio, lb. milk to lb. butter.	Points.
		lb. oz.	lb. oz.	lb. oz.	lb. oz.		
29 prizewinners averaged.....	148	31 1/2	1 1/2	13 1/2	16.68	48.55	
53 cows tested averaged.....	142	30 5/8	1 1/2	12 1/2	17.08	38.45	

The gold medal and special butter prize were awarded to Mr. J. Hamon's Sweet Bread; test 32 lbs. 14 ozs. milk, 2 lbs. 7 ozs. butter, 165 days in milk. Ratio, viz., lb. milk to lb. butter, 13.48. 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. 5 1/2 ozs. milk, 1 lb. 12 1/2 ozs. butter, 142 days after calving.

The largest yield in the test was 47 lbs. 8 ozs. of milk, and 2 lbs. 3 1/2 ozs. butter, from a 7-year-old cow 84 days in milk. A 6-year-old cow, 74 days in milk, gave 41 lbs. 14 ozs. milk and 2 lbs. 8 1/2 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.*

#### 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 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.

#### The Apple Packing Bill.

In the last issue of the *FARMER'S ADVOCATE* we published a draft of the Bill regarding the packing of apples and pears for export introduced by Hon. Mr. Fisher, Minister of Agriculture, in the Canadian House of Commons, and which has been subjected to considerable discussion there. In this connection we give below a copy of a letter addressed to the Minister by Mr. J. M. Shuttleworth, of Brantford, Ont., who has had an extensive experience as a fruit exporter. Mr. Shuttleworth considers that compulsory inspection is impracticable, and would be injurious to the apple trade. He thinks that, generally speaking, it is not the exporter who falsely packs, but the men sent out to do the work, and they do it through being bribed or to satisfy those whose fruit is being packed. Our own experience and observation is that the packing gangs appear to work according to some general directions from their employers, because when the demand is keen and prices good they aim to get more barrels filled, but when the reverse conditions prevail they cull unmercifully. Now, we do not object, nor should any reasonable fruit-grower, to proper culling and grading, but when an exporter throws out everything but prime fruit, he should be prepared to pay well for what he takes, because there is no doubt he will be making handsome profits upon it, and the farmer can realize little or nothing upon a lot of culls. Following is a copy of Mr. Shuttleworth's letter and the Bill he proposes:

Brantford, May 15th, 1900.

The Hon. Sydney Fisher,  
Minister of Agriculture,  
Ottawa, Ont.:

DEAR SIR,—I assume that the whole intent of Bill No. 127, 1900, is to prevent as well as punish fraud, and also to preserve the reputation of Canadian products in foreign markets.

My contention is that Canadian consumers are as much entitled to protection from fraud as are the foreign consumers, and therefore the Bill should be made to cover all fruits. It is a notorious fact that peaches, pears, plums, grapes, etc., packed in baskets and other packages, are quite as fraudulently packed as are apples and pears for export.

The conditions incidental to the export apple trade are peculiar to it. The short time in which the fruit must be packed, the delays that unfavorable weather entail, the wide area, over which a large operator has to work, the short time in which employment can be given the bulk of the men employed, make the export apple trade very difficult to handle. A good number of the men employed cannot be looked after the way they could be under other conditions, and while an operator may have contracted for nothing but first class fruit, yet he often finds out, when it is too late, that his packer and the orchardist have contrived to make him pay a good price for trash, and ruined the reputation of his brand at the same time.

In the enclosed draft I have used for example only, and to make my meaning clear, the form and terms of the Bill you have before the House.

Dealing in detail with it, I shall endeavor to explain myself more fully.

Clause 1. The branding of the full name and address of the owner being compulsory, will make him keep track of the man who packs the fruit, for his own protection. Where the faced or shown end of the package is not a fair representation of the whole contents of such package, the intention to defraud is evident, but if it is a fair representation, then it is evident that the person who did the packing has had no intention to do wrong, but has simply erred in his judgment of what the grade really is or should be.

Clause 2 will be some safeguard for the consumers, although one packer's No. 1 Canadian may be as good as another's A No. 1.

Clauses 3 and 4. The varying climatic conditions prevent the use of a fixed standard, either in size or color, that could be complied with one year with another. There must, therefore, be some leeway allowed, and while they may not be as definite as could be desired, yet anything more definite is impossible.

Clause 5. This will permit a producer to sell what lower grade fruit he may have at its market value.

Clause 6. Placing the onus of proof upon the person whose name is on the package will more likely insure conviction where fraud has been perpetrated; at the same time he will not undeservedly be punished for another's wrongdoing.

Respectfully yours,  
J. M. SHUTTLEWORTH.

#### AN ACT FOR THE PREVENTION OF FRAUD IN THE PACKING AND GRADING OF FRUIT.

1. That any person who by himself, or through the agency of another, packs, or causes to be packed, apples, pears, or any other fruit, and offers such for sale himself, or through the agency of another, or ships such for export, shall mark or brand, or cause to be marked or branded, in a plain and indelible manner, with the initial or initials of his christian name and full surname and address, and also mark, or cause to be marked, the grade of fruit on each and every package containing such fruit, and that the face or shown part of the package shall be a fair representation of the whole contents of such package.

2. The designation of the grades of fruit shall be A No. 1 Canadian, No. 1 Canadian, and No. 2 Canadian.

3. A No. 1 Canadian shall consist of well-grown specimens of such fruits, sound, of nearly uniform size, of good color, and

of normal shape and size for the variety named, and not less than ninety per cent. free from scab, worm holes or other defects.

4. No. 1 Canadian shall consist of well-grown specimens of such fruits, sound, of nearly uniform size, of fair color and normal shape for the variety named, and not less than seventy-five per cent. free from scab, worm holes or other defects.

5. No. 2 Canadian may consist of fruit unsuitable for grading as A No. 1 or No. 1 Canadian, but must be sound and mature fruit.

6. Where fraudulent packing of fruit has been done, it shall be the duty of the person whose name is on the fraudulently packed package or packages, provided the fruit has not been packed by himself, to supply the inspectors or other authorities with the name and address of the agent or person who has been guilty of such fraudulent packing.

7. The penalty for fraudulent packing or marking shall be as follows:

#### 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. Pauls, in P. Farmer.*

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.

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.

POULTRY.

Common Causes of Failure.

INSTANCES SHOWING LOSSES IN POULTRY-KEEPING THAT ARE DUE WHOLLY TO IGNORANCE.

BY S. LONDON.

Can farmers in general and village and town dwellers with available space embark in poultry culture with a reasonable prospect of success, is an everyday question of editors of poultry papers. Prospective teachers have to spend years in study before they can pass the examinations, and only when they are theoretically qualified to teach can they get a certificate permitting them to do so. That is the law or rule made to govern them. Railway postal clerks must pass a civil service examination, and after that they have to study to keep in line with the requirements of the service. Soap manufacturers have to study chemistry. Smelters of ores are practical chemists, and there is no exception to the rule that unless one is versed in his vocation he is handicapped. Every village history records failures in business resulting from a lack of knowledge pertaining to the industry.

A knowledge of hygiene to a certain extent is the foundation of a successful poultryman, and without this knowledge he is groping in the dark. When one has learned the composition of an egg, he can supply the poultry with the necessary elements to produce it. Crowding poultry together is a prolific source of many diseases. To illustrate, a breeder kept several hundred White Leghorn hens in one flock, and their food consisted of corn at morning, noon and night. At first the fowls seemed to do fairly well, and their owner was well pleased with his success, as they stood the corn the best of any breed he had ever tried. He did not realize that he was starving his hens, but such was a fact, however, as many of them died, and he closed out the balance of the flock. Why did they die? Because there were too many in his yard, the ground was covered with filth, poisoning the ground and air; and because of an ill-balanced ration—lack of protein in the food.

Farmers feed corn because they think it is the cheapest and best food, little realizing that for the principal food it is the dearest on the list. Any food is dear that does not supply the wants of the animal, for nothing can be gained by feeding it, and you lose your food in the deal. When a pig does not grow, you are out the cost of the food. Farmers have learned that they cannot produce milk when nothing but grain is fed the cows, yet they think hens can live and thrive on corn alone. One ton of wheat or corn will furnish the shells of ten dozen eggs, yet some farmers expect eggs on corn alone. When we stop to consider the limited amount of corn a hen can eat and digest, how can we expect her to obtain therefrom the lime for the shells and materials for the embryo? It is simply impossible. The best clover hay contains thirty times as much lime as corn or wheat, in addition to more protein or flesh-forming material. Therefore clover hay is the cheapest and best for cows or hens, and, furthermore, you run no risk in feeding too much, as you are quite liable to do with grain.

Another case—a breeder had about one thousand chickens and neglected to provide green food. The drought caught him, and over half of the flock died. He saved the rest by turning them out into the woods. One acre of well-fertilized ground seeded to clover in the spring would have saved the chickens, if cut and fed to them. His neglect cost him the chickens, the food, and time spent on them. Bulky food is just as necessary for healthy action in a hen as a cow. Another breeder raised on a village lot four or five hundred young chickens yearly until he lost two hundred in one season by gapes. Clean, fresh dirt in the runs saved the rest of the flock and would have saved them all had it been attended to in time.

"Where ignorance is bliss, 'tis folly to be wise." Knowledge costs money and time, and the cases cited seem to be rather prodigal of both. Manufacturers are limited only by the market and their facilities for supplying the demand. Poultrymen have to contend with the same limits and the additional one of nature, which cannot be circumvented or avoided. My observation and experience warrant me in the belief that a large flock of poultry, although running loose around the buildings, cannot be kept many years in succession in a healthy, profitable condition, with the exception of turkeys, which will forage for miles around. One hundred hens in a flock will show a greater net profit than will five hundred. Fifty hens are better still, and if they are divided into two pens they will increase the net profit still more. That an army in camp suffers more and sustains greater losses than when in active fighting and marching every day, is an historical fact of all campaigns. We read about "intensive" poultry culture being possible, but always at the cost of time to renew the yards and runs so often that it seldom is practical, therefore is not to be recommended. The health of the stock is first, last and all the time to be sought, and unless it is obtained no progress can be made. A small flock requires less time and attention than a large one. The liability of disease and vermin increases at a greater ratio than the increase of the flock. That a few healthy hens are profitable and satisfactory to their owner is a fact that has been proved time and time again.—Reliable Poultry Journal.

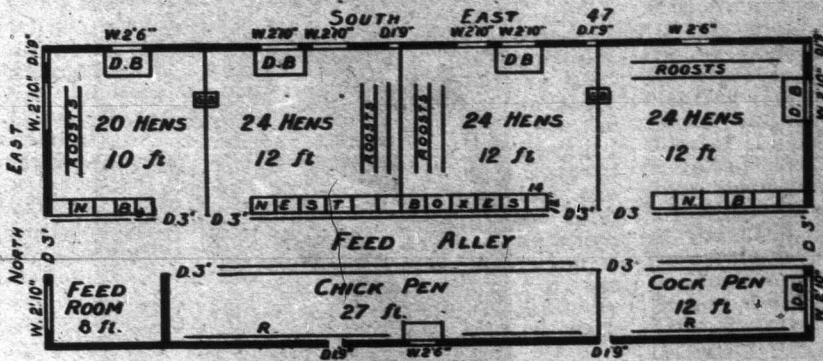
A Modern Poultry House.

To the Editor FARMER'S ADVOCATE:

GENTLEMEN,—I herewith enclose for publication at your discretion the plan and description of our poultry buildings. The house is 47 ft. long, 18 ft. wide, and 7 ft. high at eaves, with a gable roof where straw is kept for litter. The walls are made of matched spruce on outside of studding, rough lumber on inside of studding, leaving a 4-inch air space, then a thickness of tar paper and dressed hemlock on inside, making in all a warm, wind-proof wall. The ceiling is of dressed hemlock, nailed on lower side of collar beams. All woodwork on inside of building is dressed to facilitate cleaning and white-washing.

The building is divided into 6 pens, besides a feed alley and feed room. There is room for 100 hens, as when the breeding season commences and cocks are placed in breeding pens, the cock pen can be used for laying stock. The chicken pen is used for chicks at one season of the year, and fattening pen for cockerels and old hens at another season. In the 3-ft. alley, which has double doors at each end and a feed room at one end, where grit, grain, chop, bone cutter, etc., are kept, are placed the feed troughs in which are fed the warm mash and cut bone, and in which are also placed the water troughs. The hens have to stick their heads through between laths placed 2 inches apart, thus preventing them from soiling their feed with their feet. These laths extend 18 in. high. Above this is placed a movable shelf for the nest boxes, which serves as a bottom for nests and also a place for hens to fly into, instead of directly into the nest. The boxes are 14x12 inches, inside measure, with a 6-inch hole cut out of front of nest for hen to enter, and, laying behind the other 8 inches, she is partly hidden, thus, in a measure, preventing egg-eating.

When a hen sits, the nest can be turned around, with the hole towards the feed-alley, so that the laying hens do not disturb her, and she comes into the feed-alley to feed. A slanting board covers the nests, to prevent hens roosting thereon. The eggs are gathered from passage. From nests to ceiling wire netting is stretched, the partitions and pen doors being wire also, thus allowing the light to be evenly distributed, as well as not being liable to



GROUND PLAN OF POULTRY HOUSE OWNED BY L. & R. W. MAIN, WELLINGTON CO., ONTARIO.

harbor vermin. The windows have a double sash, and are 2 1/2 feet from floor, with dust box in front to allow sun to warm the bath. The outside doors of each pen are double, 1 1/2 feet square, and 1/2 of inside door is hinged to allow fowls to pass in and out, the whole door being opened to throw out used litter. A drop-board stands upon a kind of table, 2 1/2 feet high, and 4 inches above this are placed the roosts (2x1 strips), thus allowing a hoe to be passed under to clean off the droppings. Thus, you see, the floor, which is of cement, rat-proof and dry, and easily cleaned out, is entirely clear for scratching space for hens, which is a great saving of space. Without any artificial heat, the thermometer registered only 2° below freezing during our coldest weather, and usually stands at from 40° to 60°.

L. & R. W. MAIN.

The Elements of Successful Poultry Raising.

If you wish to have poultry that will pay a profit, you must have a good breed. But no matter how good the breed, they will return no profit if they are not properly fed and housed. I think it is poor economy to let hens have the run of the pig-pen, sheep pen, barn, and about anywhere else they like to go. Hens should have a place to live in where water will not freeze in the coldest weather. As to breed, if you want layers especially you may choose either the Brown or White Leghorn or Black Minorcas, all of which breeds are excellent layers. If you want a general purpose fowl—that is, a bird moderately good for laying and profitable as a market fowl also—you may choose either the Plymouth Rock or Wyandotte.

To get the best results they must be fed judiciously—that is, not to over-feed nor under-feed. This is the way we feed our fowl in winter: For the morning meal we give them equal parts by weight of bran and shorts and a little clover hay steamed. This is mixed together and dampened with hot water or milk. About half enough for a feed is given them of this. Then a little grain is scattered in the litter to get them to take exercise by scraping for it. At noon they are given a few pulped turnips and a little more grain is scattered

in the chaff. At night they are given a good feed of peas and oats, equal parts by weight. Two or three times a week they are given a little green bone or fresh meat. They have pure water before them at all times or nearly so.

A mistake which not a few make is the leaving of the droppings under the roosts: they are cleaned out once or twice a year instead of once or twice a week, as they should be. The roosts should be frequently coal-oiled to keep down lice. Then there should be a dust bath in each pen, under the window if possible.

Peterboro Co., Ont.

P. S.—I am a boy only fifteen years old, so kindly excuse mistakes.—S. H. W.

Raising Turkeys in Manitoba.

In raising turkeys, I do not want to have them hatch before the 1st of June, as it is generally cold and damp, and young turkeys will not thrive in such weather, and I find that if once stunted, they never amount to much; and, besides, by that time there is something green for them, which is very necessary. They are fond of onion tops cut up in their feed, and of getting into the onion patch, which I have found to my sorrow, for when they once get a taste, they will not leave it until they have finished both tops and bottoms. In setting the first eggs under hens, it gives a chance of having a second flock if desired, and another advantage I find in having the young birds with hens is—they do not get into the habit of wandering so far away from home, as a mother turkey is never satisfied unless she is roaming all over the country. I know they get a great deal of insect and other food, but they too often furnish food for the wolves. I have had half my flock taken because, not being able to find them at night, they roosted out. When a second flock is desired, as soon as I notice them getting broody I break up their nests, and soon they will begin to lay again; and now is the time they will hide their nests, so I always try to find it before they want to set again, for when they once begin to sit it is hard to find them; they sit so steadily sometimes, they will not leave the nest more than a few times during the four weeks. Take the eggs away, replacing them with hen's eggs until she is ready to sit, then make a large flat nest in some suitable place in the turkey house. Always put a quantity of fresh earth in first, leaving it only slightly hollowed toward the center, and then put some dry leaves from the bush in the nest, and place the eggs in it. I never have any trouble getting them to take to their new quarters if they are wanting to sit badly. I always find they do best sitting right on the ground. I have had them hatch out as late as July, and do well, too, only they are not ready to market as soon as the others, but I always find a good market for turkeys at any season. When not wanting to

bother with the second flock, I have kept my turkeys laying all summer. When I wish to do that, I let them lay until about to sit, when I take the eggs away; if they are well fed, they will keep on laying. One year I killed the gobbler after mating season, and my turkeys laid until October. I packed their eggs in salt and kept them until Xmas, and the last was as good as the first, and one egg was as good as two hen eggs, they are so large. Two years ago I kept only two 2-year-old hens and one young hen. I purchased a young Bronze gobbler, and from the first and second layings I hatched 80 young birds. I did not raise them all to maturity, as I lost some by accidents, etc., but I had some fine birds. I never inbred; tried it once before I knew better, but found it a failure. Always try to keep them as near home as possible until the harvest is off, when they can be watched better. Turkeys do not like a close house to roost in, preferring to roost out of doors; but I do not find that suitable here. Give them as airy a place as possible, with high roosts. In fattening, I find that a soft feed for morning, with roots boiled and mixed with chop and wheat and barley mixed afterwards, is good. I like to leave the grain where they can get it when they want it. Never shut them up to fatten, but give them all they will eat, and they will not go far when the weather is cold. Don't kill them when there are pinfeathers on them, for they are so hard to dress and are not so salable. Always pick dry. I never have any trouble to get market for good fat turkeys.

A MANITOBA FARMER'S WIFE.

The best time to market the old hens is from the tenth of June to the first of July, just as they finish up their work laying and before the feathers begin to drop. A little care will help in selecting for the combs will pale out, the faces look dull and the feathers dead. If you wait until the pin feathers start, the price will surely be much lower. Kill and get to market as fast as they stop laying, for they will then sell for more than at any other time, and the cost of keeping is stopped.

The best laying hen is the one on best terms with her owner. The one who is shy and nervous is an uncertain producer. Establish friendly relations among all the flocks, and gain by so doing.

**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 each pen.	Average floor space per hen.	Number of eggs per hen during six months.	Number of eggs produced per pen.	Value of eggs produced per pen at 50c. each.	Value of food consumed per pen at average of 30c. per month.	Income per pen, less cost of food during six months.	Net income per hen during six months.
15	10.6	65.1	976	\$13.52	\$ 7.50	\$12.02	\$0.80
20	8.0	60.4	1,208	24.16	10.00	14.16	.71
25	6.4	51.4	1,284	25.68	12.50	13.18	.53
30	5.3	40.1	1,203	24.05	15.00	9.05	.30

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 17 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 cockerels 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 feed. 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.

**APIARY.**

**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.



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

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 observa-

tion 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 without 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.

**VETERINARY.**

**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. Coote, he had the opportunity of examining a stained specimen of blood containing the surra parasite which had been sent to Mr. Coote from Burmah, and the size and characteristic appearance of the parasite was 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 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.

JUNE 1, 1900

The Diagnosis of Lameness.

BY "VET."

It never surprises me that horse-owners should hold tenaciously to their own diagnosis of disease, because experts are so often mistaken, but it is not a little curious that those who have seen but very few cases of lameness should deem it an easy matter to decide as to its cause. To the veterinary student there is no more difficult subject, and I have known experienced practitioners make the most egregious errors; nay, I might put it the other way about and say I have never known an honest man who would not confess to them.

I bought a horse for 15s. that had been condemned to death for a broken leg which, instead, had deep-seated matter in the foot—a hind foot, which made him hang it from the hip—"dangle his swinger," as the groom said, and had all the appearance of a broken limb, until, by manipulation of the whole leg, no deformity and no rasping (crepitus) could be discerned. It had been too hastily assumed that a fracture existed because of the total inability of the animal to so much as touch the ground with the foot. The farrier's knife liberated pent-up matter, and the horse went to work ten days later in the town where the much-respected practitioner had condemned it to death. This case is mentioned as an example of the extreme sensibility to pain exhibited by some animals, and as contrasting strangely with others which may have pus within the hoof, and yet so comparatively indifferent as to leave the actual seat of lameness in doubt, until one morning matter is found exuding from a spot at the top of the hoof, and with a diminution of such lameness as previously existed.

To show how little assistance is to be obtained from the patient in diagnosing lameness, it may be remarked that one animal will submit to pressure over the seat of inflammatory action, while another snatches up his suffering members as soon as we approach it.

ANATOMICAL KNOWLEDGE HIGHLY IMPORTANT.

In no department of veterinary surgery is anatomical knowledge more important; but this is not enough—we must be familiar with the "going" of all sorts of horses, for they do not all move alike. We may learn from Captain Hayes, or from Marie, or Muybridge, how progression is attained in the various paces; how the diagonals and supports follow in rhythmical order, and the various levers elevate the leaping animal. These things have been proved by instantaneous photography, but they do not assist us in the diagnosis of lameness; they describe the normal movements which we had all misapprehended before highly sensitized plates had been introduced. We thought that horses galloped with all four legs extended to their full extent at the same time, never asking ourselves upon what they rested while getting their feet under the center of gravity again. The artist and the poet owe us much reparation, for they have misled us by their exuberant fancy. Lameness occurs at any time of life, and we have to distinguish between the stiffness of what is commonly called a "screw" and the perverted action which in a young horse would be designated lameness. A horse may have suffered from fever in the feet, resulting in structural changes, and not be in pain, not lame in the sense of "lameness being the language of pain," and if, as is most usual, the front feet have been the sufferers, he will have acquired a habit of imposing an undue share of weight on his hypertrophied heels, and will also bring his hind feet further under his belly, to accommodate himself to a shifted center of gravity.

If such an one falls lame, say, of a splint or spavin, and we approach him with preconceived ideas as to action, we shall only introduce a further element of difficulty into our diagnosis. The only way to learn to diagnose lameness is to see numerous cases. For this reason the city practitioner is pre-eminent in this department of veterinary work; he is called to twenty cases of lameness for every one the country man sees.

It is an every-day occurrence for the owner or attendant to mistake the limb in which the trouble exists, and many are the horses I have been called in to that refused to get better for all the famous remedies which had been applied to the wrong leg.

This being a common experience among "vets.," I shall be pardoned for pointing out the fact that a lame horse drops on the sound member, not the lame one. A moment's thought will convince the reader that the animal will put the least weight and dwell the shortest time on the painful limb.

ASCERTAINING THE SEAT OF LAMENESS.

To ascertain which of the front limbs is the subject of lameness, a smooth piece of level road should be selected, and the patient led a distance of forty or fifty yards from the examiner, then turned, and trotted towards him, with a loose bridle or plain halter. The latter detail is of more importance than may at first sight appear, as some horses display what has been called "bridle lameness."

It is not contended that the effect of any bridle can make a horse lame, but there are some which lean towards a groom with a bridle tightly held, and so "nod" in his direction from the mere fact of being restrained from going in a straight line, with equal freedom and length of stride, the limb nearest the groom taking a shorter one than its fellow. Again, the dealer's man who is showing a "screw" will get the best pace out of him by a

severe bit, the head held up, and the attention of the horse being diverted from some less painful ailment in the limb to the greater discomfort of his mouth.

With the examiner's attention concentrated upon the animal coming to him, he will see first if it is lame at all, and next be able to decide upon which foot he rests longest.

If a hind lameness is suspected, the reverse method is advised, and the rump or hips watched to see which drops. When it is decided which limb is affected, a careful search should be made from the knee or hock downwards. It may be that a tender spot will be pressed upon, and the patient afford us the help we have said is so often denied. Visible swelling or palpable heat of a part may guide us.

It very often happens, however, that none of these things are discernible, even to the practiced eye and hand of the veterinary surgeon, and it has been well said that "you should have a horse's shoe off if he is lame in his head." The story of the 15s. horse above noted is, perhaps, as good an example of the propriety of having the shoe removed as one can give, but it is within the experience of other veterinarians that a horse may be lame in two places in the same limb, and it is rather disconcerting to find matter break out at the coronet, while one is doctoring a splint or a spavin, without suspicion of mischief going on in the foot. The farrier's shop is often a long way off, and if the animal has been recently shod at his place, he will be none too anxious to find that the lameness is in the foot. He is habitually blamed for every sort of lameness, and never hardly credited for keeping a cripple going by his judicious shoeing, although the latter is much more of an every-day affair than is the laming for which he gets debited. If each particular source of lameness yielded the same set of symptoms invariably, we could note them down, and remember or refer to some authority, but they do not fall into the square so neatly marked out for us by academic professors; indeed, those who lecture so ably and impart much useful information at the colleges are just about as likely to make mistakes as the average practitioner who keeps his eyes open and uses his opportunities.

Here is an example which I quote from a paper read by Mr. Hunting before the Yorkshire Veterinary Medical Society quite recently: "He (a certain horse) had been lame for some months, and had twice been taken to the Royal Veterinary College, where a diagnosis was made of splints." This animal was found to be lame by a method of diagnosis which will be new to our readers probably, and of considerable interest as a negative test. Cocaine was subcutaneously injected into the lamer limb of the two, above the fetlock joint, too far from the splint to act as an anesthetic, but destined to have that effect upon the foot. After an interval of seven minutes, Mr. Hunting told the society, the horse was trotted out and went sound on the limb that had been injected, but lame on the other which had not been so operated upon. Here was proof of foot lameness, and subsequent division of the sensory nerves enabled the animal to go sound, by cutting off sensation from the structures implicated.

DIAGNOSIS OF LAMENESS.

The diagnosis of lameness may, in some cases, be attained by deductive reasoning and reflection on the cases one has previously seen (oh! what an array of cripples rises to the mind, and what blushes to the cheek, as one thinks of his mistakes!), by the absence of all other apparent causes, and the action or movements which point to a certain class of lameness. In the absence of all heat or tenderness in the joints, tendons, and ligaments, suspicion fastens itself on the foot, and this is often confirmed by the animal's behavior in the stable or out of it. An uneasy foot will be frequently shifted, perhaps "pointed" or placed in advance of the other.

In a front limb a disposition to place one foot in advance of its fellow, and at the same time bring forward the opposite hind one with knuckling of the fetlock, is enough to suggest a careful examination of the hoof, after removing the shoe. The horse obtains most rest by putting his weight on the opposite diagonals. When easing his near fore, he will bring forward his off hind, and relax the fetlock or let it "knuckle." In this way the off fore and near hind are made to sustain the whole weight of the animal. If the order above stated is that in which he is most frequently found, and he only reverses it for a short time, it is most likely that his grief is in the near fore, and vice versa.

Pointing in the stable is too often assumed to be nothing more than a habit, and the subject of it may pull out sound or appear to be slightly "groggy." "Oh, it is only his way, he is as sound as a bell of brass," says the seller, but the experienced "vet." will say, *caveat emptor*. The latter will not pass such a horse until he has stood long enough under lock and key to cool down, and has proved on coming out of the stable again that his step is not shortened or his gait in any way altered. Even then he will suspect incipient navicular disease, unless some reliable evidence of recent injury by a nail or sharp flint can be obtained.

NAVICULAR DISEASE.

Pointing does not always declare the presence of navicular lameness. A horse may point with the uneasiness of a corn or hang the limb from the elbow, with bent knee, and toe resting lightly on the ground. He may assume the latter position when suffering from ringbone or other trouble near the foot, but it may be taken as a broad rule that

foot lameness is oftener expressed by pointing than by any other attitude in the stable. When the diagnosis has been narrowed down, and the positive or negative symptoms lead us to believe it is in the foot, we may not after all find absolute proof. If we have seen the behavior of many horses with pricks or corns, we can make a pretty good guess, and because we find no evidence of pus, no specially tender spot when pressed upon by the pincers, we must not allow our suspicions to be allayed until positive proof is forthcoming that the trouble is to be found elsewhere. These few points in the diagnosis of foot lameness take long to write, yet the practical "vet." sees them all in a moment or two, while the owner is, perhaps, being asked some simple question bearing upon the history of the case.

It is a curious attitude of mind on the part of many owners and attendants of the less intelligent class that makes them behave towards the veterinary surgeon they have called in like reluctant witnesses under cross-examination when everything, however remotely bearing upon the question, should be carefully noted and placed before the man who is desirous of giving aid.

Another broad rule in regard to foot lameness is the diminution of their severity with exercise. The patient, which at first seems glued to the ground and positively unable to move a step, will, when compelled to walk a few yards, regain an astonishing amount of mobility. The horse only a little lame or groggy, as it is called, will altogether throw off the trouble after the first few hundred yards, and deceive even the elect.

This is not so with animals suffering from some bony inflammation, as splint or ringbone, but it applies more or less to the spavin, which is an exception to the general rule, and to be explained by the increased lubrication of the joint from the flow of oil excited by movement. A youngster with a splint forming will probably fall lame on the road, and continue so until stabled. When the owner, suspecting he has trodden on a stone, looks for it and does not find one, he concludes that the foot was bruised, and next day, when the concussion in the splint has passed away (more or less), his opinion is confirmed that it was a stone that caused the horse to go lame. If the animal is trotted out he is satisfied, but if he mounts him for a journey the same difficulty recurs, and the horse is brought home with misgivings.

Some forms of lameness are diagnosed by the abduction or adduction of the limb when in motion. Of this class is the pelvis injury, which Mr. Willis, of the London General Omnibus Company, was the first to make clear. The diagnosis is assisted by clearing out the rectum with a clyster, and then introducing the hand and exploring the sides and floor of the pelvis. The crack in the bone may not be felt at the time perhaps, but a lesion of the kind once suspected, the animal will be watched to see if he displays any of those symptoms usual to cases of the kind, and whose character has been subsequently proved by *post-mortem* examination.

The lameness from this cause is not so great at first as it is a little later, when a growth is felt. This material—a callous is its surgical name—increases the pain of movement by pressure upon the great nerve trunk known as the obturator, until it has done its work of reunion, when, as with other fractures, the superfluous material is gradually removed, and with it the lameness. Without a knowledge of anatomy and of the history of such cases, lameness of this kind could not be diagnosed, nor could a prognosis be made. Knowing, as we now do, that the increase of lameness is but a sign that the split bone is being united, we are able to foretell recovery, and hand over the case to Doctors Time and Green, whose treatment of convalescents may sometimes be slow, but seldom expensive.

A ROTARY MOVEMENT.

By a rotary movement of the hind limb stifle joint lameness is diagnosed, and by a similar movement of the fore limb some elbow injuries are detected; in each case the arc of a circle is described. One of the most obscure lamenesses is caused by a disease of a large main trunk in the circulatory system, which goes to supply the hind quarters with blood. Invaded by parasites who love to seek a junction of vessels for their home, the lumen presently becomes occluded, and paralysis to a greater or less extent results. Lameness we call it, and it is now sometimes diagnosed during life by the coldness and comparative insensibility of the affected limb.

In the two examples of hind limb lameness above mentioned, the importance of correct diagnosis will be evident: in the one case time and rest will restore the patient to usefulness, and in the other loss will be prevented by slaughter. *Inter alia*, it may be remarked that one may have more unprofitable payments to make than a "vet.'s" account for an animal he could not cure, if he were able to save loss by correct diagnosis of a hopeless case from the beginning.

Let me conclude by quoting one more example of lameness, which shows the desirability of the study of anatomy, of cultivated powers of observation as to animals' movements, of *post-mortem* examinations of incurable cases, and of a habit of comparison of different cases in order to qualify oneself to advise as to lameness, or even to diagnose it correctly. Dropped elbow was carelessly assumed to be due to a variety of causes until Mr. Willis, whose name has been previously mentioned, took the trouble to dissect the connections of the fore

limb with the body, when he discovered that fracture of the first rib is the cause of the elbow being dropped, and that with suitable treatment such cases are far from hopeless.

The reader who has done me the honor to wade through this somewhat dry and technical matter will, I hope, have arrived at the conclusion that a lameness, whose cause is not visible or palpable, should not be treated at random by some nostrum with a reputation of curing any and every thing. The expert veterinarian will be sent for where the least doubt exists as to the correctness of the owner's diagnosis, and before the limb has been treated to some vesicating agent, as it takes a very clever man to say what is under a blister, and we have known incompetent quacks who purposely spread blisters wide in order to cover their ignorance, as well as in the hope of including the lameness in their therapeutical net.—The Stockbreeder's Magazine.

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.

QUESTIONS AND ANSWERS.

In order to make this department as useful as possible, parties enclosing stamped envelopes will receive answers by mail, in cases where early replies appear to us advisable; all enquiries, when of general interest, will be published in next succeeding issue, if received at this office in sufficient time. Enquiries must in all cases attach their name and address in full, though not necessarily for publication.

Veterinary.

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 corn, mixed about 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.]

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 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 nigh 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 neurotomy (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.:—"1. 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.]

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.]

MARKETS. FARM GOSSIP.

P. E. Island.

The season is very backward here. Seeding is not half done yet. Weather has been cold for May, and we have considerable rain.

It is expected that a Maritime exhibition will be held in Charlottetown this fall. The matter is now before the Provincial Legislature. A grant of \$5,000 is what the Association is asking from the Provincial Government for that purpose.

Kent County, Ont.

It is expected the wheat yield here will be the smallest in years. It was badly infested with Hessian fly last fall. A mild January, with severe freezing at nights, helped to make matters worse.

There is a shipment of export cattle leaving here to-day, 42 head, at 25 cents per lb. Hogs have declined to 5 1/2 cents per cwt.

Wool is coming in freely, and sells at 8 and 9 cents, unwashed; 15 and 17 cents, washed. Butter is worth 14 to 16 cents per lb.; eggs, 10 to 12 cents per dozen; potatoes plentiful at 50 to 60 cents per bushel.

Oxford Co., Ont.

The pastures and meadows are now suffering from want of rain. There has been very little rainfall this spring. Fall wheat on land that is in good heart looks pretty well, but there is a good breadth of wheat in this county that does not look very well, and the slight frosts that we have had have been much against the wheat that is on low land.

One of our finest farms, comprising 160 acres, with modern brick house and splendid outbuildings, changed hands the other day. The price paid was \$12,500, and real estate dealers claim that property of all kinds is going up in value.

Sherbrooke Co., Quebec.

We are having a cold, late spring, which is putting most farmers back with their farm work. Grass looks well, but is still short, and very few pastures are really ready for cattle at the date of writing, viz., 22nd May.

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.

A Reliable Feed Cooker and Heater.

The basis of permanently successful farming in Canada being the rearing and feeding of live stock, there has arisen within recent years an extensive and increasing demand for an economical and reliable apparatus for the cooking and steaming of food and the heating of water.

Durham Co., Ont.

The crops in this County, especially fall wheat, hay and clover, are suffering very much for rain; the grain has come up well, but barley that was sown early was badly nipped by the late frost.

Chatty Stock Letter from Chicago.

Table showing live stock prices for various categories like Beef cattle, Hogs, Sheep, and Pigs, with columns for prices in 1899 and 1900.

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 30 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.

Table comparing buildings, floor space, and land for Swift & Company across various cities: Chicago, Kansas City, Omaha, St. Louis, St. Joseph, St. Paul.

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 \$100,000,000.

Table listing sales of various meats: Cattle, Sheep, Hogs, and Total, with corresponding values.

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.

Danger of Overdoing It.

The St. Louis, Mo., Butchers and Packers' Gazette of May 19th says: "The promoters of pork-packing houses in Canada are still active, and judging from reports, there are plenty of sucklers to bite at the luring bait."

Packing Co., at Richmond, Vt., has collapsed, and also the one proposed for Newport News, Va. The John P. Squire & Co. are still in the hands of the assignee.

Toronto Markets.

The run of cattle at the Western market was 88 loads for Thursday and Friday, May 24th and 25th. To-day there were 750 cattle, 1,300 hogs, 163 sheep, and 23 calves.

Our enquiry found prices steady, with an active demand for local and outside trade. Outside buyers have strengthened this market considerably, and there is not that slump of price as in the old days on heavy runs.

Mr. Wm. Leveck bought 60 cattle, at \$3.35 to \$4.00 for medium to good, and \$4.25 to \$4.50 for picked lots, and \$4.65 to \$5.00 per cwt. for exporters.

Mr. A. McGrimmon, of Orillia, recently shipped 300 stockers to Creston, Iowa, and Minneapolis.

Mr. Wm. Leveck bought 100 sheep and lambs at \$4 per cwt. Mr. Wesley Dun bought 100 sheep and lambs at \$4.50 to \$5.50 per cwt. Spring lambs sold from \$2.50 to \$4.75 per head.

Hogs.—Whilst the deliveries are not heavy, the price will hold good. Only 3,000 delivered this week, and very few ready to come on the market.

Table showing market activity for various months: January, February, March, April, with corresponding values.

Wholesale butchers and importers of 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 50c. per bullock and 5c. per sheep.

The following figures give the total largest day's slaughtering at their six packing plants, Chicago, Kansas City, Omaha, St. Louis, St. Joseph, St. Paul:

An English Cheese Fair.

At the May cheese fair, Lancaster, Eng., 16 dairies were represented, with 238 cheeses, as against 18 dairies and 287 cheeses at the corresponding fair last year.

What is the Best Horn Fly Treatment?

H. J. C.:—"The horn fly is making its appearance in large numbers on my cows, and I would be glad if readers would report through the FARMER'S ADVOCATE what remedy and mode of applying they have found most effective."



The Mutiny of the "Helen Gray."

BY GEORGE MANVILLE FENN.

(Continued from page 304.)

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; and 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 it 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 companions' 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—the deck perfectly happy; but I was 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 when 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, messmate. 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, down'ards 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 is asleep?"

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

"Right you are then, my lad. Anything for a breath 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 eye fixed on the one hanging by the davits. This had oars and sail, and a small cask lashed amidst-ship. 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 Ind'y varmint a dose o' sleeping drops, or if they would only get well drunk, 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 as I was in 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 glance 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 hand 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 the falls, for he could see the Malays, 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, climbing up, and began to tread the deck of the ship.

If possible the night was darker than that when I made my first attempt; but the task was easy now, and after what I had said I was not surprised, just as I was gazing down to try and make out whether Joe was there, to hear a whisper.

"Yes," I answered, "keep back." Then, looking down, I whispered, "Joe—Joe."

There was no reply. Wondering what made him so long, I crept on, dropped my legs down, gave myself a swing, touched the sill of the cabin window, and the next moment was inside, to grasp Mrs. Barton's trembling hand.

For a few moments I did not speak, but stood listening to the low murmur of voices in the outer cabin, where the Malays were now asleep in conversation.

"Lyddy!" I whispered at last. "Asleep. Shall I wake her?"

"Not till the last moment," I said. "Then she must be kept quiet, or we shall lose our lives."

"What are you going to do?" "With God's help, escape. I have a boat under the cabin window. I shall lower you down, then Lyddy,—no, Lyddy must go first, if you can pacify her. Then I shall follow, and we are going to escape down the stream."

"I will keep her quiet," came back to me in a whisper; and I took the rope I had twisted round me and made it fast to a ring bolt before leaning out and trying to pierce the darkness; but I could see no boat, and I dared not trust myself to whisper more.

"Why is he not here?" I muttered; and I waited impatiently in the thick darkness.

How plainly everything sounded! I could make out Mrs. Barton's breath and that of the sleeping child, while from out of the cabin came the burr, burr, burr of the Malays' voices, and through the window the splash of some fish or crocodile. The suspense was horrible, but I could do nothing till Joe was ready with the boat, and though I looked out again and again, I found that he was not there, for a fish splashed in the water just below the window, and when I ventured to whisper there was no reply.

"He can't unhook the falls," I said to myself, as my heart sank, and I reproached myself for not stopping and seeing him off.

Just at that moment there came from close at hand the voice of the child in a frightened tone.

"Mamma!" I stood there listening and trembling, for at that cry there was a sudden cessation of the buzzing talk in the outer cabin.

"Hush, my darling." "But it's so dark."

"Mamma is here with you, dear," came from the side, and I still stood trembling and realizing that the Malays were all grouped together just beyond the cabin door listening attentively. I could even picture their dark faces and gleaming eyes.

"Will they come?" I thought, and with a thrill of rage running through me, my fists clenched hard, and I involuntarily leaned forward in the attitude of one about to strike a blow.

"It's coming," I thought. "Oh for a sword and revolver!" for there was a sudden movement in the outer cabin. Then my breath came more easily, for I knew that the danger was past.

The low buzzing talking now began once more. I crept to the window and peered down. Then I lowered the rope and found that it splashed into the water.

"Where can he be?" I muttered. "The only chance we have now, and it is being lost."

I drew back into the cabin and stretched out my hand till I could touch Mrs. Barton, and I felt her hand as I drew her towards me to whisper:

"I must go back and see about the boat. It has not come."

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 recoiled 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 growling 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 loud half-way 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 more shots passed through the door. Then there was a pause, 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 the enemy's, for it was an easy thing to press the barrel aside and fire up with my revolver, just as I felt the barrel jerk, and the woodwork of the sill was 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 my heart. While they were firing and I was replying, the excitement 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 were 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 crashing 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 remanned, the search expedition came on and reached the *Helen Gray* just in time.

"Now you know why I didn't come, lad," said Joe to me as he gripped my hand.

"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, 'speaking to be fetched off by the crew; 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 fit 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 the 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.

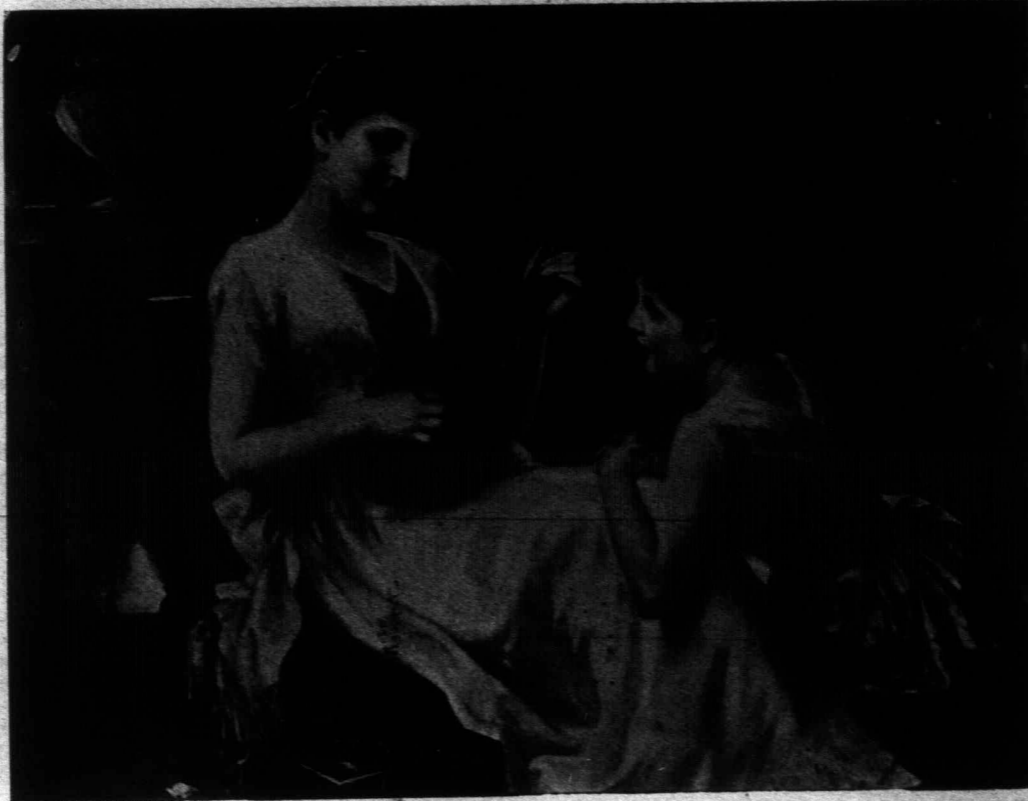
Three little girls are weary, Weary of books and of play; Sad is the world and dreary, Slowly the time slips away. Six little feet are aching, Bowed is each little head, Yet they are up and shaking When there is mention of bed.

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 one'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 inns, 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 DONOVAN.

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 graces, Father, from above, Bless us with hearts which feelingly can sing. "Oh 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, O God, Thy will be done from earth to Heaven. Reclining on the Gospel let us live, In earth from sin deliver-ed and forgiven. Oh! as Thyself but teach us to forgive, Unless it's 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. O 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, O, 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 glory."

"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; is it 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  $\frac{1}{2}$  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,  $\frac{3}{4}$  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 Northwest, 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 strain 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 15th 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 GAUL 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 hath 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 lanes; 5, a beverage; 6, Nova Scotia (abbr.); 7, a beverage (phon.).

L. E. FORCE.

5—DROOP-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 e'en Canadian heroes.

MURIEL DAY.

Answers to May 1st Puzzles.

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

3— k the 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

SOLVERS TO MAY 1ST PUZZLES.

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

ADDITIONAL SOLVER TO APRIL 16TH 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 hobbing up serenely. Sila.—Patience and perseverance ensure success. You began into 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 (he) 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 whither 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 (H<sub>2</sub>SO<sub>4</sub>). 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.

**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, Ont., Feb. 22, 1887.  
Dear Sir:—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.

FRANK J. BERRIES.  
Price, \$4; six for \$24. 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.

**EDWARD R. HOGATE COMPANY**

Shire, Clydesdale, Hackney and French Stallions. We have them on hand from 3 to 5 years old, Shires and Clydesdales, weighing from 1,800 pounds upwards, and Hackneys and English Coach horses from 16 to 17 hands high, full of life and superb action. Write now for particulars, and where you can buy the cheapest. Our last importation from England arrived February 1st, 1900. Terms to our customers.

EDWARD R. HOGATE, 364 Arthur St., TORONTO, CAN. Buses: 24 and 26 George Streets.

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

**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.

**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,**

Thorncliffe Stock Farm, TORONTO.

**Thoroughbred Durham Yearling Bull**

FOR SALE.

Pedigreed. A good one. Apply to EDWARD WILSON, Paris, Ont.

**GOSSIP.**

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 up-right 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.

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, which 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 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 on their merits, and we trust that the best of them will not 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 2-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.

**Important to Breeders and Horsemen.  
Eureka Veterinary CAUSTIC BALSAM.**

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



"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.

**NEWTON'S  
Heave, Cough, Distemper and Indigestion Cure**

A SPECIFIC For wind, throat and stomach troubles. Ninth year. Used in veterinary practice prior. \$1 per cent. Dealers or direct. Book & references free.  
Newton Horse Remedy Co. (D), Toledo, O.  
Trade supplied by Lyman Bros. & Co., Toronto.

**Hillhurst Farm.**

**Scotch Shorthorns.**

Scottish Hero and Joy of Morning.  
Oldest Stud of Hackneys in America. Shropshire, Dorset Horn and Hampshire Down Sheep.

**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.) 23015. Having sold most of my females, I can dispose of Golden Robe. He is sure and quiet.  
ISRAEL GROFF,  
Alma, Ont.

**GOSSIP.**  
Wellington Hardy, of Pomeroy, has recently added to his Ayrshire herd the imported 5-year-old bull, Craigcote of Auchincrain, 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.

**Hamilton Engine and Thresher Works**

(ESTABLISHED 1836.)

This is our 64th year of Growth, Progress and Improvement.



High-class Road-making Machinery,  
Road Graders, Rock Crushers,  
Road Rollers.

We are the only Company in the Dominion which makes its own machinery. Others either import from the United States or get it made for them by contract.

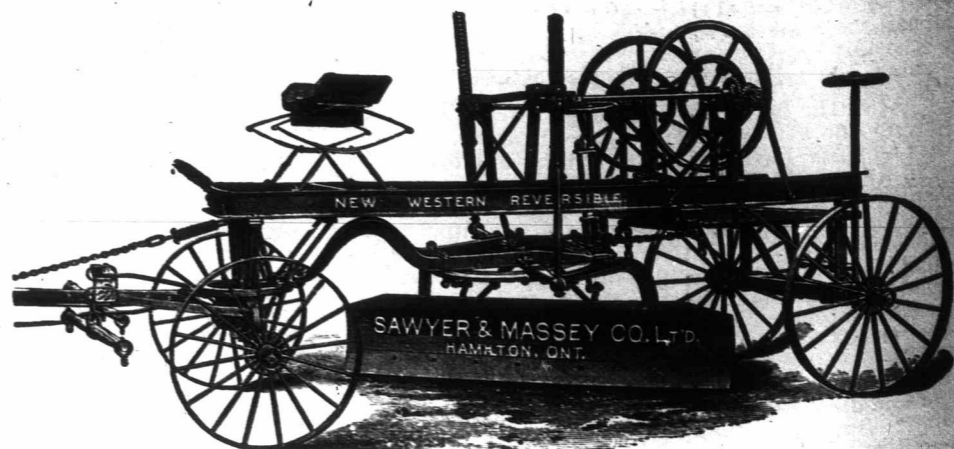
Patronize home industry.

Send for large illustrated Catalogue and full particulars to

We make the celebrated  
**S. & M. and L. D. S. Compound Traction and Plain Engines,**  
With locomotive and return tubular boilers for burning wood, coal, and straw. Also

**The Peerless, Daisy and Eclipse Separators,**  
All perfect threshers and cleaners, with latest improvements and attachments.

**Grain Baggers and Talliers, Self-feeders and Band Cutters,  
Wind Stackers, etc.**



**Sawyer & Massey Co., Ltd., Hamilton, Can.**

JUNE 1, 1900

SPRINGFIELD FARM... Young bulls and heifers on hand. Also a few choice Berkshires.



SCOTCH SHORTHORN BULLS AND HEIFERS HERD ESTABLISHED IN 1872.

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

Two good roan bulls and a fine bunch of heifers FOR SALE.

JOHN DRYDEN. BROOKLIN, ONTARIO. Scotch Shorthorns, Choice Shropshire Sheep.

SHORTHORNS AND BERKSHIRES. Duke of Richmond No. 28979 - at head of herd.



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

Shorthorn Cattle.



GOLDEN FAME (IMP.) - 28056 - (72610). My herd is one of the largest in America.

JAMES SMITH, Mgr., Millgrove, Ont. R. R. Station and Telegraph, Hamilton, on main line Grand Trunk RR.

Shorthorns, Cotswolds, & Berkshires



FOR SALE. Cows, heifers, heifer calves and bull calves, shearing rams and ewes.

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

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

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

Bonnie Burn Stock Farm. Forty rods north of Stouffville station, Ont.

PLEASE MENTION FARMER'S ADVOCATE.

GOSSIP.

Tilman E. Bowman, Berlin, Ont., writes: "My young Chester White pigs are doing fine."

Mr. D. J. Gibson, Bowmanville, Ont., writes: "The young Tamworths I offer in this issue are very choice."

James A. Russell, Precious Corners, Ont., breeder of Berkshire and Yorkshire swine, writes: "I am much pleased with the FARMER'S ADVOCATE as an advertising medium."

At the auction sale of Shorthorn cattle belonging to C. G. Davis, of Freeman, Ont., on May 15th, was well attended and prices were very satisfactory.

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.

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.

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.

NOTICES.

Windmill Bearings. To the Editor FARMER'S ADVOCATE: With your permission we would like to reply briefly to Mr. David Lawrence's letter...

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.

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.

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...

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

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, 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...

SPRINGBANK FARM. Shorthorn Cattle, Oxford Sheep, and Brown Turkeys.

JAS. TOLTON, WALKERTON, ONT.

SPRING GROVE STOCK FARM

Shorthorn Cattle and Lincoln Sheep. Herd pure and sweetstock at Toronto Industrial Exhibition, 1897 and 1898.

T. E. ROBSON, Ilderton, Ont.

SHORTHORNS.

One red bull, 21 months old; one 6 months old; also a number of heifers.

A. F. ALTON & SON, Burlington Jct. Station, Appleby P.O., 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, MAPLE LODGE P. O., ONT.

HAWTHORN HERD OF DEEP-MILKING SHORTHORNS.

SHORTHORN CATTLE AND LINCOLN SHEEP.

J. T. GIBSON, DENFIELD, ONT.

5 SHORTHORN BULLS

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

SHORE BROS., White Oak.

Pure Scotch Shorthorns for Sale. Two bulls and fifteen months old, and three two-year-old and two one-year-old heifers.

5-- Shorthorn Bulls --5

From 8 to 15 months. Also a few choice yearling and 2-yr.-old heifers, among which are grand, thick-fleshed and choicely-bred animals, mostly solid red color.

A. D. M'GUGAN, RODNEY, ONTARIO.

Shorthorn Cattle and Lincoln Sheep

The noted sire, Abbottford, stands at the head of our herd. We have a few choice red bulls to offer; also ram and ewe lambs from imported stock.

R. & S. NICHOLSON

Scotch Shorthorns, Imp. and home-bred. The Imp. Clipper bull, Chief of Stars, heads the herd.

Scotch Shorthorns

FOR SALE. 100 head to select from: 15 grand young bulls by Valkyrie.

T. DOUGLAS & SONS, Strathroy Station and P. O. Farm 1 mile north of the town.

Shorthorns and Leicesters.

Herd Established 1855. A number of young bulls, cows and heifers for sale.

JAMES DOUGLAS, CALEDONIA, ONT.

Shorthorn Bulls

FROM 8 to 17 months old. Red; in good condition. Also thick young cows, bred to Imp. Prince William.

R. MITCHELL & SON, Burlington Jct. Station, Nelson, Ont.

SHORTHORNS

Choice bulls ready for service, by Scottish Chief - 27244 - by Scottish Pride (imp.).

ALEXANDER LOVE, EAGLE, ELGIN CO., ONT.

SCOTCH SHORTHORNS AND BERKSHIRES.

Choice young bulls and heifers for sale. Also Berkshire pigs of the most approved breeding.

S. J. PEARSON & SON, Mendowdale, Ont.

# 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,**  
17-70 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.  
**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.

**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.

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

For Sale: Fine solid color Jersey heifer calf; dropped 25th April.  
**AARON WENGER, Ayton Sta., G. T. R.**

## GLEN ROUGE JERSEYS.

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

## JERSEY CATTLE

That will put Money in your pocket.

**MRS. E. M. JONES,**  
Brockville, Ontario, Can.  
Box 324.

## JERSEY BULLS.

High-class show bull, Prince Frank's Son 45755, 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 Etrick 55395, A. J. C. C. Handsome and richly-bred. Also handsome bull calf, eligible to register. Prices right for quality. Come and see, or write.

**W. G. LAIDLAW, Wilton Grove, Ont.**

## For Sale:

The Holstein bull calf, Keyes Count Pieterje, now 3 months old. Price, \$75. His dam is Maggie Keyes. She has the second largest three-year-old milk record for one year in the world; also a butter record of 26 1/2 lbs. in 7 days. Also a bull calf from a daughter of Manor De Kol.

**A. D. FOSTER, Holloway, Ont.**

## The Annandale Farm Holstein-Friesians.

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

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

## RIDGEDALE HOLSTEIN-FRIESIANS

For Sale: One yearling bull, also three bull calves, all sired by "Father Tensen," and whose dams are granddaughters of "Aaltje Posh 4th," the champion milk and butter cow at the London, Ont., Dairy Show, Dec., 1898.

Shipping stations: **R. W. WALKER, Utica P. Q., Ontario.**  
**Port Perry, G. T. R., Myrtle, C. P. R.**

## 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 R-John St., New York.** Nitrate for sale by fertilizer dealers everywhere.

Write at once for List of Dealers.

## LYNNFIELD HOLSTEIN HERD.

### WE HAVE PURCHASED

a stock farm at Lynn, Ont., where we have removed our famous herd of Holsteins. We can give you a special bargain in the 9-month-old heifer, "Ione Jewel Sylvia," winner of 4th prize in a large class at Toronto this year. If you want choice cows, two-year-old heifers, or heifer calves, write or visit us.

**C. M. KEELER, Lynn, Ont.**

## BROOKBANK

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

**GEO. RICE, Carrie's Crossing, Ont.**  
Oxford Co.

## Maple Glen Stock Farm.

**Special Offer:** An August bull calf, sired by Gem Pieterje Hengerveld Paul DeKol, bred by President Matteson, Utica, N. Y. Has for dam the sweet show heifer, Gilly Flower 2nd, an undefeated winner in 1898 as a yearling, also 1st at Ottawa and 2nd Toronto, 1899, as a two-year-old, where she was also a member of sweepstakes 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 Teale family. Prices reasonable for quality. **C. J. Gilroy & Sons, Glen Ewell, Ont.** Brockville, on C. P. R. or G. T. R.

## MAPLE HILL HOLSTEIN-FRIESIANS

Three Yearling Heifers, sired by Colanthus Abbecker 2nd, and in calf to Daisy Teale's King (brother to Daisy Meale'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.

**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.

**HENRY STEVENS & SONS, LACONA, OSWEGO CO., N. Y.**

## 3 Holstein-Friesian Yearling Bulls FOR SALE.

Prices right. Apply to **WILLIAM SUHRING, Sebringville, Ont.**

## DAVID A. MACFARLANE, KESLO, P. Q.

BREEDER OF

## Ayrshire Cattle.

The blood of Nellie Osborne is largely represented in my herd, and combine style, quality and production. A few choice things for sale.

## 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, Ont.**

## Ayrshire Cattle and Berkshire Pigs.

The bull Tom Brown and the heifer White Floss, winners of sweepstakes at World's Fair, were bred from this herd. Young stock for sale. Also Leicester sheep & Berkshire swine.

**D. BENNING & SON, 1-y-o Glenhurst Farm, Williamstown, Ont.**

## Choice Ayrshires

Herd now headed by first-prize bull at Toronto and London. Females of all ages for sale. Choice stock at fair prices. Poultry: L. Brahmans, Baff and W. Cochins, Black Minorcas, B. P. Rocks, from \$1.00 to \$2.50 each. For particulars write to **WILLIAM THORN, "Trout Run Stock Farm," Lynedoch, Ont., Norfolk Co.**

## 1 2-year-old Ayrshire bull and 2 yearlings for sale.

Also a fine lot of calves, sired by Dewey, bred by **Wm. Stewart & Son, Menie, Ont.**

**F. W. TAYLOR, Wellman's Corners, Ont.**

## 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 27 head catalogued making an average of \$111 each. The highest price (\$335) 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, Ooman of St. Lambert, sold for \$310.

Mr. John Racey, Jr., breeder of Shorthorn cattle and Berkshire pigs, Lennoxville, Que., writes: "Our Berkshires have wintered well, and this spring's crop of pigs are a particularly nice lot; perhaps the best we ever had. They are from sows of the noted Highclere and Sallie families, and sired by Lord Bradford - 5208 - Oxford Champion - 5860 - and Viceroy 2nd - 4513 - three well-bred boars. Our calves are by our old Strathallan bull, Strathroy - 9305 - and Macbeth - 3063 - and are very promising, of good shape and quality."

## 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 abstain from the exhibition of pigs in connection with their show at York this year.

## SALE OF THE BALMEDIE CLYDESDALES.

The dispersion of the noted stud of Clydesdales, owned by the late Mr. W. H. Lumsden of Balmedie, Aberdeenshire, took place on May 4th, when the 18 head sold brought an average of £110 6s. 2d.; seven brood mares averaged £135 13s., and seven stallions, £116 14s. The highest price (£20 guineas) was made by one mare, Balmedie Queen Mab, and Sir John Gilmour was the purchaser. The 4-year-old stallion, Balmedie May King, brought 200 guineas and went to Mr. Davidson, Old Hall, Watten. The yearling colt, Balmedie Lucifer, by Baron's Pride, fell to A. & W. Montgomery at 200 guineas.

## AGAIN THE FAKIR!

We have received two letters lately from prominent swine breeders, complaining that some unprincipled wretch is going about the country personating them and professing to wish to buy stock of the breed they are interested in. All his numerous orders, promising to remit payment, with instructions for shipping, when he has completed his purchases and that is the last heard of him till the parties from whom he makes his bogus purchases weary of waiting, write to the breeder who has been personated, enquiring when the bargain is going to be consummated. Meanwhile the wretch is boarding around among the breeders and proving a nuisance. Breeders should be on the lookout for this kind of vermin, and, when satisfied he is the impostor, should take measures to expose him or have him run in as a vagrant. He is probably the same party that for two years has been playing on the cattle breeders, and has played out that class and taken to fresh pastures.

## NOTICES.

**Fresh Fruit.**—Mr. E. K. Hartley, Milton Ont., advertises in this issue fresh ripe strawberries, raspberries, blackcaps and standard fruit of all sorts in season. Read the advertisement.

**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 anxious to ship 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 or more to shear, as the saving in wool and sheep will soon pay for the extra expense."

**Lime and Sulphur Sheep Dips.**—The American Wool Grower 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 northerly climates. 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 reader's own experience and observation may be added. It may be ordered through this office at 50 cents.

## HORSEMAN! THE ONLY GENUINE IS

# GOMBAULT'S CAUSTIC BALSAM.

The genuine without the signature of *The Lawrence-Williams Co.* U.S. & CANADA.

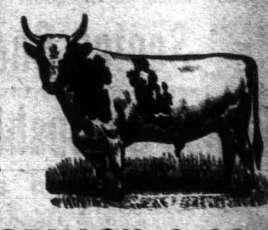
The Safest, Best BLISTER ever used. Taken the place of all liniments for mild or severe action. Removes all Bunches or Membranes from Horses and Cattle. SUPERSEDES ALL CAUTERY or FILING. Impossible to produce scurf or Membranes. Every bottle is warranted to give satisfaction. Price \$1.50 per bottle. 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 Cliff Dairy and Stock Farm.

Breeders of **FOR SALE:**  
**AYRSHIRES,** 1 yearling and 6 bull calves from 2 to 8 months old.  
**TANWORTHS,** Boars and sows, 6 to 8 months old, and sucking pigs.  
**Improved BERKSHIRES.** Booking orders for young pigs.  
**R. REID & CO., Hintonburg.**  
Farm 1 mile from Ottawa. Electric cars to farm. on

## Choice Ayrshires, Barred Rocks and Eggs.

4 FINE BULLS fit for service. Bull calves, and heifers. A few Barred Rock cockerels. Eggs for hatching from choice matings in Barred Rocks, at \$8 per 15; incubator eggs, \$4 per 100; Cayuga duck eggs, \$1 per 11.



## JAS. McCORMACK & SON,

on 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, Manager to W. W. Ogilvie, LACHINE RAPIDS, QUE.**

## For Sale: Six Ayrshire bulls,

two cows and heifers, thoroughbred fowls, and Scotch collie dogs.  
**WM. STEWART & SON, MENIE, ONT**

## 5 Ayrshire Bulls

Fit for service this spring, by Victor of Maplecliff, and out of Snowball, Strawberry, and other noted dams, tracing through Tom Brown and such sires.

**DONALD CUMMINGS, LANCASTER, ONT.**

## METAL EAR LABELS

Used by all Live Stock Record Associations.  
Sheep size, per 100.....\$1.50  
Hog size, per 100..... 1.20  
Cattle size, per 100..... 1.00  
Funch and Ribbons for attaching labels to ear, each \$1.00.  
Name on one side and any number wanted on reverse side. **F. S. BURCH & CO.,**  
on 178 Michigan St., Chicago, Ill.

## EUROPEAN ADVERTISEMENTS.

## HAMPSHIRE DOWN

# SHEEP.

**SPLENDID MUTTON, GOOD WOOL, GREAT WEIGHT.**

THIS HIGHLY VALUABLE

## English Breed of Sheep

Is unrivalled in its rapid and wonderfully early maturity, possessing, too, a hardness of constitution adapted to all climates, whilst in quality of mutton and large proportion of lean meat it is unsurpassed. Full information of

## JAMES E. RAWLENCE,

SECRETARY HAMPSHIRE DOWNS SHEEP BREEDERS' ASSOCIATION,  
**SALISBURY, ENGLAND.**

## FAMOUS ALL OVER THE WORLD.

## ALFRED MANSELL & CO.,

LIVE STOCK AGENTS AND EXPORTERS, SHREWSBURY.

BRITISH STOCK selected and shipped to all parts of the world. Write for prices to **ALFRED MANSELL & CO., Shrewsbury, England,** or to our American representative, Robert Miller, Stouffville, Ont., Canada.

JUNE 1, 1900

EUROPEAN ADVERTISEMENTS.

LINCOLN LONG-WOOL SHEEP BREEDERS' ASSOCIATION.

Lincoln Ram Sales, 1900.

The 10th and 11th sales of Lincoln Long-wool Rams, by members of the Association, will be held in Lincoln, as follows:

3rd August, - - 400 Rams. 7th September, - - 500 Rams.

On view the afternoon before the day of sale.

STEPHEN UPTON, SECRETARY.

ST. BENEDICT'S SQUARE, LINCOLN, ENG. 15th FEBRUARY, 1900.

J. E. CASSWELL, Laughton, Folkingham, Lincolnshire.

breeder of Lincoln Long-wooled Sheep, Flock No. 46. The flock was in the possession of the present owner's great-grandfather in 1785, and has descended direct from father to son without a single dispersion sale.

HENRY DUDDING, RIBY GROVE, STALLINGBOROUGH, LINCOLN, ENGLAND.

Broeder of Lincoln Long-wooled Sheep and Shorthorn cattle. The Riby flock of upwards of 1,400 Ewes holds an unequalled record for true type, merit, and quality.

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.

The Danesfield Pedigree Stock. IMPORTERS desirous of securing selections of either Shire horses, Aberdeen-Angus cattle or Hampshire Down sheep should inspect the stud, herd and flock, property of Mr. R. W. Hudson.

MR. COLIN CAMPBELL, ESTATE OFFICE, DANESFIELD, MARLOW, BUCKS.

Shropshire Rams and Ewes. Newly imported from the greatest English breeders. Home-bred rams and ewes of best quality.

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.

JOHN CAMPBELL, Woodville, Ont., Canada.

GOSSIP.

At the auction sale of Shorthorns from the herd of Mr. J. T. Hobbs, Maisey Hampton, England, May 4th, the 53 head sold brought an average of \$41 6s. 8d.

Mr. Peter Bathgate, a retired farmer, formerly of the township of Kramosa, a breeder of Shorthorn cattle and a progressive farmer, died suddenly in the city of Guelph on May 20th, in his 72nd year.

The stallion, Dashwood 12486, Vol. IX, A. T. R., portrayed on page 321, has a 4-year-old trotting race record of 2.22. He is Standard bred, under rules 1 and 6.

At the sale of 70 Hackneys, property of four breeders, held at Eccleshill, England, last month, an average on the whole number of 652 was made.

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.

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.

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.

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 95th year of his age.

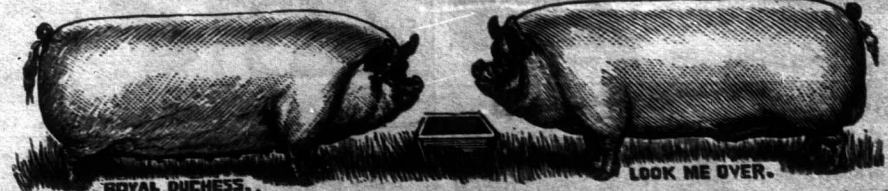
OFFICIAL TESTS OF HOLSTEIN-FRIESIAN COWS FROM APRIL 1 TO MAY 1, 1900. These tests are uniformly made by representatives of Agricultural Colleges or Experiment Stations, at the homes of the owners of the cows.

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.

PLEASE MENTION FARMER'S ADVOCATE.

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.

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.



ISALEIGH GRANGE FARM, Danville, Quebec. J. N. GREENSHIELDS, Prop. T. D. MCCALLUM, Mgr.

Oxford Down Sheep

Flock Established 19 Years. Animals of all ages and both sexes for sale, reasonable. Rams to head stocks a specialty.

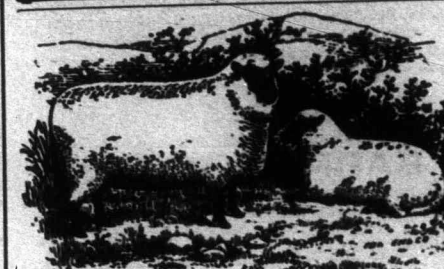
HENRY ARKELL, ARKELL P. O., ONT. Guelph: Telegraph and Telephone.

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.

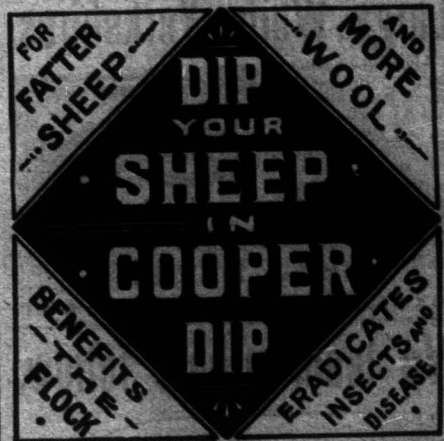
MADE ONLY BY The Pickhardt Renfrew Co. LIMITED, STOUFFVILLE, ONT.



To Farmers, Stock Dealers and Wool Growers: For Sheep, Cattle, and Horses.

Liecestershire Tick and Vermin Destroyer. It effectually destroys Ticks, Lice, Worms or Grub, to which sheep, horses and cattle are subject.

PLEASE MENTION FARMER'S ADVOCATE.



Used and endorsed by Hon. John Dwyer, 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.

CALVERT & DWYER CO'Y, TORONTO, CANADA.

Write us before selling your wool. It will pay you.

Spring Brook Stock Farm.

Two choice September pigs by imp. Whitacer Crystal, Royal winner. One choice sow in farrow. Young pigs, pairs and trios, not akin, from imported prize-winning boars.

WATERLOO CO. NEW DUNDEE, ONT.

Young Pigs.

We are offering a fine lot of Young Pigs from sows of the Highclere and Ballie families.

JOHN RACEY, Jr., Lennoxville, Que.

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.

SNELL & LYONS, Snelgrove, Ont.

Large English Berkshires.

HERD headed by two imported first-prize boars. Young boars and sows from imp. prize-winning sire and dams. Write for prices. H. BENNETT & SON, St. Williams, Ont.

Berkshires and Tamworths

My herd has Varna Duke and Manor Lad (2nd-prize 6-months boar at Toronto, '92) at head, with equally well-bred sows. My Tamworths have the blood of imported Nimrod, Middleton, Milanias, and O. A. G. 110 (the silver medal sow at London '98), her son Parkhill Prince, and Nimrod imp. at the head. Write for what you want. W. I. TUMELTY, Madoc, Ont.

Yorkshires and Berkshires.

IN YORKSHIRES: Young pigs both sexes, not akin, from Cinderella and Oak Lodge Queen (imported) families. IN BERKSHIRES: Young pigs both sexes, not akin, from a Teasdale-bred sow and a Cox-bred sow. Guaranteed as described. Write for prices. JAS. A. RUSSELL, PRECIOUS CORNERS, ONT.

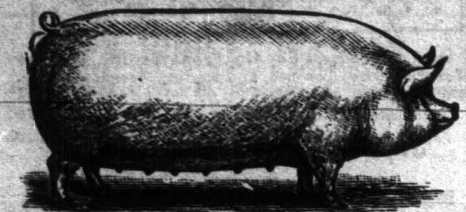
Yorkshire Sows.

We are offering sows, due to farrow in June and July, of excellent quality, at \$12 to \$15, registered. We will book orders for Suffolk and Shropshire rams and ewes for fall delivery. Plymouth Rock Eggs for Hatching. \$2 5 Settings for W. R. BOWMAN, Mt. Forest.

Large White Yorkshires.

An offering during this month a grand lot of boars and sows ready for breeding, pairs supplied, not akin, from show stock; also several sows in pig to imported boar. Young pigs from 2 to 3 months old, all of the most improved bacon type. Registers furnished. Express prepaid. Address: H. J. DAVIS, BOX 290, WOODSTOCK, 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. Brethour & Saunders, Burford, Ont., Can.

Maple Grove Yorkshires

Of the large bacon type. Stock of all ages for sale. Also a Berkshire boar, of Baron Lee strain; he has immense length and depth. A grand show hog. T. J. COLE, BOX 188, BOWMANVILLE, ONT.

NORTH BRUCE HERD

Improved Large Yorkshires. Boars, 200 lbs. and over, at \$10.00, for quick sale. Sows in farrow and young stock at reasonable prices. Guaranteed as described. WM. HOWE, Pt. Elgin St., G. T. R., NORTH BRUCE.

OXFORD HERD OF POLAND-CHINAS

The home of the winners. Have, again won the sweepstakes at Toronto, London, Ottawa, and Provincial Fat Stock Show, we are offering again young boars and sows of superior quality; bred along the same lines as our winners. W. & H. JONES, OXFORD CO., MT. ELGIN, ONT.

OHIO IMPROVED

CHESTER WHITE PIGS.

Young stock ready to ship, single or in pairs, not akin. Stock registered. Also Silver Spangled Hamburg eggs. Write for prices. TILMAN E. BOWMAN, Berlin P. O., Ont. Berlin, G. T. R., or Galt, C. P. R.

PLEASE MENTION FARMER'S ADVOCATE.

DUROC-JERSEY SWINE.

We have a fine lot First-Class Stock of all ages and either sex. Address, on TAPE BROS., Ridgeway, Ont.

Registered Chester White Pigs,

Ready to ship by the 1st of July, at \$5.00 each, sired by an imported boar. F. BIRDSALL & SON, Birdsall, Ont.

Tams. for Sale.

Aged boar, Spruce Grove Model 707; one March boar; one March sow, bred to Starlight (imp.); 12 boars and sows 2 to 4 months, sired by Starlight (imp.), at reduced prices. JOHN HORD & SON, Parkhill, Ont.

Tamworths.

I have for sale at present pigs of both sexes, from six weeks to five months old, of the choicest breeding, at reasonable prices. For full particulars write to J. H. SIMONTON, Box 304, CHATHAM, ONT.

Tamworths.

Fourteen sows and boars, two months old, at \$5.00 each, from prize-winning stock. Order at once or they will be gone. D. J. GIBSON, Hazel Dell Stock Farm, Bowmanville, Ont.

TAMWORTHS

Boars fit for service, sows bred and ready to breed, March pigs suitable for show pigs, from prize stock. Write for prices. J. C. NICHOL, Hubrey P. O., Ont.

THE SWEEPSTAKES HERD OF '99.

Offer: One boar, 11 months old, A1, a show boar. Boars 6 months and younger. Sows 4 months and younger, from selected stock. Booking orders for spring pigs. Write for prices. NORMAN M. BLAIN, Braat Co. Coldspring Farm, St. George.

TAMWORTHS AND COTSWOLDS.

I have a few very choice things to offer this season, fit to show, by Spruce Grove Model and Dorchester Hero, both Toronto winners, and out of my sweepstakes sow. Also a choice bunch of splendid, strong, well-covered Cotswold Lambs. R. O. MORROW, Hilton, Ont.

Place Your Egg Orders . . .

with the Lucknow Poultry Yards and you will not be disappointed with hatches and the quality of stock. Our matings for 1900 far surpass any previous matings in Buff and White Cochins, F. Brahma, Buff and Silver Wyandottes, White and Barred Rocks (exhibition cockerel and pullet mating in Barred), Buff Leghorns, Red Caps, Black Minorcas, Black Spanish, G. Seebright, and Pyle Game Bants. Eggs, \$2.00 per 13; \$5.00 per 45. We have strong pens of White, Brown, and Buff Leghorns and Barred Rocks, \$1.00 per 13; Pekin and Rouen ducks, \$1 per 11. Our stock won for us over 1,000 prizes in the past 4 years, which should be sufficient proof that we understand mating, etc. Satisfaction guaranteed. J. C. LYONS, Lucknow, Ont. N. B.—Miss Coldwell's Barred Rocks are now owned by us.

BARRED ROCKS.

Best strains and mated right. \$1 per 15. Shoemaker, Leffel and Conger strains. H. GEE & SONS, Fisherville, Ont. Haldimand Co.

EGGS

From Plymouth Rocks, Wyandottes, Leghorns, Brahmans, Cochins, Langshans, B. Minorcas, Spanish, S. Dorkings, Houdans, B. R. Pile and Indian Game, Hamburgs, Red Caps, Bantams, Pekin, Rouen, Aylesbury ducks, at \$1 per 13. R. J. & A. Laurie, Wolverton, Ont.

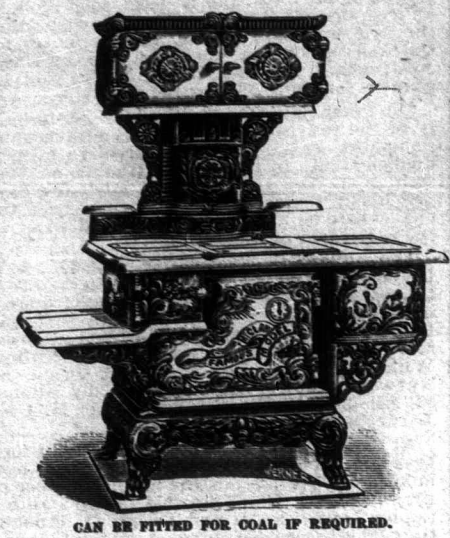
EGGS FOR HATCHING

From No. 1 pens of Barred Plymouth Rocks, Black Minorcas, White and Brown Leghorns, White Rocks, and White Wyandottes, at \$1 per setting. Toulouse geese eggs at \$1.50 for 11 eggs, or 20 cents each. W. W. EVERITT, Chatham, Ont.

EGGS, EGGS

Maamoth Bronze Turkeys, Barred and White P. Rocks. Have also for sale young Chester White Swine. W. E. Wright, Glanworth, Ont.

SAVE FUEL BY USING A Famous Model Range FOR WOOD.



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.

DES MOINES INCUBATOR Co

The BEST and the CHEAPEST. 95 Per Cent. Hatches are often reported by those who use these Incubators. One reason for this record is absolute uniformity of temperature in egg chamber; correct instructions for operating; has fireproof lamp. A great mistake it would be to purchase an Incubator or Brooder without first getting a copy of our 148-page catalogue. Send 3 cents for illustrated catalogue of Incubator, Brooder, Poultry and Poultry Supplies. "THE POULTRYER'S GUIDE" (new edition) 15 cents by mail.

THE SPRAMOTOR Co.



Shipped export-conditions 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, awarded by the Spramotor Co., of London, Ont., was made first place.

O. ROLLAND,

373 St. Paul St., MONTREAL. Sole Agent for the Dominion.

Belleville Business College.

FOUR WELL-EQUIPPED DEPARTMENTS. BELLEVILLE, ONTARIO.

IT PAYS TO ATTEND THE BEST!

CENTRAL Business College

Students from Canada, United States and Newfoundland in attendance this year. Beautiful catalogue free. W. J. ELLIOTT, Principal. STRATFORD, ONTARIO.

"'Tis Better to Have and Not Need, Than to Need and Not Have."

When it looks like rain you carry an umbrella. Some time ago it looked like "business." Those who took our advice and carried a business education are getting the benefit. Those who didn't, wish they had. Get an education that will be of use to you all your lifetime. Our business course is just what you need. Send for catalogue, which contains full information regarding this course, to the

NORTHERN Business College

C. A. FLEMING, PRINCIPAL, OWEN SOUND, ONT. Spring Term begins April 17th, 1900.

DOMINION LINE STEAMSHIPS.

Montreal to Liverpool. Weekly Sailings. MIDSHIP SALOONS, SPEED AND COMFORT. The Second Cabin accommodation on the steamers of this Company is very fine. Passengers can make a cheap and very comfortable trip to Paris by using this accommodation. The through rate, Montreal to Paris, being \$43.75. RATES OF PASSAGE. First Cabin, \$60.00 and upwards. Second Cabin, 37.50. Steerage, 23.50. For further information apply to any agent of the Company, or DAVID TORRANCE & CO., 17 St. Sacramento St., MONTREAL, P. Q.

H. J. Davis, Judges.

Address—SPRAMOTOR CO., 68-70 KING ST., LONDON, CANADA.

Aylmer Sprayer

Our Offer:



IT is now universally acknowledged by the fruit-growing community that the Aylmer Sprayer leads. During the past two years the Aylmer has won first place at every contest at which it was shown, receiving the Jubilee Diploma at Toronto Industrial Exhibition; also first place at St. Petersburg, Russia, and at Manchester, Eng.; Ottawa, Ont., and numerous other exhibitions. The General Public not being in a position to select the best spraying pump, we make the following offer: If you are a responsible party, we will ship you the Aylmer Sprayer to thoroughly test in the competition with any other known make, and if the Aylmer is not found the most satisfactory, it may be returned at our expense, thus giving you the opportunity to judge from actual experience which is the best sprayer manufactured, no matter what anyone tells you. Agents wanted. Mention this paper. AYLMEYER IRON WORKS, Aylmer, Ont.

THE ONTARIO VETERINARY COLLEGE

(LIMITED), TEMPERANCE ST., TORONTO, CANADA. Affiliated with the University of Toronto. Patrons: Governor-General of Canada, and Lieutenant-Governor of Ontario. Fee, \$65.00 per session. Apply to ANDREW SMITH, F.R.C.V.S., Principal. 18-27-00

PLEASE MENTION FARMER'S ADVOCATE.



# BINDER TWINE

The man that don't realize the importance of sustaining this co-operative twine movement with his patronage and influence is little better than a



**FARMERS' CO-OPERATIVE BINDER TWINE COMPANY, Limited, Brantford,** with its thousands of stockholders, is again ahead in the great Binder Twine race for the harvest of 1900. Competition defied. Red Star (magnificent), 12c.; Blue Star, 11c.; Standard, 10c. Mill running full tilt. Raw material bought right. See our farmer agents at once. Farmers, you would have paid 15c. to 20c. a pound this coming season for twine had it not been for the existence of this Co-operative Company. Opposition—"Buy us you can't. Lease us you cannot. Crush us if you can. We hold you at defiance so long as the farmers are loyal to their trust." Order early, this is your last warning.

**JOSEPH STRATFORD, GENERAL MANAGER.**

## BINDER TWINE.

FARMERS who wish to be supplied with binder twine from the Central Prison are requested to send to "The Warden, Central Prison, Toronto," before the 1st June next, their names and addresses, together with a statement of the probable quantity required in each case.

On the 1st June the Inspector of Prisons will fix the price to farmers for their own use, which price will be based on the market price of the hemp used, less the cost of manufacturing, etc., and will, on the date mentioned, advertise the same.

After the public announcement of prices, those farmers whose applications have been received, and who notify the warden of the Central Prison as to the number of bales required, whether one or more, and give directions where to ship, will be supplied at the advertised price and terms.

**JAMES NOXON, Inspector, Parliament Buildings, Toronto, March 23rd, 1900.**

## That Mortgage

WHO WILL PAY IT?

If you live you will pay it and have a good living too. But if you die—ah! there's the rub. Why not pay the Ontario Mutual Life a small yearly premium to do it. Write for particulars.

C. E. German, Agent, London, Ont.

## FREEMAN'S Three-Ply Ready Roofing

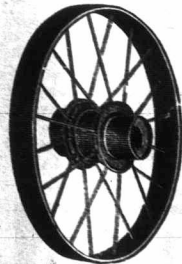
EASILY APPLIED

Great Reduction in Prices. Send for Price List, etc. Parliament Buildings, Toronto, October 20th, 1898.

**THE W. A. FREEMAN CO., 57 Ferguson Ave., South, Hamilton, Ontario:**

Gentlemen.—Nine years ago I purchased from you a large quantity of material known as Freeman's Ready Roofing, with which I roofed the north half of my barn and two sheds, 66x20 each. This year we re-painted this roof and found it in excellent condition. A shingle roof put on part of the barn two years before was badly in need of repair. I shall hereafter use your ready roofing on all my out-buildings. Yours truly (Signed) F. W. HOBSON.

## Low, Wide-Tire Wheels FOR WAGONS.



Made to fit your axles. Every farmer should have a set of these low, wide-tire, wrought-iron wheels for drawing hay, grain, corn, manure, stone, etc. They are lighter, stronger, and much cheaper than wooden wheels. Write for prices.

**Dominion Wrought Iron Wheel Co., TORONTO.**

**LIGHTNING WELL MACHY IS THE STANDARD**  
STEAM PUMPS AIR LIFTS  
GASOLINE ENGINES  
WRITE FOR CIRCULAR  
THE AMERICAN WELL WORKS  
AUBURN ILL - CHICAGO - DALLAS TEX



# THE NATIONAL FARM Cream Separator

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

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

**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.

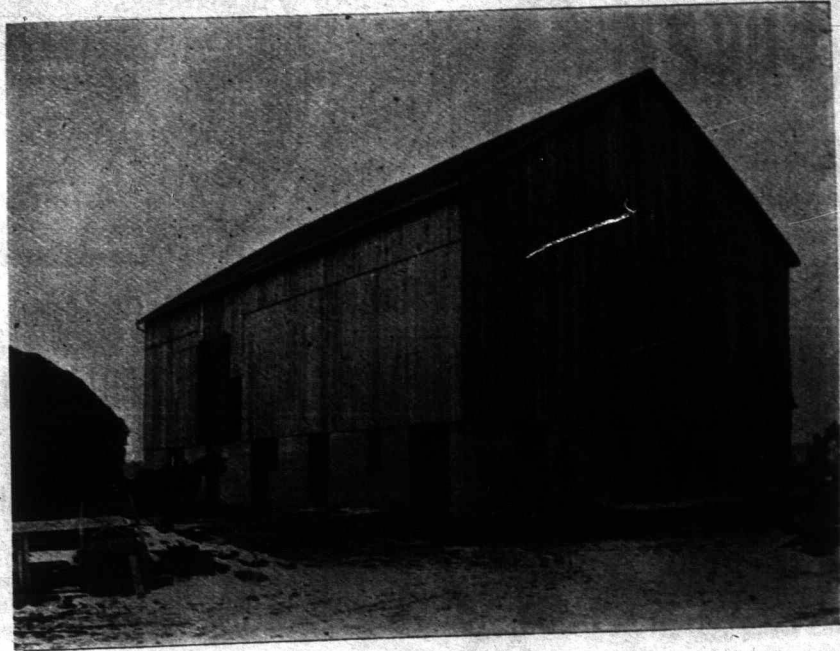
"NATIONAL" NO. 1 HAND POWER. Capacity, 150 to 350 lbs. per hour.

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

## A GOOD BARN.

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

Built With **THOROLD CEMENT**



Barn of John McFarlan, Leesboro, Ont. Size, 50 x 80 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.: LEESBORO, 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 50 x 80, walls 11 feet high, with root-house under driveway 11 x 42 feet, arched roof. The work was done under the supervision of Mr. Walter Lambert, and the floors under Mr. N. B. Hagar. I consider the work is 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 £40 5s. 8d., the highest price for a female being 80 guineas for French Rose 3rd, and the highest for a bull, 130 guineas, for Hopeful Beau, bought by Mr. Lovell.

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.

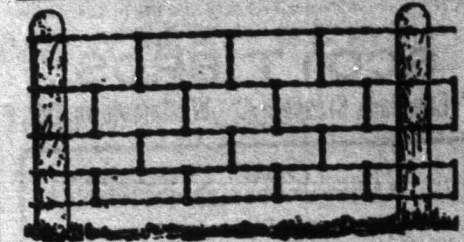
On Saturday, April 21st, Messrs. Alfred Mansell & Co., live stock exporters, Shrewsbury, England, shipped per the S. S. "Westphalia," from Hamburg 245 Rambouillet Merinos, on account of Messrs. Harding & Son, of Waukesha, Wis. All these animals were selected with the assistance of Mr. Alfred Mansell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

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.

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 drafts 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.

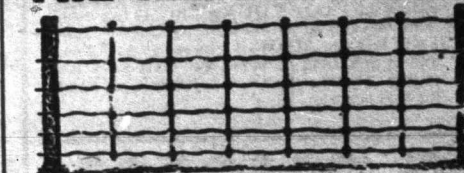
Coiled and other **FENCE WIRE** at reduced prices. The GEM Fence Machine for only \$5.00. Agents wanted. Write **McGregor, Banwell & Co., WINDSOR, ONT.**



WE have been supplying our patrons with good fences for 15 years, and to-day we take no back seat. Can supply all-wire fencing or our celebrated Patent Portable Picket and Wire Fence. Prices from 40c. a rod. A postal card will fetch along our price list.

**Toronto Picket Wire Fence Co., 221 River Street, TORONTO, ONTARIO.**

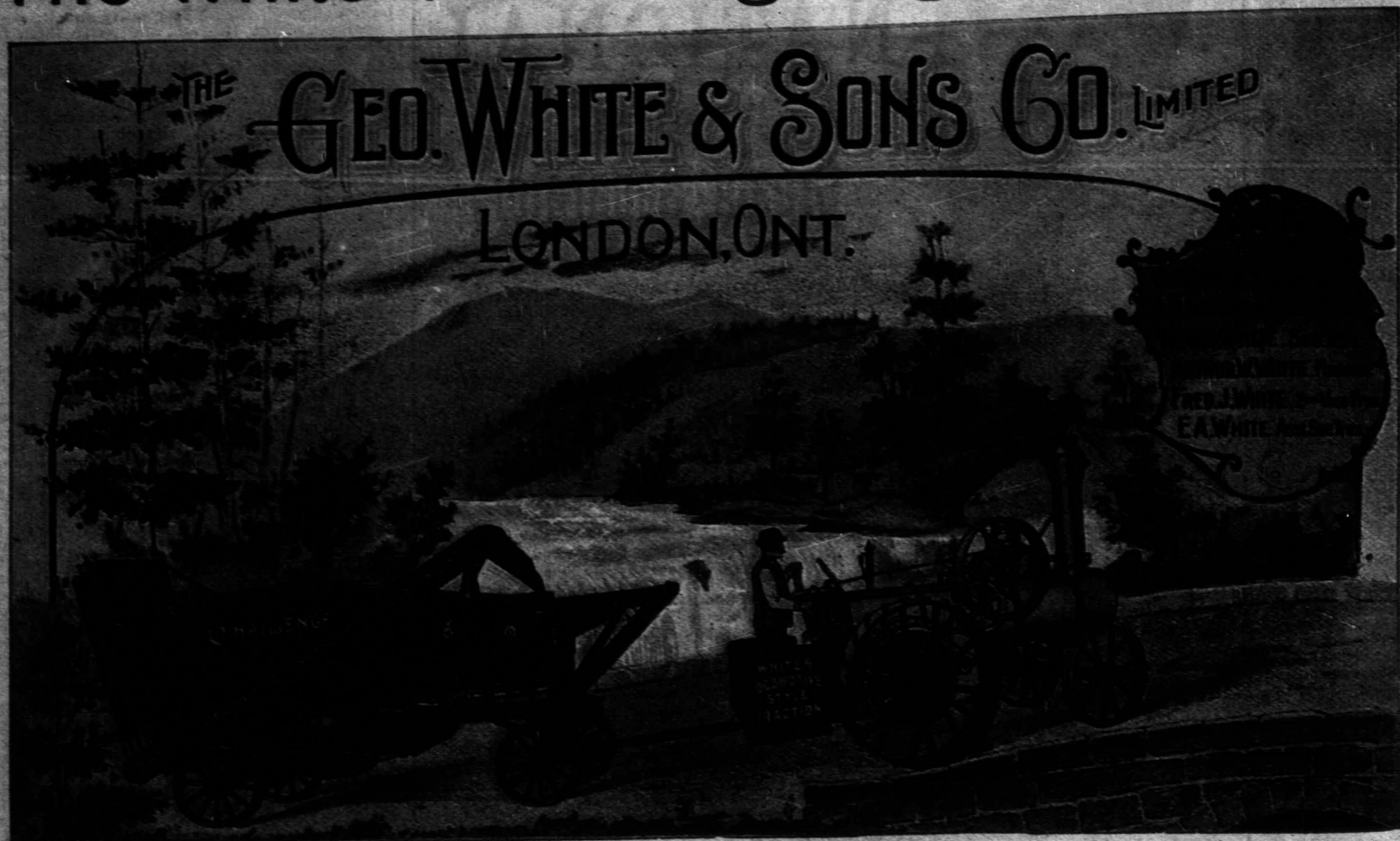
## THE RANKIN FENCE



is a coiled Spring wire Fence containing all the latest improvements, is easily and rapidly erected without any expensive tools or previous experience. All particulars in our Catalogue.—Write for one.

**AGENTS WANTED. THE RANKIN FENCE CO. 275 ST. MARTIN ST., MONTREAL.**

# The White Threshing Engines and Machines



Hold the records  
... for ...  
Economy in fuel,  
Clean threshing,  
Fast threshing,  
Durability,  
Traction power,  
Speed on road,  
Running in sand,  
Heavy drawing,  
Design and  
Finish.

THE GEO. WHITE & SONS CO., LIMITED, LONDON, ONT., CANADA.

## The Larimer Ditching Plow



Covered by patent in Ottawa for Canada, and in Washington for the U. S.

### What the Ditching Plow Has Done.

It has ensured early sowing and better harvests.  
It has kept many a son at home—drained land and the working of drained land make the boy feel that home is better than away from home.  
It has given dignity to the agricultural calling. To plow, sow and reap half a crop from land left undrained has cost many a farmer name, dignity, and profit.

A few acres undrained puts new life in the owner of land. All information from

**SCOTT BROS.,**  
"Elm Bank Crescent," Williamstown, Ont.

## ROB ROY SHARES.

We sold about \$2,000 worth of these shares last week. Why?

Because **INDEPENDENT OUTSIDERS** examined the property and gave their opinion to the press. Thus the public learned the news.

We are reaping the benefit. We made a special issue of shares at \$15 each, and orders are coming in from N. E. W. and south.

As soon as this issue is sold we shall have money enough for our works, and your chance will be **GONE**.

There is now no undue risk whatever, and a few hundred dollars invested now in these shares may make **YOU** wealthy. It has been done before and will be done again.

I will tell you **HOW** if you want to know, and of one thing be sure, we will sell no more shares than we have to. Send for this report.

A. E. WELCH, LONDON, ONT.

## LIVE STOCK AUCTION SALES

Conducted in all parts of the country. Pedigree stock a specialty. Write for terms. References: J. C. Snell, Edmonton; John L. Hobson, Ouelph; Hon. M. H. Cochrane, Compton, P. Q.; or this office.

JOHN SMITH, BRAMPTON.

## A \$3000. STOCK BOOK FREE

It contains 1932 large colored engravings of Horses, Cattle, Sheep, Hogs and Poultry with an illustrated veterinary department. The engravings cost us \$25,000. 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 25-lb. pails? 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 50 to 200 lbs. every year. It makes colts, calves, lambs and pigs grow very rapidly and only costs 2¢ S Feeds for One Cent. 63 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 pails or barrels.

Largest Stock Food Factory in the World. Address: **INTERNATIONAL FOOD CO., MINNEAPOLIS, MINN., U. S. A.** We occupy 15 acres, also 100x25 feet each, in addition to our large Printing Dept.  
We own for our "International Stock Food Farm" three Stallions, Buttonwood 2:17, by Nutwood 2:38, International Stock Food, by Hartford 2:22, and Nahoola 2:22, by Lockhart 2:52. They eat "International Stock Food" every day. It saves grain.

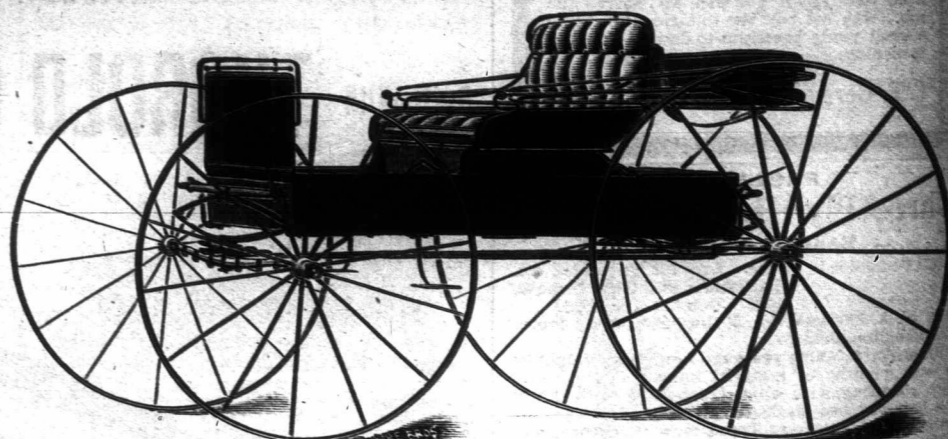
ASK YOUR DEALER FOR AN

## Armstrong Buggy.

Warranted first-class and up-to-date in every respect.

Catalogue on Application.

Write us for particulars.



J. B. ARMSTRONG MANUFACTURING CO'Y, LIMITED (The Guelph Carriage Goods Co.), GUELPH, CANADA.

## Strathy's "HINGE" Stay Field Fence and SINGLE POLE Gates

### THE 20th CENTURY FENCE.

SHOWING HINGE MOVEMENT OF STAYS UNDER PRESSURE STAYS CANNOT BEND & WILL SPRING BACK TO PLACE WHEN PRESSURE IS REMOVED.



A fence competitor says

"It has no equal."

A trial will convince you also.

We have since purchased the rights for the Maritime Provinces of Canada.

The product of years of practical experience, careful study and experiment under the hardest climatic conditions of heavy snow and severe frost in winter and high temperature in summer, with a variation of 150 degrees. Our Spring Post meets perfectly the requirements and overcomes all the difficulties of contraction and expansion, under a variation of 180 degrees of temperature, and has besides a reserve capacity of as much more to provide for great strain and to automatically take up the stretch in the wires. Our "Hinge" Stays so act, when under pressure of snow or other weight, that when the weight is removed the fence springs back to place, with Stays unbent and fence uninjured. A system all our own and unlike any other. We use heavy wires—high carbon spring steel wire of highest quality—but our system is cheaper and the completed cost less than any other fence. Write for full particulars, and state fully your requirements.

**THE STRATHY WIRE FENCE CO.,** Welland, Ont.

Agents of ability wanted in every part of Canada.

We sell the parts to assemble in the field or ship in the roll ready woven at 31 cents per rod up.

## BOYS FOR FARM HELP.

The managers of Dr. Barnardo's Homes will be glad to receive applications from farmers or others for the boys who are arriving periodically from England to be placed in this country. All the young immigrants will have passed through a period of training in English Homes, and will be carefully selected with a view to their moral and physical suitability for Canadian life. Full particulars as to the terms and conditions upon which the boys are placed may be obtained upon application to Mr. ALFRED B. OWEN, Agent, Dr. Barnardo's Homes, 214 Farley Ave., Toronto.

**TORONTO ENGRAVING CO.**  
92 BAY ST  
CUTS BY ALL PROCESSES  
LIVE STOCK A SPECIALTY

PLEASE MENTION FARMER'S ADVOCATE.



**SHEEP SHEARING REVOLUTIONIZED.**

**Chicago Sheep Shearing Machine**

STEWART'S PATENT. PRICE, \$15.00.

The only Sheep Shearing Machine ever invented. The day of the old fashioned hand shears is past. Over one million sheep shorn last season with this machine. Thousands of testimonials. No sheep owner can afford to shear the old way. Saves from one-half to one pound wool from each sheep. Pays for itself the first season. Be humane and don't butcher your sheep. Requires no experience to operate. Send for large illustrated circular.

CHICAGO FLEXIBLE SHAFT CO.,  
158-160 Huron St. CHICAGO, ILL.

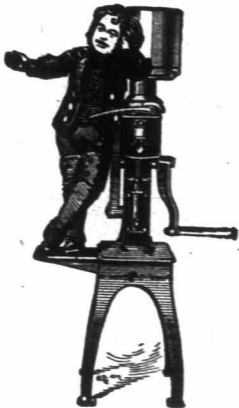
**Cream Separators.**

HOW IS THIS FOR

**NEW CENTURY "ALPHA" DISCS ?**

An Unsolicited Testimonial.

COWANSVILLE, APRIL 27TH, 1900.  
THE CANADIAN DAIRY SUPPLY CO., MONTREAL, P. Q.:  
Gentlemen,—The Alpha Cream Separator bought from you received, and is now running in my factory. I wish to say I am delighted and surprised. I am delighted with the way the machine is running and fine work it is doing. I am surprised that any man building a butter factory could be induced to buy a Russian or Tubular separator, with the Alpha separator on the market. Two hundred dollars per year and a Russian Tubular free of charge would not induce me to take out my Alpha machine. I regret to say I have a Sharples Tubular in my factory. I am pleased to say I have an Alpha separator also in my factory. With the Alpha we can separate cream in fine shape. With the Tubular we can partly separate and partly churn the cream. My butter-maker claims it does neither to his entire satisfaction. ELI RUTHER.



**POWER ALPHAS SENT ON TRIAL FOR 30 DAYS.**

APPLY TO

**Canadian Dairy Supply Co.,**

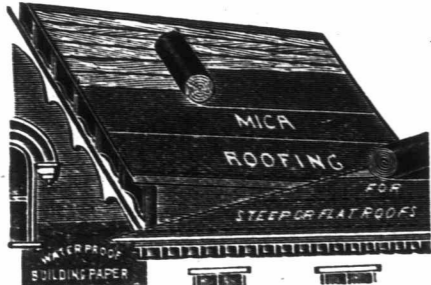
327 Commissioners Street,  
MONTREAL.

**MICA ROOFING**

USE MICA ROOFING on all your Buildings.

IT IS CHEAPER THAN SHINGLES.

WATERPROOF. FIREPROOF.



USE MICA PAINT to Repair Leaky Roofs.

Shingle, Iron or Tin Roofs painted with it will last twice as long.

**RAPIDLY TAKING THE PLACE OF SHINGLES.**

Is put up in rolls of one square each, 40 feet long by 32 inches wide, and costs only \$2.25, including nails, thus affording a light, durable and inexpensive roofing, suitable for buildings of every description—especially flat roofs—and can be laid by any person of ordinary intelligence.

OFFICE: HAMILTON, ONT.  
**HAMILTON MICA ROOFING CO., 101 REBECCA ST., HAMILTON, ONT.**

**NO REPAIRING**

of fence where the Page Woven Wire is used. Page fence is made of a wire made especially for us, which does not break, stretch or rust. Our standard fence is five feet high and woven so close that stock can't get through or over it. And you can buy it for less money than you may think. Better look into it.

**THE PACE WIRE FENCE CO. (LTD)**  
Walkerville, Ont.

**FAMILY KNITTER!**

Will do all knitting required in a family, homespun or factory yarn. **SIMPLEST KNITTER ON THE MARKET.**

We guarantee every machine to do good work. Agents wanted. Write for particulars.

**PRICE, \$8.00.**

**DUNDAS KNITTING MACHINE CO.,**  
DUNDAS, ONTARIO.

**ROCK SALT** for horses and cattle. Per 100 lbs. 75c., or 500 lbs., \$3.00, Toronto. Cash with the order. Also in car lots.

Toronto Salt Works, Toronto.

**Queenston Cement**

FOR WALLS AND FLOORS.

WRITE us before designing and laying out farm buildings. State number and kind of stock to be kept, and give size of stables. We will send sketch of basement floor, showing how to use to advantage the room at your disposal. Our system of ventilation is being adopted by the leading stockmen. Fully covered by Letters Patent, but to our patrons we make no charge.

**Isaac Usher & Son,** QUEENSTON, ONT.

Proprietors Queenston Heights Stock Farm.

Correspondence with Shorthorn breeders solicited.

**Government Analysis.**

LABORATORY OF INLAND REVENUE,  
OFFICE OF OFFICIAL ANALYST,  
Montreal, April 8, 1895.

"I hereby certify that I have drawn, by my own hand, ten samples of the

**St. Lawrence Sugar Refining Co.'s**

EXTRA STANDARD GRANULATED SUGAR, indiscriminately taken from ten lots of about 150 barrels each. I have analyzed same and find them uniformly to contain:

**99.99 to 100** per cent. of pure Cane Sugar, with no impurities whatever."

(Signed) **JOHN BAKER EDWARDS, Ph. D., D.C.L.,**  
Prof. of Chemistry and Public Analyst, Montreal.

**BINDER**

**FARMERS'**

**TWINE**

**PURE MANILA, 650 FEET,  
SPECIAL MANILA,  
TIGER,  
STANDARD.**

Farmers! Don't be taken in. There is none "just as good." These twines will not bunch at the knotter, and a Binder will run all day without stoppage, thus saving time, annoyance and a "lot o' cussin'."

We pack our twine in bags of the size of ordinary grain bags, and we are not ashamed to put our name upon it. Don't take any other.

**CONSUMERS' CORDAGE CO.**

Limited.

**MONTREAL.**

No instrument is more popular in Canada to-day than the

# Bell Piano

And there is no better to be had.

The orchestral attachment renders possible the effect of sixteen different stringed instruments. It is used only in the "BELL." Send for free booklet, No. 40, it tells all about it.



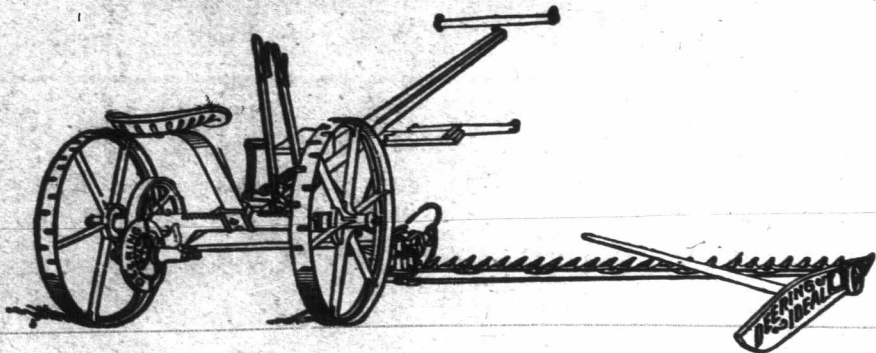
Built to last a lifetime.

The BELL ORGAN & PIANO CO., Limited, GUELPH, ONTARIO.

DEERING BINDER TWINE

DEERING HARVESTER OIL

## THE MACHINES THAT MADE AMERICA FAMOUS.



DEERING IDEAL MOWER WITH BICYCLE BEARINGS.

Competition claims to have just as good. Only one best, that

DEERING IDEAL.

## Deering Harvester Company,

Main Office and Factory :  
CHICAGO, U. S. A.


Canadian Branch Houses :  
TORONTO, ONT. MONTREAL, QUE.  
LONDON, ONT. WINNIPEG, MAN.

DEERING HARVESTER OIL

DEERING BINDER TWINE

WORLD'S HIGHEST HONORS

# MASSEY-HARRIS



MACHINES

*It is easy to say a thing is good - another matter to prove it - Blue Ribbon Ceylon Tea will stand every test.*

Advertise in the Farmer's Advocate.

## Western Canada's Great 20th Century Fair

### WINNIPEG INDUSTRIAL.

July 23 to 28.

### THIRTY-FIVE THOUSAND DOLLARS

In Prizes and Attractions. Competition open to the World.

Prize Lists and Splendid Illustrated Programme of Attractions and of Horse-racing Events Mailed Free on Application to

A. J. ANDREWS, President.

WINNIPEG, MAN.

F. W. HEUBACH, General Manager.