

**PAGES
MISSING**

FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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No. 428.

EDITORIAL.

The Upward Turn.

Some time ago we ventured the forecast that the "turn of the tide" had come in the pure-bred cattle business. The premonitory symptoms appeared a year ago. Private sales have been brisk this season. The opening public Shorthorn sale (Jas. S. and H. & W. Smith's) was most encouraging, and now the large dispersion sale of Mr. John I. Hobson, reported elsewhere in this issue, sets a good lively pace for the future. An average of \$102 each on 25 head and over \$80 each on 50 animals, including calves, is a pretty good showing. Mr. Hobson is to be congratulated, and it is pleasing to note that all this pure-bred breeding stock remains in Canada—one valuable contingent going to Manitoba. Fat cattle, too, are selling higher than they were a year ago, with a much brisker demand; pork and cheese, ditto.

Shall We Have a Revival in Horse Breeding?

The demand for first-class horses of the heavy draft class, as well as of the saddle and harness classes, is rapidly increasing, and prices are advancing in the face of a real scarcity of the right sorts, and there is every encouragement to breeders to raise good stock, but the watchword all along the line must be quality, quality, quality! Elsewhere in this issue "Manitoba Breeder" throws out some wholesome, conservative suggestions, while Messrs. Horace N. Crossley and Robt. Miller present respectively able articles on the two great draft breeds of the present day, Shires and Clydesdales, and an interesting sketch is given of the origin of the English Thoroughbred. The coming Canadian Horse Show brings equine topics to the front, and the importance of the whole subject warrants ample discussion in order that future breeding operations be wisely conducted.

Crops for Dairy Cows.

The question of providing sufficient and suitable summer fodder for dairy cows, to supplement the pastures which in most sections of the country fail after the flush of the spring months, is one of special interest to dairy farmers, and should receive timely consideration. "Forewarned is forearmed," and we make no apology for recalling the attention of our readers to this subject. Now is the time to prepare for what is almost certain to be a felt want at some time during the summer or autumn months, a supply of succulent feed to keep up the flow of milk, which should never be allowed to slacken for want of the proper green fodder or its equivalent. A patch of lucerne near the barns may be cut several times during the season. An acre or two of vetches and the same extent of oats and peas to be cut green will be found exceedingly useful in the average season, and a positive boon in a time of drouth. These will fill the bill for the early summer months, and fodder corn will supply the want in the later months. The letters in this issue from a number of dairy farmers will be found full of interest and helpful. And we commend to the consideration of our readers the methods of those who have availed themselves of the means within their reach to keep up the supply of succulence in the bill of fare for the cows.

A Plea for Higher Quality.

The U. S. Dingley tariff placing a duty of 30 per cent. on butchers' and feeding cattle worth more than \$20, or \$6 on cattle one year old or over valued at more than \$20, \$20 on horses valued at \$100 or less, and 25 per cent. on those worth over \$100, will probably have the effect of curtailing business transactions in these lines in that direction to such an extent that for the present Canadians will count but little on that trade and will turn their attention

more fully to the British market, where we shall meet our competitors from the United States on common ground, and where merit or quality is the sole standard of values. The bill has passed the House of Representatives, but may be materially altered in the Senate. Complaints are made that it confers favors on the manufacturer altogether out of proportion to what agriculture receives. Mr. Joseph E. Wing, of Ohio, writing to a Western paper, protests loudly against the prohibitory tariff against Canadian cattle, which are badly needed for feeding purposes. He states that dairy cattle have largely supplanted beefers in the East, and everywhere in the West sheep are overrunning the ranges. Mr. Wing foresees that it will stimulate finishing beef cattle in Canada and increase the ultimate competition for the U. S. farmer. The recent opening of the Buffalo market under the new quarantine regulations provided for a short period a convenient outlet for some second-rate Western Ontario grade cattle which were unfit for the British market. The temporary increase of business was, no doubt, mutually beneficial to the people engaged in the trade on both sides of the line, as our neighbors were quite as anxious to get our cattle to consume their surplus cheap corn as Canadians were to dispose of them, and the probability is that the buyers in this case will reap as much or more benefit from these cattle than did the Canadian farmers who raised them—though this might not be saying a great deal.

One of the most interesting and important lessons to be learned from the recent drift of inferior cattle to Buffalo is the fact that there is far too large a proportion of that sort raised, and this in spite of all the repeated reminders that a higher quality of production is the essential to success in the race for supremacy in the great markets of the world.

It is a fact sincerely deplored by all who have given consideration to the subject that the average of young cattle in many sections of the class suitable for feeding for beef is not equal to that of ten or fifteen years ago, and that one of the greatest hindrances in the way of many feeders who would go more largely into the business of fattening cattle is the difficulty in getting the class of animals which will make satisfactory returns. What is wanted is well-bred, high-grade steers and heifers of the beefing breeds, bred from blocky, thick-fleshed sires, which will produce quick-feeding and early-maturing animals, which, with good care, will be ready for the export trade at from two and a half to three years old. The difference between the market value of this class and the class of cattle going to Buffalo last month makes all the difference between a very satisfactory and a very unsatisfactory return for feed and labor.

It is gratifying to know that the prices being paid for first-class shipping cattle this spring are a substantial improvement on what was realized last year, and the prospect is encouraging for those who are engaged in the industry. The present is an opportune time to resolve on a higher standard of excellence, and in order to do this every one engaged in the business should make it a point to breed only from sires of the desired type. These can now be bought at moderate prices or their services be had for reasonable fees.

These observations apply not only to cattle, but also to horses and other classes of stock designed for the export trade. The best class of stock is the class that pays the seller as well as the buyer the most profit, being more sought after and more readily salable. An instance of this has recently come to our notice in the case of a carload of horses bought in an Ontario town a couple of months ago for export to England. The bulk of the shipment were good average draft horses, bought at about \$70, and considered cheap at that price, while an extra good team of the same class was included which cost \$350 (the pair). Yet we are assured

that when the horses were sold in England the only ones that made any money for the shipper was the pair which cost the highest price, and these brought a good profit to the exporter, and we may presume a fair return to the man who raised them also.

What is true of horses and cattle is also true of other stock, dairy products, fruit, poultry, eggs, etc. The consumptive demand may be largely on the increase the world over, but the competition of producers grows keener and consumers more discriminating. The moral is therefore obvious. The heading of this article—"A plea for higher quality"—is its expression.

Interference with Private Enterprise.

Mr. J. E. Richardson, a well-known and successful grain grower of Brant Co., Ont., while conceding the useful work conducted at experimental farms, evidently foresees that the free seed distribution may yet, if not checked, grow into a great abuse, as it has, for example, in the United States. Originally, the U. S. scheme was to disseminate "rare seeds, plants, and bulbs" for experimental or testing purposes, but it has now grown till 20,000,000 lots of seed are scattered promiscuously all over the country. Farmers in Canada have seen some misdirected efforts in pushing out at public expense a multiplicity of new varieties, some of them no better, if as good, as old ones introduced in the ordinary course by private effort. New varieties become necessary and advantageous from time to time, but we are inclined to agree to a certain extent with Prof. Shuttleworth, of the O. A. C., who last year wrote the *ADVOCATE* combating the old "changing seed" notion. In fact, we believe it would be of greater advantage to farmers to devote more attention to seed selection and cleaning rather than to be continually scanning the experimental horizon for new sorts. The report elsewhere in this issue of Mr. Forney, of Ohio, who grew a prize-winning crop (146 bushels of shelled corn on an acre) from seed grown eleven years on the same farm, but improved by careful selection each year, increasing its yield from 10 to 20 per cent., is strong evidence on that very point.

Mr. Jas. Wood, a New York State farmer, concludes a vigorous letter in the *Country Gentleman* on the free seed business as follows:

"This wasteful Government distribution of seeds works great injustice to the seed dealers. No private industry can compete with the Government. But this letter is written from the farmers' standpoint, and I suppose the seedsmen will speak for themselves. It is to be hoped the farmers of the country will protest against the continuation of this abuse."

The *Country Gentleman*, which stands foremost among the representative agricultural journals of the United States, concurs in every word of Mr. Wood's letter regarding the useless free seed humbug, but points out that "the publication by the Government of periodicals and books that compete directly with private enterprise is just as much an outrage as the Government seed shop." The *Country Gentleman* goes on to say:

"Absurd as this feature (free seed) is, by the way—and nobody condemns it too forcibly for us to agree with him—we desire to suggest to those who are so vigorously attacking it, that if they wish to be in any way consistent they should protest just as earnestly against many of the features of the free publication schemes of the department as against its distribution of free seeds. It is just as much an outrage for the Government to issue what are practically periodicals, and especially elaborate veterinary treatises, like the 'Special Report' (!) on Diseases of the Horse, published under Mr. Rusk, and give them away by the thousand, as to buy and scatter seeds. There is no earthly reason why publishers, any more than seedsmen, should be subjected to the gross injustice of competition by the Government at public expense."

We notice that the U. S. Government has been endeavoring to correct a good deal of wasteful distribution by putting a fixed price upon certain

THE FARMER'S ADVOCATE

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THE LEADING AGRICULTURAL JOURNAL IN THE DOMINION.

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classes of costly publications. Mr. Wilson, the new Secretary of Agriculture, is reported to favor restoring the seed business to its original purpose. It is coming to be generally recognized that there is an obvious wrong in a system that involves taxing private enterprises, that are serving the public economically and well, to sustain an unfair competition with themselves.

Shall Farmers' Daughters be Educated at the Agricultural School?

A bill has been presented to the Legislature appropriating \$25,000 to pay for the construction of a suitable building to accommodate the gentler sex at the University Farm School. They are knocking for admission, and none in these days of a "truer" chivalry are so ungallant as to turn them away. It is certainly of importance that the mothers of the next generation should be equally as well as the fathers fitted to impress and develop the plastic mind of childhood, with which they come much more closely in contact. A dwarfed and undeveloped motherhood means undeniably the retardation of the human race. Horticulture especially is interested in the fullest education of the farmers' daughters, for to them, rather than the sons, must it look for the practice of those especial features of its art which so much beautify the world we see and in its highest sense ennoble life. By all means give them the fullest opportunities.—From Secretary's Corner, Minnesota Horticulturist.

Seed for Experiment.

To the Editor FARMER'S ADVOCATE:

SIR,—I have read with interest your article on the U. S. Free Seed Scandal, in your issue of March 15th. There is not the slightest doubt that this business has been carried on beyond its usefulness in that country. In Canada, I believe no seeds are given out to politicians to distribute, nor as a political bribe. Any farmer who wishes to get any seeds to test receives them from Ottawa or Guelph, as the case may be. One trouble, I think, is that we who receive these small lots to test are apt to manure the land too much, thereby not giving them a fair trial. This, of course, is natural, as we all want to get as big a yield as possible, so that we can sow as much land as possible the next season. I think it would be a good plan if we reported on the crop for three successive years. Then our reports would be more reliable. But as we only report the first year, we should sow our samples on land prepared in a similar way to that which our main crop is to be sown on. Farmers never have enough manure, otherwise it would be all right to manure these plots well. I have noticed in some reports at one of the experimental farms that when small plots of one-twentieth of an acre were sown the yield was much larger than when an acre or more of the same variety was grown.

Another drawback is, that it is very hard to keep these different varieties pure. I certainly think that there should be a limit in this free distribution

of seeds, otherwise, as you say, the Government might as well take hold of the seed business of the country. I have dealt with many of our leading seedsmen and have not had any reason to complain of the way my orders have been filled. However, our experimental farms have done and are doing very good work, and we should all feel grateful for the help we derive from them. Perhaps some of your readers may think that I am writing from personal motives, but this is not the case, as none of us who sell seeds and wish to remain in the business can afford to offer seeds of an inferior quality or seeds that are not likely to give the purchaser good satisfaction.

J. E. RICHARDSON.

Brant Co., Ont.

STOCK.

The Shire Horse—His Characteristics and the Ideal Type.

BY HORACE N. CROSSLEY.

The Shire horse of to-day derives his name from the "Shire Counties in the heart of England," which are principally responsible for the production, since the commencement of the present century, of this most perfect of all breeds of heavy draft horse. Taken in order of precedence, as judged by results of prize winnings at the London Shire Horse Show since its inception (and this is the only true gauge of the respective merits of the different Counties which we have at hand), the Counties which have done most for the modern Shire horse are Derbyshire, Lancashire, Lincolnshire, Leicestershire, Nottinghamshire, Cambridgeshire, Warwickshire, Staffordshire, Northamptonshire, Yorkshire, and Huntingdonshire, with twenty-three counties which have won more or less prizes.

For a long time prior to the eighteenth century the Shire horse was known as the large "Black old English horse" or the "Lincolnshire black horse." The Shire horses of to-day, to trace their origin still further back, are the lineal descendants of the "Old English war-horse," which ancient writers tell us excited the surprise and admiration of the Romans when they first invaded England. And though they may not be the only descendants of that noble race of horses, Shires are now generally regarded as the purest living representatives of that earlier type. In support of the above contention, Mr. Walter Gilbey, writing in 1888, says: "Recent investigations appear to establish that what during the past few years has been spoken of as the Shire horse is the closest representative of the purest in descent from, the oldest form of horse in the island. A thousand years ago this form was written of as 'The Great Horse'; and nearly a thousand years before that we have evidence which goes to prove that the same stamp of horse then existed in Britain, and that it was admitted by those who saw it here to be something different from, and something better of its kind, than what any of the witnesses of that day had seen before, and they had seen most of the horses of those times."

Whilst the majority of the breeders of Shire horses claim that the above represents in brief the principal origin of the Shire horse, and that his foundation stock existed in the "tight little island" even before what is now an "illustrious empire" had any history at all, one must not suppose for an instant there are none who maintain that a few at least of his salient points are derived from foreign sires. Stud books are the creation of the nineteenth century, and even the modern Thoroughbred horse cannot trace back his lineage as a distinctive English breed much beyond that date, and there are those who assert that the Shire horse, or, as he was styled at that time, the "Black old English horse," was from time to time crossed with and greatly improved by stallions introduced from foreign countries.

One must not forget that the old English war horse was a very different animal to the trooper's charger of to-day. He had to carry his master in battle incased in heavy armor and carrying ponderous weapons, he himself being similarly incased. Sometimes his services were required at the crusades, sometimes in the various conquests of Normandy, or on the banks of the Ebro in Spain. English mercenary knights even at times fought in Italy. We must further consider that the English arms were in these times always victorious. Horses were then principally valued for their use as chargers, and if, under the above circumstances, Europe held any horses superior to those of the English, it is almost certain that these victorious knights would transfer some stallions or mares to their English homes, and use them for the improvement of the native stock.

It is positively stated by some writers that when William III. was invited to take possession of the English throne he brought with him many Dutchmen who settled by preference on the east coast of England, in the Fen District, on account of the resemblance which that district held to their own country. These Dutchmen brought with them many heavy Flemish horses, which when crossed with the weighty Lincolnshire stock produced a class of horse from which our present Shire horse is derived. That there is considerable truth in this statement one hardly feels disposed to deny. Lincolnshire is undoubtedly the birthplace and original breeding ground of the Shire horse. Lancashire and Derbyshire, it is true, head the list of Shire winners at our present shows, but Lancashire, in our opinion, has become a producer of this

stock because she is at the same time one of the greatest consumers; and Derbyshire, being in immediate proximity to Lancashire, would naturally produce that for which she had the best market. There is no evidence to show that either of these counties has been a producer of Shire horses for any very extended period; but, on the other hand, Lincolnshire, which at the present time ranks third in the list of prize winners, has from time immemorial been known as the seat and home of the "black horse." The counties which immediately abut on the confines of Lincolnshire are the ones which even to-day are, next to it, most celebrated as producers of this present exponent of the original English breed of heavy horses.

Geographically, too, Lincolnshire being adjacent to the Dutch countries, and the two having traded from time immemorial, it is reasonable to suppose that at least some interchange of stock would take place between the peoples living on either side of the North Sea. In 1878 a paper on the "Improvement of the English breed of cart horse" was read by Mr. F. Street, at the Farmer's Club, London, and attracted so much notice that very shortly the English Cart Horse Society was founded, but finally it adopted the name of the English Shire Horse Society. The first volume of the Shire Horse Stud Book was issued in 1880, and since 1883 an annual exhibition of Shires has been held. The stud books are published every year, and there were recorded up to 1896, when the sixteenth volume was published, 15,950 stallions and 21,204 mares.

The principal winning strains at the Shire Horse Show of 1895 are in order of precedence: Harold (3703), Lincolnshire Lad II. (1365), Bar None (2388), Honest Tom (5123); but if the pedigrees be carried back a step further it will be found that the majority of winners spring from one or other of the following horses, their sons or grandsons: Lincolnshire Lad II. (1365), Bar None (2388), William the Conqueror (2343), What's Wanted (2332), Honest Tom (5123), Vulcan (4145), or Royal Albert (1885). No fewer than 20 prize-winners at this show sprang from the old gray horse, Lincolnshire Lad II., who died in 1895 at the age of 23. His sons sired seventeen winners, his grandsons six, and he himself six. Great credit is due to the Shire Horse Society for the strenuous efforts which they have put forth to prevent the propagation of horses of this breed by anything, or from anything, which possesses any hereditary unsoundness. No horse, whether sent to the London Shire Horse Show for exhibition, or for purposes of sale, is allowed to be exhibited unless it has first passed a most rigid examination at the hands of three of the best-qualified veterinarians in England.

It is a fact admitted on all sides that formerly the Shire men aimed largely at the production of a horse of great bulk, a horse capable of shifting great loads in crowded streets, and starting the same on the level from a dead halt. Looking only to the upper half of the horse, they somewhat neglected the lower half, but this criticism does not at the present time apply to the Shire horse, and no one can be found to-day who will make any such assertion. Shire breeders to-day look just as much to the shape of the pastern as did always the Scotchmen of ten years or more ago. The reverse is equally true, that the Scotchmen look just as much to the great formation of the body to-day, for which the Shire has always been celebrated, as they notoriously neglected this formation a like number of years ago, when they considered that the pastern was the only part of a horse.

What a Shire horse should really be is described very well in an article on the Shire horse to be found in the book of The Horse, by Cassell & Co., London, England:

"In action he should move true and well in the cart, horse pace walking; if required to trot, he should have the action of a Yorkshire Hackney. The feet should be well proportioned, better too large than too small; depth of foot and width at heel being important elements, but wide, flat feet are very objectionable, especially for road purposes. The fore leg should be put on parallel at the shoulder and wide enough so as to support weight. Too great width between the fore legs is not often seen, but it is possible. This is objectionable, as it generally impedes action. The pasterns should not be too long or straight. The leg bones flat and short between the fetlock and knee; they should not measure less than 10 or 10½ inches below the knee. A stallion should not be less than 11 inches, a few reach 12 inches. The Earl of Ellesmere had one that measured nearly 13 inches. The hinder legs of a cart horse are even more important than the fore legs. A horse should not be 'split up' too high behind, or be cow hocked; he should have round thighs, large, flat, clean hocks, short pasterns, and the leg should measure between the hock and fetlock at least one inch more than the fore leg. The legs should be well covered with long, silky hair, this being regarded as a sign of constitution. He should be at least sixteen hands two inches in height. Seven feet six inches is a good girth, but eight feet is often reached. He should have a good 'cupboard,' as indicating a constitution to stand a good day's work; chest wide, shoulders pretty well thrown back, head big without coarseness, back short, wide loins, long quarters, tail set on well and high. To sum up, a good Shire horse is a long, low, deep, wide, well-proportioned and active animal. The other points of a Shire horse are those of every well-shaped harness horse, considering always that most of his business is to be done at a walk."

The Shire horse is the best at the London opportunity. A. Grandy. Mr. John was Harold June last formed a gold medal. She also show last her with the by Mr. Cro

Clydesdale

This bred from a sturdy hardy class of Scotland because of carry heavy pull the plow in readiness were content Clans when to answer horse put and perhaps and High build fitted form free liberal food dales of old

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"Queen of the Shires."

The Shire mare illustrated herewith represents the best Shire mare in England so far as the judges at the London Shire Horse Show of 1897 had an opportunity to determine. She is the property of Mr. A. Grandage, Bramhope, Leeds, and was bred by Mr. John Blunt, Breedon-on-the-Hill. Her sire was Harold 3703, and dam 4673 Bonny Lady. In June last at the Royal Show at Leicester she performed a feat similar to the present by winning the gold medal offered for the best Shire mare or filly. She also won 1st as a two-year-old at the London show last year. It will be of interest to compare her with the graphic pen-portrait given elsewhere by Mr. Crossley.

Clydesdales the Draft Horses for Canada.

BY ROBT. MILLER, ONTARIO CO., ONT.

This breed of draft horses was originally bred from a sturdy, pony-built, shaggy, but sound and hardy class of horses kept in the midland districts of Scotland and appreciated by the inhabitants because of their ability to move heavy loads, to carry heavy weight in the saddle at a fair pace, to pull the plow on hillside or level ground, and to be in readiness for service in the feuds or wars that were continually being carried on between the Clans when they were not fighting a common foe. To answer any or all of these purposes requires a horse put together in an almost faultless manner, and perhaps no breed, except the Shetland, Welsh, and Highland ponies, can claim that perfection of build fitted for work and hardship, but withal that form free to respond to kindness, good usage and liberal food, to such a great extent as the Clydesdales of old.

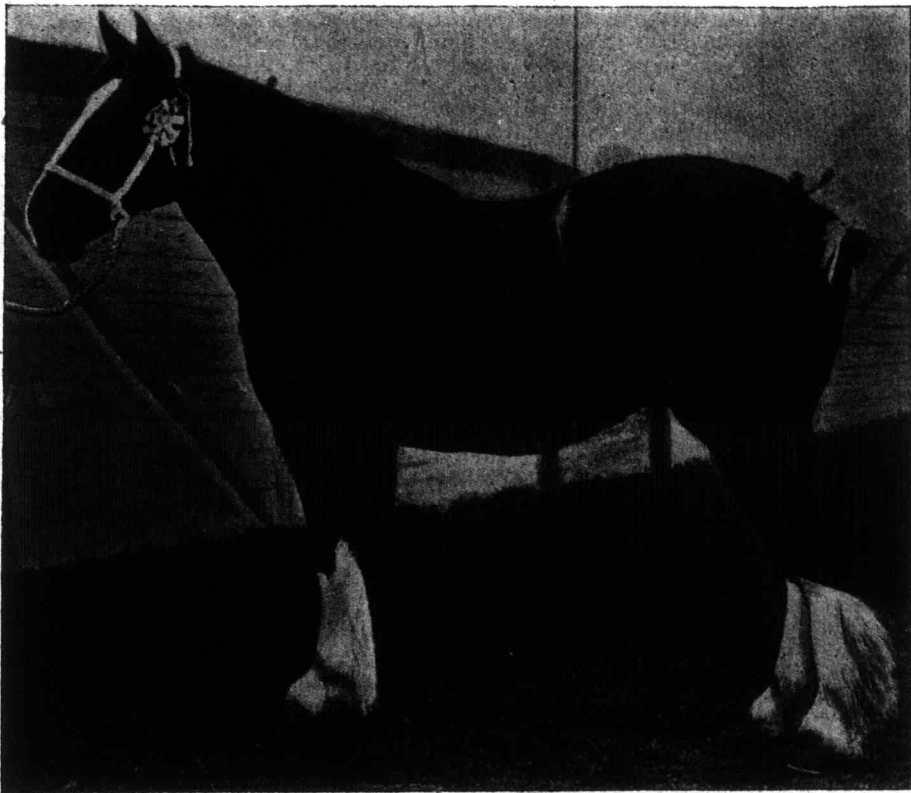
The canniness of the Scotchman is more than an idle dream, and it is not of recent origin. In breeding horses it has served him a good purpose, as it has in nearly all other things. The people in this country would want to change this breed of ponies weighing from 1,000 to 1,200 lbs. at one fell swoop to a breed of giant draft horses; not so with the men to whom this work was entrusted. Their canniness, which would be called extreme conservatism in any other people, allowed no changes in their surroundings to be made hurriedly, so that there was no wish as well as no need to hurry any changes in their system of horse breeding. While there was no hurried change, ages brought about a difference. The growing needs of man made it necessary for heavy loads to be hauled, the greater demands upon the soil and the loss of its virgin strength made deeper plowing necessary, the farm horses were less needed for the battlefield, so that the change of the pony to the draft horse was made, and the chief participants in the work knew not what they were doing, so gradual was the work. More liberal food, together with slower work and better shelter, did their share, with selection, in increasing size. This is how the pure Clydesdale is still a big pony with all the features of the sturdy Shetland: their shaggy hair, their square quarters, their sound, hard legs, and their tough and well-shaped hoofs. Time, in breeding

Clydesdales, like in all other pursuits, does not stand still; its motion is perpetual, and if the work does not go forward it will go backward. For a time before the forming of a Clydesdale Association in Scotland some of the breeders, who were really speculators in disguise, imported large numbers of draft horses from England and sold them in Scotland. Some were sold as Clydesdales, but it was the blood and not the name that did the most harm. We often hear that there should have been but one stud book in Britain. If this is so, then that book should have been the Clydesdale book, and it should have been started sooner and, if possible, the restrictions to entry should have been greater.

How impossible it would be to compute the amount of harm done to the Clydesdale breed by the Shire blood that was introduced by a few men! Everything under the sun calls for the two breeds to be kept distinct. The likes, the fancies, and the needs of the Scotchmen and their country demand Clydesdales. The tastes of the people are the result of the same measure of evolution as molded the form and features of their horses. The soil, the food, and the work have stamped their influence on the Clydesdale. While the men of England have bred for size, they feed for size, and their soil encourages size to such an extent that all other qualities are lost sight of in a great degree. The comparatively small gain in size over Clydesdales is made at great loss in other ways. The muscle is not so firm, the bone is not so hard and tough, the legs are more spongy and soft, and their feet are small and weak.

I will not undertake to advise the people in England what kind of horses they should have, but I will advise the people of Canada to make this country come more nearly being equal to the "land of the mountain and the flood" in breeding Clydes-

dales. We are far in advance of all others in the race. We have men with experience and enterprise. Our farmers have the judgment and the perseverance to select, to breed, and to rear horses of the first quality. We have a market established that never fails to pay a good price for a good article. During the past years of depression in all countries, and in mostly every business, good geldings, with the size, the brightness and the quality of a well-crossed Clydesdale, have been making good prices and good profits. In the general advance in horse values that is surely taking place now good horses will increase in value in greater proportion, for they will surely be hard to find. Four-year-old horses are scarce, younger horses and colts cannot be found. Farmers have at last arisen from their lethargy, and will breed again. Let me warn them to avoid the rocks that have done damage to their business before. Try to breed from good mares—sound and smooth—a rough female never produces first-class offspring; rather lack in size than in quality, though size is very important. Breed to a good stallion, one that in the fullest sense shows descent from the pony foundation; one that traces through the straight road to that foundation. That road is through the veins of McGregor, Lord Erskine, Darnley, Old Times, Victor, Lochfergus, Champion, and only a few other horses. Quality is the feature of such breeding, but size is not lacking. Horses bred from such ancestors will surely have quality; they will have uniformity, clean legs, good bodies, fine heads and necks, with not too much hair on their legs, the best of feet, and no signs of uncleanness at the heels. A peculiarity in breeding from a good horse bred in the way mentioned is that the colts will weigh more than the stock from one of the overgrown horses sometimes imported. The reason is not far to seek. The purer



SHIRE MARE, "QUEEN OF THE SHIRES."

Clydesdale has had for sires and dams horses and mares of his own stamp for many generations; he is no accident, and the power of transmitting his qualities to his get is fixed. He gets them uniform in size, never a monstrosity eighteen hands high, with rough head, body and legs, like the horse shown as a freak in Toronto some years ago. The owner said he weighed a ton, and if he was fat he would weigh two tons.

An overgrown horse is himself an accident; he could not have sires and dams like himself, so he cannot reasonably be expected to produce his own kind. Then what can you expect? You cannot expect anything but horses all colors, sizes and shapes. Let us not trifle with this business any longer, but let us profit by experience, and breed to horses that are well bred and that show it. More than half the horses imported to this country have been lost by people experimenting with them to learn the business. Millions have been spent in the States teaching the people to breed draft horses. Perhaps the fire of depression which we have just come through will do more than anything else to show them how to take the corn from the chaff. In the past four years the draft horses we have sold from our farm for working have averaged \$182.50. Our district has been favored by having many enterprising breeders, and the quality of the horses cannot be equaled outside of Scotland. So that horse breeding has always paid many of our farmers; and now no business will pay better than that of the successful horse breeder.

JOHN L. DINSMORE, Grey Co., Ont.:—"Canada's Glory" to hand. Many thanks. I think it is just grand. Did not expect anything so good; and as for the FARMER'S ADVOCATE, I would not be without it."

The Origin and Development of the English Thoroughbred.

Great Britain possessed a fine race of horses at a very early period, due, no doubt, to the suitability of the climate and the characteristic passion of the inhabitants for a good animal. Although no improvement can be directly traced through the Thoroughbred to the introduction of Arabian sires until the reign of James I., attempts were made to acclimatize Eastern blood as far back as the Roman occupation. While racing records have been handed down from the time of the Anglo-Saxon era, it is not, however, until the reign of King John that we find any direct reference to running horses. It is recorded that King John was a large importer of Eastern-bred horses, which, no doubt, effected a marked improvement on the native breeds.

This improvement, directed by wealthy barons and aided by further importations of Arabian sires, continued during several generations until interrupted by the disastrous conflict of the houses of York and Lancaster. These wars caused the dispersion of the best studs, many of the best animals being secured by foreign royal houses. When peace had been restored some of the best of their descendants were re-imported in the reign of Henry VIII. This monarch took a personal interest in breeding by establishing a number of studs at Eltham, Windsor, and Hampton. Many presents of fine Thoroughbreds were received by Henry from abroad, among which special mention may be made of mares sent to him by the Marquis of Mantua, accompanied by a horse, then termed a "barb" or race horse, of Mantuan breed. The Marquis was offered his weight in silver, but preferred presenting him to Henry VIII.

In the reign of Elizabeth racing progressed rapidly. The Queen had breeding studs established at Greenwich, Hampton Court, Richmond, Windsor, St. Alban's, Waltham, and other places. During the reign of James I. racing received the regular attention of the court and nobles as a representative pastime. In Scotland at this time the sport is said to have prospered to an even greater extent than in England.

There was an equine nomenclature then as now, but few names have been preserved. One writer mentions a horse who was never conquered, Gray Valentine, while Childers, Eclipse, and Puppey were also referred to as unbeaten horses. Other noted performers were Whitefoot, Franklin, Peppermint, and Gray Dallavell. The Helmsley Turk was among the great lights of Newmarket.

It must not be assumed that the best horses were all of foreign importation, because, as a matter of fact, numbers of the native breed, including hobbies, were never surpassed in fleetness by the very best Arabs raced against them. The breed was British because it was Britain that produced its excellence, and it retained the native characteristics in a paramount degree despite any Eastern crosses that may have been in it.

An important introduction of Eastern blood took place in the reign of Charles I. in the stallion, The Helmsley Turk, the sire of Bustler, Hutton's Royal Colt, and Vixen. Bustler's blood has been chiefly transmitted to our time through Old Merlin, Blunderbuss, The Bolton Starling, The Bolton Sweepstakes, and The Blacklegs Mare. The name of Hutton's Royal Colt is to be found in many of the best pedigrees, while from Vixen have descended so many good horses she must ever be held in high esteem by breeders. Although she was foaled in England, her parentage on both sides may be traced to Eastern importations, her dam being the natural Barb, mare brought into England in foal to Dodsworth.

The revolution of Cromwell caused a ruthless upheaval and irreparable damage. A great many of the best sires were snapped up by foreigners, but their valuable blood returning through the purchase of some of their best progeny after the Restoration aided in the establishment of the British stud. The peace of the Commonwealth was marked by some importations of lasting influence, chief of which was the White Turk, who chiefly owes his fame in the stud to his great-granddaughters, who severally produced Gray Ramsden, Windham, Cartouch, Whitefoot, Tormond, Alcides, and Sweepstakes; also, The Widrington Mare, Lady Thigh, Woodpecker, and Matchem, through whom the blood of White Turk has been transmitted to many of the present day.

After the Restoration Sir John Fenwick was sent abroad to procure high-bred stallions and mares for breeding purposes. There is no account extant of the countries to which Sir John went to procure them, but whether they were Arabs, Barbs or Turks, they were of very high caste from the improvement that followed this importation. The mares thus secured by the king's interest and at his expense were called royal mares. Among

results from these mares were: Dodsworth, Dyer's Dimple, Sophonisba, Grasshopper, Spider, Young Cade, and Matchem. Sir John Fenwick also brought from abroad two or three sires of Eastern blood. The Fenwick Barb, was the only notable stud horse of this lot, he having sired Why Not and Gray Why Not. The former begot the dams of The Bold Galloway and Bay Wilkinson through the descendants of the former, of whom the blood of Fenwick Barb, has been transmitted to the horses of the present day. Curwen, Bay Barb and Tholouse Barb, also imported in this reign, left their marks upon their offspring. In the reign of James II. there was only one sire of importance brought into England, namely, The Stradling or Lister Turk. He was taken in 1686 at the siege of Buda. He became a popular and successful stallion, being the sire of Conyskins, Piping Peg, Snake, and Brocklesby Betty's dam. In the reign of William and Mary several Eastern horses were imported, the most celebrated being The Turk, brought over by Captain Byerly, and whose charger he was throughout the whole of King William's campaign in Ireland. This noted horse and his rider narrowly escaped capture on the banks of the Boyne in the last brilliant charge made by Hamilton's Irish Dragoons, which broke the English horse and almost retrieved the fortunes of the day for the unhappy James. Happily, The Turk was spared, and subsequently, under the name of The Byerly Turk, became one of the principal founders of the British turf.

Importations from the East continued to be made, and early in the reign of Queen Anne (1702) the importation of The Darley Arabian took place. In 1710 and 1712 he produced Aleppo and Almanzor. Prior to their having run in public Mr. Childers sent to The Darley Arabian his favorite mare, Betty Tudes, by Careless, with the result of breeding in 1715 The Flying or Devonshire Childers, generally esteemed to be the fleetest horse ever trained. Other gets of this sire rendered great service in the British stud. In Anne's reign there were brought into England no fewer than 21 Eastern sires, comprising nine Arabians, eight Barbs, and six Turks.

Looking back to the roots of all the best old pedigrees we easily discover that it is not to one special breed, nor indeed to any one Eastern country, that the world is indebted for the English Thoroughbred. The distinguishing names Arab, Barb, and Turk are found each in sufficient proportion to nullify any special or singular claims on behalf of others. The Barb, and the Turk and a little of the Persian have, in short, played together a great part in the manufacture of the English Thoroughbred, though the chief share of the merit is traced to Arabian influence molded by the masterful genius of the British breeder.

Raising Heifers for the Dairy.

A heifer destined for the dairy must be bred along dairy lines. She should come from dairy ancestry; an ancestry in which the dairy type has been tried by long and careful breeding. Of course a good cow may come from ancestors which were scrubs pure and simple, but such an animal is a freak of nature; she is the exception and not the rule. A calf may be dairy bred, however, and still be spoiled for dairy purposes by injudicious feeding.

From my experience, I prefer to have the calves come in the fall, and consider that this time has several advantages over calving in the spring. Some of these advantages are:

1. A cow which drops her calf in the fall will give, as a rule, twenty per cent. more milk during the year than she will if she has her calf in the spring. If well fed during the winter she will give a good flow, and when turned out to grass in the spring she will be almost like a new milch cow again.

2. If (as is the case with the writer) dairying is carried on with mixed farming, the cows will be dry at a time when field work is most pushing and milking is somewhat of a burden, and when, owing to dry pastures, it is hardest to maintain the flow of milk.

3. The calf which is born in the fall comes at a time when farm work is not so pressing, and the farmer is thus enabled to give proper attention to the little candidates for the dairy, and when spring arrives the calf is able to go out to pasture and get a full bite for herself. On the other hand, if she is dropped in the spring she is too often neglected and overlooked during the rush of the regular farm work, and on too many farms her life is made miserable by horse flies and sour milk. If she must be born in the spring, by all means keep her in a cool and rather dark stable during the heat of summer.

My cows are usually dried off at from four to six weeks previous to calving. I have some, however, which have never been dry since dropping their first calf, but I find that this is detrimental to the calf, as they are generally smaller and weaker than from those cows which have been dry for from four to six weeks. As soon as possible after the calf arrives it is separated from its mother and fed by hand. I find it is easier to teach the calf to drink if it has never sucked, and the cow goes back to her place in the stable without undue fretting, and in a short time forgets all about the calf.

In teaching the calf to drink, many persons make the mistake of using force. It is sometimes a very exasperating job, I know, but gentleness will conquer every time. Do not try to force the calf's head in the pail and hold it there. This only frightens the calf and makes it stubborn. Back the calf into

a corner of the pen, get astride of it, and after dipping the fingers in the milk, put them into the calf's mouth. It will generally begin to suck at once. Then with the other hand gently but firmly press its head down to the pail, still keeping the fingers in its mouth, until her nose touches the milk, then gradually withdraw the fingers, and after getting a taste of the milk it will usually begin to drink, but if it does not do so at once don't get mad, but try again.

I give the calf new milk for the first week, and after that gradually substitute skimmed milk until at two weeks old the calf is getting skimmed milk altogether. The fat in the milk is substituted by peas and oats, grown together and ground fine. Then I feed oil meal in limited quantities, and consider it good, but its cost in the market here will not allow of its being fed at a profit. The pea and oat meal is fed dry. At two or three weeks old the calf will begin to eat hay, and a small quantity should be given her. The hay should be fine and bright. At about six weeks of age I begin feeding ensilage—putting the grain on it—and increase the amount as the calf increases in growth and appetite. Do not overfeed, nor allow the calf to become too fat. A heifer which is "as fat as a seal" may be pretty to look at from a beef standpoint, but she will very likely be ruined for dairy purposes. Keep her growing, but do not allow her to become too fat. Provide a good-sized loose box, in which she may exercise herself to her heart's content. If several heifers are kept in one pen, care should be taken to keep them separated for at least a half hour after feeding milk, otherwise they are apt to suck each other.

I try to have my heifers (Jersey grades) come in at two years old, and coming in in the fall they have a good chance to develop their udders on grass previous to calving. The young heifer should be handled as much as possible, so as to familiarize her with the operation of milking, and if this is done she will not have to undergo that painful and obsolete process of "breaking her in" to milk.

In raising heifers for the dairy select the calves from those cows which you know by actual test are the best in your herd. Breed them to a first-class pure-bred dairy bull. Aim to increase the yield and raise the standard of your herd. Feed your cows intelligently, and bear in mind that the production of milk is largely due to nervous force, and that hence kind treatment is absolutely necessary to success. PAUL C. BLACK.

Hants Co., N. S.

Killing Lice.

J. Arthur Vance, Durham Co., Ont., writes: "It is coming the time of year when cattle are bothered considerably with lice, and sheep with ticks, and we all know, or ought to know, that stock will not do right when such is the case. It is very simple to dispose of these pests if taken in the right way. Any man can by following the directions make a wash which has never failed with us. It is also cheap. Take two ounces of arsenic, one half gallon of soft soap, one half gallon of soft water; mix all together and boil for about half an hour. Then add this to five gallons of water and wash your cattle with it. For sheep pour it along the back slowly so as to let it run down in the wool. We have used this for several years and find it the best remedy we can get. To destroy lice on pigs, mix coal oil and machine oil half and half and put on with a cloth or brush. Some think this will take the hair off, but we have used it for years and have never found it so yet. Several people are inquiring about sheep running at the nose. If you keep lots of pine boughs in their pens this will very seldom happen. They will strip the boughs very fast, and they seem very healthful for them.

[While such a dip as is recommended by Mr. Vance is doubtless very satisfactory when very carefully prepared, there is always more or less risk using an article as poisonous as arsenic. There are a number of very reliable and cheap dips now on the market which not only destroy vermin on stock, but also cleanse the skin thoroughly, causing a rapid and healthy growth of wool on sheep. —ED. FARMER'S ADVOCATE.]

Hog Feeding Experience.

A Wentworth County (Ont.) farmer writes: "I will give you our experience with a litter of pigs from a sow ten months old at time of farrowing in May, 1896. She raised seven pigs. They were weaned at eight weeks old; were fed skim milk and shorts for some time, then bran and shorts, until the last six weeks they had bran, shorts and chopped peas, equal quantities by measure, mixed and wet with water a few hours before feeding. At the time they were sold they were gaining rapidly, but lest they should get too fat or too heavy, they had to go at five months and ten days old, weighing 178 lbs. each on an average; price \$3.80 per 100 lbs.

"FEEDER" writes:—"A point in feeding stock that occurs to me as being worthy of mention, and one which I have had occasion to notice, is this: The animals having strong, powerful jaws, being widened out at the muzzle, with good breathing capacity, are nearly always the best doers. To my mind the reason lies in the fact that the points which I have mentioned simply indicate strong digestive power, which is of the utmost importance in feeding stock."

Exercise for Fattening Cattle.

To the Editor FARMER'S ADVOCATE:

SIR,—In your issue of April 1st I became much interested in the valuable report of the extensive experimental work carried on by the Hon. Mr. Mulock, and consider it an article worthy the closest consideration and study of the beef producers of Canada. The experiment entirely explodes the non-exercise theory held up by so many. I have always contended that in order to secure the greatest possible benefit from the food consumed we must necessarily have a condition of as perfect health as is possible to get, and in order to attain that perfect health we must avoid violating any of the laws of nature. Compelling an animal to stand tied up by the neck week after week, month after month, allowing absolutely no exercise, is surely in direct violation of nature's laws. It occurs to me that a sufficient amount of exercise is as necessary as a balanced ration to produce perfect harmony. For example, take a strong, healthy member of the human family; supply him with an abundance of rich, stimulating food; allow no exercise. The result will be seen in a very short time (varying in time according to the constitution). The person's digestive powers become overtaxed (for there appears to be a limit to the capacity, he gets indigestion, biliousness, etc., which is nothing more or less than an inability on the part of the organs to perform their functions. What must be the consequence? The amount of food taken in and unappropriated not only does not do any good, but actually does harm, as it simply imposes a tax on those organs. Does not the same condition exist, in a modified way, in the lower animals, for the processes of digestion are similar? Again, animals so tied are usually not curried and their coats become full of dirt and scurf, so that natural secretion becomes impaired and undue functions are imposed upon other organs.

Confirmatory evidence of the reasonableness of the result of the test reported from Mr. Mulock's farm is to be seen in the ease with which cattle are fattened on Eastern pastures or the great ranges of the West, where, with exercise *ad libitum*, fresh air, water, and grass, they come off in such prime condition for the butcher. I trust the experiment will be fully verified, as it is one of the most important ever carried on publicly or privately, and that others will give us the benefit through your paper of any experience they have had.

"BOX STALL."
Durham (West) Co., Ont., April 3rd, 1897.

Hints on Horseshoeing.

The foot of a horse is one of the most delicate things for a man to tamper with. Some cut and slash a foot, with the idea that they can turn nature upside down at their demand. Now, if the frog is diseased, the loose, dead scraps around it may advantageously be cut off, and if it is one-sided it may be trimmed a little on the heavy side, so as to bring it back to its natural position; but if a frog is healthy, and you wish it to remain so, let it alone, only be sure to keep it clean.

What are the bars there for? To hold the sole of the foot and the heel to their natural place. Still, those who do not understand anything about what they are doing go to work and cut them out. It seems to me quite necessary to have some protection for the horseshoeing department. Many horses suffer more from the treatment they receive in the shoeing shop than from all their work combined.—George C. Davis in *Farming World*.

FARM.

Green Oats and Wheat for Hay.

To the Editor FARMER'S ADVOCATE:

SIR,—On page 110 of the ADVOCATE, you invite views from practical men, based on experience with curing oats and wheat as hay when in the milk stage or ripened grain. I would say, allow the grain to nearly ripen; that is, when the grain is in the late dough stage. At this stage the straw will be very valuable for fodder when properly cured and saved. The following are my reasons: (1) You get the full growth of the plants. (2) It does not cost as much to cure and handle the grain crop as the unripened before it gets to the barn. The extra cost in handling unripened will sometimes pay for the threshing. (3) When you have your grain threshed you can have it properly ground and feed it in quantities to suit yourself. If Mr. Stairs would like something to take the place of oat and wheat hay, I would advise him to sow 8 lbs. Mammoth Red clover and 12 lbs. timothy seed per acre at the same time he is sowing the oats, and sow the small seeds as directed in March 1st issue. If his land is in good condition, allow it to remain in meadow three years; if not, after one crop of clover is taken off plow up late in the autumn or the following spring, having the second sowing of oats and clover to take its place. Again, if clover will grow on his farm sow clover every time you sow wheat, oats, barley or rye; if for meadow, 8 lbs. and timothy. If for plowing under the first season, sow 12 lbs. clover per acre. If his land is not suitable for clover, I have another mixture that I would recommend.

On the same page there are some notes wanted on crimson clover. This plant I have no use for. The seed is too expensive; the plants grow weak and spindly. It only lasts one season, and winter-

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kills in this section every time. Also on flax growing. I would advise sowing the flax alone every time. Sowing it with oats or barley, you thresh what seed is not already threshed out, which is the part you want, and the part of the plant you don't want is all left—the fiber, which is a very hard food to digest. There has been much objection raised to binder twine being in the straw. With the flax you have the pure thing. JOHN FIXTER, Central Experimental Farm.

The Value of Corn Ensilage.

To the Editor FARMER'S ADVOCATE:

SIR,—Of course, as you point out, silage must vary greatly in feeding value in accordance with the kind and maturity of the corn, and still more largely in accordance with the amount of water contained in the silage. I consider a fair basis for estimating the feeding value of silage as compared with good quality hay to be in accordance with the relative amounts of dry matter in each. Well-matured corn silage will contain from 20 to 22 per cent. of dry matter, while well-dried hay, as taken from the mow during the winter season, contains 85 to 90 per cent. In other words, corn silage contains about one-fourth as much dry matter as a good quality of hay, and I consider it fair to estimate their relative values on this basis. In accordance with this plan, if a good quality of hay is worth at the farm \$10 per ton, corn silage would be worth \$2.50; or if hay is worth \$12, corn silage would be worth \$3 per ton.

C. S. PHELPS, Prof. of Agriculture, Storrs Agri. Exp. Station, Conn., U. S.

The London Hackney Show Champion.

The Hackney stallion Rosador (4964) was bred by his present owner, Mr. F. W. Buttle, Thirkley Manor, Wharham, York, Eng. He is now six years old, was sired by Danegelt (174), and out of Jessie (682) by Sir Charles (760). In 1895 he won 1st prize at the London show; in 1896, 1st and reserve champion; and in his last contest at that important exhibition he carried off 1st prize, champion cup, gold medal and challenge cup as supreme champion. He is of beautiful chestnut color, and was referred to by a Scottish reporter as "easily the bonniest horse in his class, full of quality, and so evenly balanced that one can hardly believe his size (over 15.2) is as quoted." His shapes, actions and manners are perfect, which, after all, might be taken for granted upon knowing his position at the end of such a contest.

Prize Corn Growing.

HEAVY MANURING — THOROUGH CULTIVATION — CAREFUL SEED SELECTION.

Replying to your request that I supply you with a full statement of the conditions connected with the production on one acre of my farm of 116.15 bushels of shelled corn, 11 per cent. moisture, with which I won first prize in your corn-growing contest, I send the following particulars:

The character of the soil was second bottom clay loam, with a yellow clay subsoil at about twelve inches below. This particular acre was measured off on a slight rise in a practically level field; and as the past season was a very wet one here, this slight down-grade on all sides gave it the chance of receiving abundant moisture without allowing the water to stand on any part of it. This small rise made a fine place for outdoor feeding, and it has received the lion's share of the manure from that source in past years. Horses and cattle have been fed corn fodder on this ground more or less for five years preceding.

This acre has not been under plow in the last three years, but was in pasture of timothy, blue grass, and red and white clover from 1893 to 1895.

In preparing it for the corn-growing contest the past season about ten tons of stable manure was spread on the ground in the latter part of April. The manure was fresh from the horse barn, where I was feeding a bunch of horses for the market. I was feeding them dry hay and fodder, bran and middlings mixed with steamed hay, ear corn, and about three pounds of oil meal per head each day.

I plowed the acre with a three-horse Imperial walking plow, about seven inches deep. No jointer was used, care being taken to stand the furrows well on edge, with just enough boldness in the moldboard to make the furrow incline safely away from the open furrow. I seriously object to the turning of the sod and manure into the bottom of the furrow with a jointer. I desire the harrow and cultivator to mix a good portion of the manure applied with the surface soil. The ground was plowed April 20th, and the plow was followed, as soon as dry enough, with a Superior land roller, which was followed immediately by a peg-tooth Scotch harrow. It was again rolled and harrowed just before planting.

The seed that I used was originally purchased of J. S. Leaming, and it has been grown on the farm for eleven consecutive years. I believe I have increased its yielding capacity from ten to twenty per cent.

by selection. I select my seed corn as it is husked, putting it in a dry, well-ventilated place. After it has partially dried I re-select it, throwing out all ears not up to a certain standard. After this I go through the entire pile and select ears that are as near the exact type of my ideal of a perfect ear of corn as it is possible to get. This I plant the next year on the best site for corn, and from this I select the most of the seed the following year. The Leaming corn as I received it was a good length, not overly deep-grained corn. My experience has been that as you widened the grain by selection it inclined to shallowness of grain and slenderness of ear, and at most could only extend around the cob; hence, I have increased the circumference of the ear without materially increasing the size of the cob by selecting narrower, deeper grain.

I planted the seed May 14th, check-rowing three feet four inches each way, aiming to drop four kernels in a hill, and covering about two inches deep. I used a Barlow two-horse planter.

Two days after planting the land was rolled, and the roller was followed at once with the Scotch harrow. The corn was cultivated four times with a two-horse, tongueless cultivator, beginning when about five inches high and working it about once a week. I think the preparation of the soil before planting, and the cultivating of the ground after planting and before the corn is up, is of more importance than after-cultivation. I want my ground fine enough for a good seed-bed and firm enough to carry an ordinary horse while pulling the planter, not letting him sink deeper than half the depth of his hoofs. Great care was taken to have the ground well firmed and never to leave the rolled surface exposed to the sun or rain. The ground was not handled except when a little on the dry order. The corn was possibly a trifle too thick for a dry season, being four stalks in nearly every hill;

will hardly be necessary to add that rape and oats will not be sown together in this neighborhood again.

Oxford Co., Ont.

[NOTE.—This is probably an extreme case, but it is well that it should be published, and our thanks are due Mr. Hart for giving his experience, that others may govern themselves accordingly. A number of correspondents have commended the practice, and we believe many have had satisfactory results. In ordinary seasons the rape, we believe, does not grow high enough before harvest to be troublesome, but comes on freely after the grain is removed.—EDITOR.]

The Pea Crop.

One of the most important crops the farmer grows is peas. It is important as a food crop, and it is not an exhaustive plant to the soil. For a number of years it has been the leading crop in Prince Edward County. The fancy varieties are grown here mostly and throughout the Bay of Quinte district. From the present outlook it seems very probable that this industry will fall us for this year at least. This is due to a reduction in the price of all fancy peas of 20 per cent, and the threatened American duty, which is practically prohibitive.

In times of depression and uncertainty as to the price of grain the farmer turns to the dairy cow as a source of profit. In the production of either beef or milk pea meal is a very valuable part of the grain ration. Its chief value as a food lies in its flesh-forming properties. It contains nitrogen, which is the most important element with which the farmer deals. Plants in their growth require nitrogen. Some plants require it present in the soil in a form that they can use it readily, and are known as nitrogen-consuming plants. Other plants have the power of drawing some of the nitrogen element from the atmosphere, and they are called nitrogen-gathering plants. Everyone knows the value of clover as a soil renovator and food plant. The pea plant belongs to the same order of plants, and it can draw on the free nitrogen of the atmosphere, and is a nitrogen gatherer. Nitrogen-consuming plants are more exhaustive on the soil than are the nitrogen-gathering ones. If one were to examine the roots of the pea plant at certain stages of its growth, there would be noticed small root expansions, which are caused, scientific men tell us, by microscopic organisms present in the soil. By this agency, in a way not fully known yet, the pea plant is able to use the free nitrogen of the atmosphere, where there is an abundant supply, as four-fifths of the air is made up of that element.

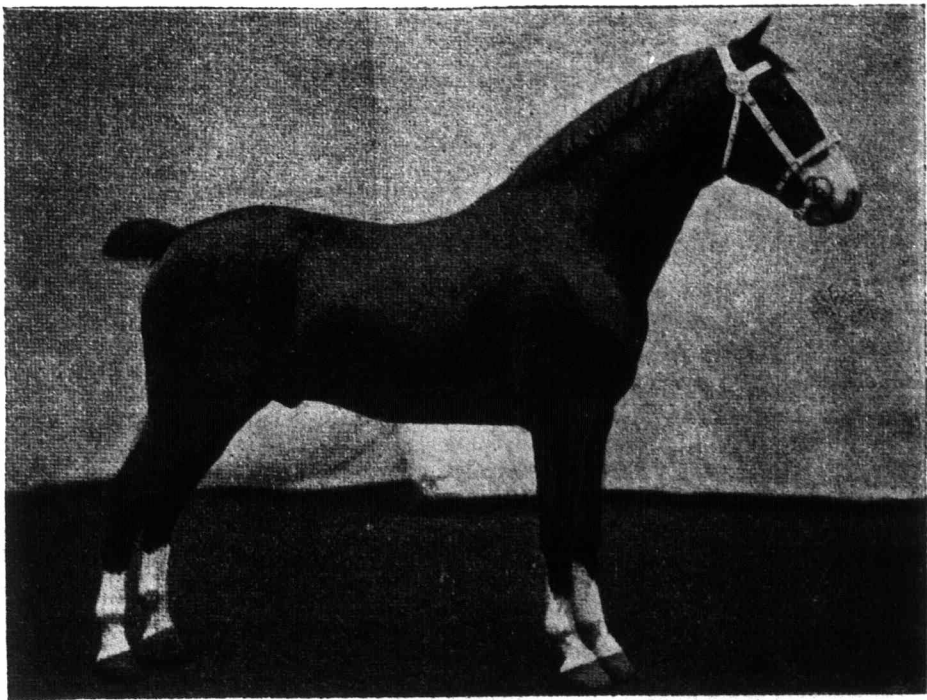
Growing Peas.—Peas will do well on all classes of soil, well drained and in suitable condition. The best samples, however, are produced on a gravelly clay soil. The seed-bed is made in the best condition when the ground is fall plowed. In the spring, before seeding, but when the ground is sufficiently dry that it will not poach, the seed-bed may be prepared by deep cultivation and a finely divided surface. Sow with a drill to the depth of about three inches, north and south in the field if at all convenient, that the sun's rays may shine up and down the rows. Sow from a bushel and one-half up to three bushels per acre, according to the size of the pea.

Very often it is advisable to sow land plaster at the time of seeding. It stimulates growth and supplies what some soils may lack—a sufficient quantity of lime. There is no doubt that wood ashes would be of great value applied to land that had been repeatedly sown to peas. Where a judicious system of rotation in cropping is followed there will be present a sufficient quantity of available plant food for any crop. The land intended for pea growing should be as smooth as possible and free from rolling stone. Such a preparation will facilitate harvesting operations very much. Very often it is stimulating to growth to harrow the peas just after they are up nicely. It should be done with a light, sharp-toothed iron harrow, when the ground is sufficiently dry after a nice shower. If heavy rains should come, enough to pack the ground hard before the peas get through the ground, a harrowing is almost indispensable.

Harvesting.—One great drawback to growing peas in the past has been the difficulty in harvesting them. Now there are a number of good pea harvesters on the market. A number of shove-rakes are still in use, both revolving and otherwise, which do good work in long-strawed sorts. For the shorter-growing varieties there is nothing that will do the work so well as hand rakes made for the purpose.

Threshing.—In this section of the country the threshing is nearly all done with the ordinary threshing machines. The cylinder is made to run more slowly than in threshing other grain, by putting on larger pulleys on each end of the cylinder shaft. Fewer teeth are used in the concaves also.

"Bugging."—All peas grown for the various seed companies represented in this district are "bugged";



ROSADOR (4964). CHAMPION CUP, CHALLENGE CUP, AND GOLD MEDAL WINNER, LONDON HACKNEY SHOW, 1897.

but as this was a very wet season it matured large ears on almost every stalk, a noticeable feature of the crop being practically no barren stalks. The corn was cut by hand, October 13th, leaving stubs about ten inches high. It was at once husked, weighed and cribbed as required by the regulations. —J. A. Forney, Plainfield, Ohio, in *Breeders' Gazette*.

An Experience with Rape in Oats.

As some farmers will be contemplating sowing rape with their oats this spring, I will give them an experience in this line, then let each one decide for himself. A piece of sod (some twenty acres, in good condition) was plowed up rather late and sown with oats, and about four pounds of rape seed per acre was mixed with the oats in sowing. Nothing much was seen of the rape till the oats were five or six inches high, when the former seemed to get the start of the latter, and then for some time the oats were hardly visible.

Many of the neighbors thought the oats would never head out, the rape taking all the moisture from the ground, but a good shower of rain coming just in time gave the grain another start and it headed out and concealed the rape.

When harvest time came the binder was started and almost given up in despair, the heavy green rape making it very hard work for the three horses, and also hard on the machine. It took about four days to cut the field. There was plenty of straw, but very light grain.

The sheaves were set up and left in the field longer than usual, in the hope that they would dry out some, but had to be drawn in at last and threshed immediately for fear of heating. Still the trouble was not ended, for when they came to thresh one man had to stand by the sieves of the machine most of the time to keep them clear of the pieces of rape stalks, and a boy had to sit on top of the machine to keep the elevator spout clear. It

i.e., the bugs are killed. This is done in large air-tight chambers built either outside or inside their warehouses. These chambers are filled with peas in the bags as they are delivered by the producer. A place sufficiently large is left to enable a man to place on top of the bags a shallow pan containing a certain amount of a liquid known to commerce as the bisulphide of carbon. This evaporates and the heavy gas penetrates everything in the room, killing the bugs in this way. It requires about forty-eight hours to treat each lot, and a very small quantity of the liquid will treat a great many peas.

As a Green Manure.—As a green manure peas are valuable, especially on light soils where it is difficult to get clover to catch. They should be plowed down about the blooming stage. They not only make humus, but they store up a considerable amount of nitrogen for future use.

As a Soiling Crop.—Anyone who practices the sowing of peas and oats or peas and barley together as a soiling crop will readily understand that peas are very valuable used in this way. The peas give most of the flesh-forming ingredients of the food. It does more, it seems to help the growth of the oats or barley, as either one grows ranker with the peas than if sown alone on the same ground. It would appear that the peas, besides being able to draw free nitrogen from the atmosphere and use it, affords some to be assimilated by the associated crop.

Pea Straw.—The straw of peas has often been condemned as comparatively useless food. With the modern methods of harvesting it is found that the pea crop can be harvested while the straw is still green and leaves attached. When well cured it is only a little less in feeding value than clover hay. Bright pea straw should never be fed for any length of time alone, as constipation is sure to follow such a practice. If mixed with other bulky feed or chopped often the danger is overcome.

Prince Edward Co., Ont. T. G. RAYNOR.

Growing Roots and Supplementary Crops.

- 1.—How, when, and in what quantities do you apply manure to land for (a) turnips, (b) mangels and carrots?
- 2.—How much manure and carrot seed do you sow per acre, how wide apart do you make your drills, and how far apart do you leave the plants?
- 3.—How do you manage to secure uniform germination of mangel and carrot seed, and what time do you prefer to sow?
- 4.—What do you think of sowing cabbage seed with carrots to fill the blanks, and thus secure cabbages for stock, market and other purposes?
- 5.—How do you prepare the ground for turnips, and at what time do you consider it best to sow?
- 6.—Have you ever grown pumpkins alone or with any other crop for fall feed? If so, how do you grow them, and how much value do you place upon them for hogs and milk cows?
- 7.—Have you grown rape alone or with a grain or other crop to be pastured in the fall? If so, what do you think of it in either or both cases?
- 8.—What variety each of turnips, mangels, and carrots is giving most general satisfaction?

Successful Methods of Root Culture.

- 1.—Broadcast during the last ten days in May, at the rate of twenty loads per acre.
- 2.—Turnip seed, 1½ lbs. per acre; mangel seed, 3 lbs. per acre; carrot seed, 2 lbs. per acre; drills 22 inches apart. Mangel plants and turnips about 14 inches apart; carrots, 4 to 6 inches.
- 3.—By sowing with a drill, burying the seed about 1½ inches, and having the land thoroughly pulverized.
- 4.—I think the plan an excellent one, always securing lots of cabbage.
- 5.—Plow, if possible, twice in the fall. Gang plow in the spring before applying manure. Harrow the land until worked very fine, then plow in your manure. Harrow and roll. Let it remain until a few days of seed time, then plow again and drill up. Sow from June 15th to 25th.
- 6.—I always grow pumpkins with corn and potatoes. I never grew them alone. I consider them good for cows, but not worth much for hogs.
- 7.—Never grew rape with grain or other crop. It is an excellent thing grown alone, either for pasture for sheep or store cattle, or to plow under for manure. I think our farmers should greatly increase their acreage of rape.
- 8.—Any variety of turnips can be grown successfully in this township. I have not had a failure of crop in 18 years. I usually sow more Skirvings than any other—about six acres of those, and one acre Greystones for early feed, and an acre of the fancy varieties that seedmen advertise highly, but I consider the old Skirving equal to any of them. Mangels, the Mammoth Red; carrots, Beith's White Belgian. G. E. MOWBRAY.

Ontario Co., Ont.

Farmers Must Use Their Heads.

To grow carrots and mangels successfully, the land should be well fitted in the fall, and must be clean, so as to plant as early in the spring as the condition of soil will allow. Turnips are our root crop. Cattle are always in good health when they have plenty of turnips. They give the stock an appetite for any other kind of food. We would not like to give up the turnips. Yet it will not pay to feed them to your cows when you are making butter for market. The Greystone turnip can be fed to cows when making cheese without any bad effect, and there is nothing excepting green clover which can beat them for a great flow of milk. The way we grow turnips is to take the dirtiest field on the farm and plow it in the fall, but never drag it, leaving it so that the frost and air can act upon the soil, then early in the spring we plow it again and then put on the cultivator and work it well. We

then let alone until we get through our spring work. We then put the cultivator on again and work it up well. After this we manure it well, putting about thirty loads to the acre; then we plow in the manure, after which we put on the drag and work it down fine; then we put it up in drills twenty-eight inches apart, and sow as fast as the drills are made, putting one and one-half pounds of seed per acre. We sow from eight to twelve acres per year. We never sow before the 15th of June. We have grown pumpkins for cows, planting the seed with corn, putting a seed in every fourth hill and in every fourth row. I never could notice any great increase in the flow of milk. I think, unless the seeds are removed, they cause too great a flow of urine. We do not feed them to pigs. We think there is only one way to handle pigs at present prices and make money. This is to never let them slack from the time the sow farrows them until they are ready to sell. This should be at five months old, and they should then weigh two hundred pounds on an average. Managed in this way, you can then go ahead. I think if farmers will use a little head work they can make money as fast as they have at any time in the past. A farmer, to be successful, must know the ability of every thing he keeps. The land is able to do a lot of work, but it is just like a cow, it won't do much when it is half-starved. Feed the land well and it will feed you and run your measure over. J. B. STONE.

Northumberland Co., Ont.

Corn and Potato Growing.

- 1.—How, when, and in what quantities do you apply manure to land for (a) corn, (b) potatoes?
- 2.—How do you select and prepare seed potatoes; how do you prepare the ground; what time do you plant for a field crop, and for very early potatoes? How wide apart do you put sets, and how many in a hill?
- 3.—In the light of your experience and observation, kindly compare hill and level cultivation for potatoes.
- 4.—After what crops do you prefer to grow ear and fodder corn; how do you prepare the ground; and at what time and how do you plant the seed, and how much seed per acre do you consider best?
- 5.—Have you ever grown pumpkins alone or with other crops for fall feed? If so, how do you grow them, and how much value do you place upon them for hogs and milk cows?
- 6.—Have you observed or grown rape alone or with grain or other crops to be pastured in the fall? If so, what do you think of it in either or both cases?
- 7.—What varieties of corn are giving most general satisfaction in your district for ear, fodder, and the silo?

Prefers Leaming and Canadian Dent Corn for Ensilage.

- 1.—I apply barnyard manure on land for corn and potatoes by drawing and spreading in winter if depth of snow permits and field is fairly dry and level; if otherwise, by drawing from shed just before sowing or planting, to be plowed under. If applied in winter, plow under as soon as land is dry in spring; from 12 to 20 loads is what is usually given per acre.
- 2.—I select well-formed potatoes, avoiding extremely large or small ones or those lacking vitality, cutting good-sized sets, and spreading on dry floor to dry for a few days before planting. Prepare the ground by plowing lightly immediately after harvest the previous season and deeper before snow-fall, plowing again in the spring; of course, thoroughly harrowing the land, also using cultivator and roller if necessary. Plant from the 15th to the 24th of May for field culture, and last of April for early ones. I plant from 10 to 12 inches apart in drill 30 inches wide. When ready to plant, make three drills on one side of field, then plant outside drill; cover with plow, going one way, and make another drill coming from opposite end. Then leave drills until potatoes are coming through, then harrow, afterwards scuffle and mold up. Very little hoeing is required on fairly clean land.
- 3.—Cannot make comparison between hill and level cultivation, but between drill and level cultivation would say that on dry land level cultivation is probably the best, especially in dry seasons, but prefer the other plan in ordinary cases for the reason that they are less liable to rot either as seed in spring or as crop in the fall, besides being easier to contend with weeds with drill cultivation.
- 4.—I prefer to grow corn after an oat crop which has been grown on sod. Prepare ground same as for potatoes. Sow as early as the 20th of May if I can get land ready. Sow with ordinary seed drill, using two hoes which sow it about three feet apart. Sow a little over one-third bushel per acre.
- 5.—Have grown pumpkins among potatoes, but not to any extent. Know that cows will eat them, but have no knowledge of their feeding qualities.
- 6.—Have grown rape and seen it grown alone for fall pasture. Think it is excellent for sheep and young cattle if care is taken not to allow them to gorge or bloat themselves with it on the start, but not good for milk cows.
- 7.—The varieties of corn that are giving the most general satisfaction in this district are the Leaming and Canadian Dent. Some people favor the Southern Sweet, however. Anything I have said in regard to corn only applies to silo or fodder corn, as it is not grown for the ear to my knowledge, but think it will in the future. THOS. A. CHISHOLM.

Bruce Co., Ont.

Prefers Inverted Sod for Corn and Potatoes.

- 1.—As long as the snow is not too deep our manure is spread on the ground as it is drawn out during the winter. When the snow is deep it is put in small heaps, to be spread in spring. About fifteen to twenty loads per acre is the quantity generally put on; potato and corn ground treated alike.

2.—Best results have been obtained by planting potatoes on sod, plowing them in early in the season; put them in every third furrow, plowing shallow; then work the land well with disk harrow. If not on sod the land is plowed in the fall, manured in the winter, and potatoes either plowed in or put in drills, sets put ten to twelve inches apart.

3.—Have never tried level cultivation—always drill them up, but not very high; but in a dry season on our soil think level cultivation would be the better way.

4.—Like potatoes, our best corn is always grown on sod, plowed in the fall and manured in the winter if possible. If the manure is short it is worked in with disk harrow, but if long it is plowed crossways, but would rather not plow. Sow the seed as early as the ground is dry and warm, before the 20th of May if possible. Use a Noxon grain seeder for sowing; drills 35 inches apart; half bushel of seed per acre—depends on variety, size of kernel varies so much.

5.—Have never grown pumpkins for feed more than a few planted with the corn.

6.—Have sown rape the last two years; first crop was bird rape and of no use. Last year the weather was so dry it did not germinate, if the seed was good.

7.—For ear—Compton's Early or the common yellow corn grown mostly. For fodder—Mammoth Cuban, Cloud's Early Yellow, Leaming, and Red Cob stand the test as well as any. Glengarry Co., Ont. E. C. McCALLUM.

Culture of Potatoes, Corn and Rape.

1.—We put out the manure as it is made, on land that was fall plowed, about thirty loads to the acre, and spread it at the same time until the ground freezes. After that it is put in small piles and spread shortly after the snow goes in the spring. When it is spread on the frozen ground and snow, part of the strength of the manure goes away some springs. There is no manure taken out from the time the snow goes away until we start to put in the root crop; it is well rotted then. The ground for the potatoes is manured then and well worked in on the surface. For the corn it is mostly taken out in the winter.

2.—We select out enough potatoes of each kind for seed, of nice shaped and good sized ones, when we are digging them, and put them in separate bins, and cut them in two lengths ways just before planting and sprinkle them well over with land plaster. They are mostly planted on land that was broken out of sod the year before, being well plowed in the fall and again in the spring and manured after and well worked in the surface soil. We plant about 15th or 20th of May, and for early potatoes as soon as there is any growth. We mark out the ground in rows three feet apart with the plow and run it very light and drop the half potatoes 2½ feet apart and cover with the hoes.

3.—We have the ground very near level; just put the ground very lightly up to them and think they do much better that way than ridged up. A few of the potatoes will be partly exposed and will be green; they make good seed or can be fed to stock.

4.—No ear corn of any account grown here. We grow the fodder corn, as the soil suits it, and it is grown on the same ground a good many years in succession, and grows heavier crops now than a few years ago. It gets quite a lot of manure. Last year before planting the corn we plowed down a heavy crop of rye that was sown just after the corn was cut the year before, and the corn did well. We plant from the 10th to the 20th of May, with a grain drill, using two spouts, which leaves it about three feet apart, and sow from 8 to 12 pounds to the acre. After a little of that comes out in harrowing it is not too thick.

5.—Do not grow any pumpkins.

6.—We had nine acres of rape last year. It grew a fine crop. The milk cows and sheep feed on it a long while. They were put in a short time at first. Both the cows and sheep did extra well on it. A neighbor two years ago mixed some of the seed with his oats when they were sowing them, thinking after the oats were cut that the rape would grow up and make good feed in the fall, but it did not wait that long; when they were cutting the oats the rape was up higher than the bands of the sheaves and he could hardly get them dried. He doesn't intend trying it that way any more.

7.—For fodder corn and the silo, Thoroughbred White Flint is liked well. JAMES MARTIN. Renfrew Co., Ont.

The Crust in the Grain Field.

Among the essential conditions to successful germination of seed grain in the soil are heat, moisture, and air. The two former may be present in sufficiency, but if, as from the effect of a heavy shower of rain falling upon a finely pulverized surface of clay soil, a crust be formed, followed by drying winds and sunshine, which shuts out the circulation of air, germination of seed is seriously retarded if not rendered impossible, and if it has commenced, will make little, if any, progress in growth while the crust remains unbroken or until it is softened by a subsequent rainfall relieving the pressure upon the pent-up plants. To avoid loss of time and loss of strength in the crop under such circumstances, we are fully persuaded, as the result of experience and observation, it is wise and profitable to apply the harrow vigorously as soon after

a heavy order to circulate treatment, it, fear off the fact is than is the relief than c harrow tender sown a formed results, on the clay an effect of packed of the h harrow and gra condition also, in seeds as likely to real ble apply th to youn to sow a cover w

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a heavy rain as the surface is sufficiently dry in order to break up the crust and thus allow the circulation of air. This may appear to be heroic treatment, and many persons will hesitate to adopt it, fearing that the tender sprouts may be broken off the grain and the crop thus injured, but the fact is that in most cases seed is sown more thickly than is necessary, and if a few plants are spoiled the relief that is given to the many others more than compensates. The writer has practiced harrowing peas, which are considered especially tender in the early stages of growth, after being sown a week or ten days and being bound by a crust formed after a heavy rain, with entirely satisfactory results. This treatment is generally needed only on the tops and sides of hills or knolls which are of clay and which dry quickly after rain under the effect of a strong sun, and where from being packed or baked the crop falls behind the average of the field. Hesitation may be entertained about harrowing a crop that has been seeded to clover and grasses, but it should be remembered that the conditions which prevent the growth of grain will also, in all probability, prove fatal to the smaller seeds as well, and that the process of harrowing is likely to prove the lesser of two evils, if it is not a real blessing. But if one cannot find courage to apply the means proposed, on account of the danger to young clover plants, it will be but little expense to sow a little more clover seed on these spots and cover with a stroke of the harrows or a brush.

DAIRY.

An Old Story Revived.

MAKING BUTTER WITHOUT THE CHURN—THE COWS MAY EAT ANYTHING AND THE CREAM MAY BE RANK—TURNING SKIM MILK INTO OIL.

In September last the FARMER'S ADVOCATE published a description of a new process of making butter by passing through excessively ripened cream in a glass jar a current of air heated to 80 or 90 degrees. Two members of our staff visited the Medway Creamery, in Middlesex Co., Ont., owned by Mr. Jas. Carmichael, an experienced creameryman, and spent an afternoon witnessing the process carried on by Mr. Walter Cole, from Australia, where he claimed to have originated it. He came first to London, England, and then to New York, in each of which he had a varied experience endeavoring to get his method inaugurated. He claimed that projected companies and speculators had endeavored to divest him of the fruits of his invention which he believed was designed to "revolutionize" the dairy industry of the world. He finally came to Canada, where he hoped to find a better field. At the Medway Creamery, where we found him, he operated his method, being visited by parties of capital interested in the manufacture and sale of dairy supplies and who were disposed to acquire the right for Canada, but the negotiations ultimately fell through. In the course of our article at that time we said:

"As to advantages, it was claimed: (1st) That cream of any age or sourness could be used in making butter, so that it could be gathered from long distances; (2nd) that all objectionable flavors would be driven off, even to turnip; (3rd) that more butter—in fact, all—could be secured from the cream, which churning did not do; and (4th) that the butter, being free from albuminous matter, would keep longer and more perfectly. The first point (cream gathering) conceded. That some odors might be driven off by the hot air rising would not seem unreasonable, but the claim is rather sweeping; there was no comparative test made on the day in question to demonstrate that a given quantity of cream would yield more butter than an equal quantity in the churn, nor was any test made of the buttermilk to show its freedom from fat, and, of course, we could say nothing as to its keeping qualities."

As nothing but oral testimony was offered in support of the two latter important claims, the editor of the ADVOCATE proposed, as stated in our article at that time, that the process be submitted to an independent test by the Professor of Dairying at the Ontario Agricultural College, or by the Dominion Dairy Commissioner, but this he declined to do. Mr. Cole urged that nothing be published then, but this we could not consent to, as the business of the FARMER'S ADVOCATE is to keep its readers posted on just such matters. He remained there several weeks, using a considerable quantity of cream, and having every opportunity to demonstrate the merits of the process. But Mr. Carmichael states that the butter, not being up to the mark through lack of body, etc., was not satisfactory to his customers, and he was able to get more butter from the cream by the churn. He did not think it possible by the new process to get as much fat out of cream properly ripened for the churn. A member of the ADVOCATE staff purchased a quantity of the butter, but found that it became quite rank in about a week's time. Another claim made was that skim milk, or the caseous portion of it, could be converted into oil, which in turn could be used to make a "full cream" cheese from skim milk curds. Something like oil, probably good for "shortening," was produced a few

times, but many of the lots "went wrong." Mr. Carmichael finally concluded that he had no use for the process in his establishment. We understand it was operated next at the Bow Park Creamery, with practically a repetition of the above experience. Mr. Shuttleworth, the manager, had it tested thoroughly, but found it in no way equal to the old churning process. Latterly Mr. Cole located in Toronto, and we were surprised to notice about a week ago on the editorial page of the *Globe*, with sensational headlines, an article heralding this process as something new. Half a dozen leading members of the Ontario Legislature were present, together with reporters, at a demonstration given at the office of what is called the National Creamery Company, with one of the former (Mr. Macpherson) in the chair, and the reporters represent them as "much impressed," and that without doubt "the near future will see this useful and novel invention in general use."

The account given in the *Globe* substantially describes the process as related last September in these columns, but with no more definite data to substantiate the claims made than a year ago. The FARMER'S ADVOCATE gladly welcomes and seeks to promote every real advance made in dairying, but we are not disposed to recommend dairymen to abandon the churn and put in a new outfit till proper evidence is forthcoming as to the percentage of fat in the buttermilk left by the new process, and the keeping and other qualities of the butter made as we saw it at the Medway Creamery in August, 1896. We want some pretty clear and independent evidence before believing that it makes no difference about the flavor of what the cow eats, nor if the cream is stale and rank enough to have "whiskers on it," or that bubbling hot air through the cream will turn all the fat into choice, perfect-keeping butter, to say nothing of making oil out of skim milk!

How the Food Cost of Butter was Reduced at the O. A. C. Dairy.

To the Editor FARMER'S ADVOCATE:

In a note published in your issue of Feb. 15th, I stated that "the food cost of a pound of butter for our herd was 12.8 cents for December, 1896, whereas in December, 1895, the food cost was 18.8 cents per pound of butter." In looking up the data on this point, I find that there are three main factors which contributed to this result, viz.: (1) More fresh cows in 1896; (2) lower prices paid for purchased feed in 1896; (3) more economical feeding in 1896.

(1) Experience proves that "fresh" milkers will produce milk, butter or cheese more economically than "strippers." For a period of three to six months after calving the milk glands are stimulated to produce an excess of milk and at this time the cow gives greatest returns for food fed, consequently produces most economically at this period. In order to produce milk or butter economically, "fresh" milkers is a very important factor. In our herd in Dec., 1895, there were 5 cows which had been milking under 6 months and 11 cows over 6 months. In Dec., 1896, there were 8 cows under 6 months and 11 cows over 6 months. We find the month of December a trying month for economical milk production, as then the cows are kept in the stable or yard all the time and are not yet accustomed to dry feed altogether.

(2) The silage, clover hay and roots fed to the cows are obtained from the farm department and are charged at the same prices both years, except the hay, which was charged at \$10 per ton in 1895 and \$6 per ton in 1896. The prices of the purchased foods for each year were as follows:

Year.	Price per bushel, includ-			Price per ton-	
	Oats.	Peas.	grinding.	Bran.	Oil cake.
1895-'96	29.3c.	56.1c.		\$13.00	\$20.00
1896-'97	22.5c.	45.0c.		9.00	19.00

Your readers will observe that this difference in the prices paid for meals ought materially to affect the food cost of dairy products. Our ration for 1896 and 1897 consists of the following:

35 pounds corn silage.
10 " out clover hay mixed with the silage.
20 " mangels.
2 " bran.
2 " oats.
2 " peas.
2 " oil cake.

This is fed at two feeds, except the mangels, which are given at noon. Sometimes a little long hay is given at noon. The ration costs us 13 cents per day.

(3) By a closer study of the feeding of each cow, in connection with the weighing and testing of her milk, we have been able to reduce the unprofitable feeding materially. When we find that a cow is not paying for her feed at the milk pail (unless we intend to fatten her or if she is not in good condition, in which cases we feed extra) we at once reduce the amount of feed given to that cow, because the scales and the test clearly show that she is receiving more food than she can make profitable use of. It is a "nice" point in feeding to give a cow all she can use with profit—not overfeed her, nor yet underfeed her. This takes more skill than the average feeder possesses.

I may add that the food cost of a pound of butter in January, 1897, was 11.4 cents; February, 11.8 cents, and March, 14 cents. I consider that March is too high, for some reason or other that is not clear to me at the present moment. We make up the food cost for each cow and the average for the whole herd of milkers monthly.

H. H. DEAN.

Feeding Dairy Cows.

The question of the cheaper production of dairy products is one in which every dairy farmer must interest himself, as apparently his increased profits must be sought at this end of the line rather than at the market end over which he has no control except by improvement in the quality of his goods. In order to ascertain as far as possible, for the benefit of our readers, the best foods to grow for dairy cows, and the best methods of compounding them, we submit the following questions, which, if answered in the light of experience, will do many dairy farmers a valuable service:

- 1.—To what extent do you recommend corn to be depended upon as food for dairy cows, and how do you recommend to have it planted as to thickness, and whether in hills or drills?
- 2.—Do you prefer Dent, Flint, or Sweet Evergreen sorts, and which varieties of these suit your district and requirements best?
- 3.—What other fodder crops do you recommend for cows, and how do you grow them?
- 4.—What provision do you make for grain for your cows, and what do you consider a proper ration for cows giving milk in summer and in winter? And what value do you place upon bran as a part of the ration?

Ensilage, Roots and Bran for Dairy Cows.

1.—Corn, in the shape of ensilage, from 35 to 50 lbs. a day for each cow (according to size) during the winter; also for feeding in early fall. We always plant with ordinary seed drill, about thirty inches apart in drill.

2.—We have always used Red Cob corn. We sow as soon after the 15th of May as we can, and cut the last of September or first week of October.

3.—We grow about 15 acres a year of turnips, and find them one of the best crops we can grow. We sow White or Greystone for feeding the latter part of September and the first of October, then the tops of general crop, which are swedes, are put in piles when cut, and with dry fodder corn give us another month's feed. For butter turnips would impair the flavor, but mangels would answer.

4.—We lay in 30 or 35 tons of bran generally in June, also feed from 2 lbs. to 4 lbs. of meal or ground grain to each cow per day. If cows have a good pasture, do not feed any in the stable; but if pasture is poor, feed bran, if it can be bought for \$12 a ton; if not, feed green oats, or peas and oats, followed by green corn. We would consider the following a good ration for winter: 10 lbs. hay, 40 lbs. ensilage, 30 lbs. roots, 4 lbs. bran, 2 lbs. meal. Carleton Co., Ont. R. REID & Co.

Ensilage Corn for Muskoka.

1.—I recommend 50 lbs. of ensilage corn a day for a dairy cow. I consider it the best, healthiest, and cheapest feed we can grow. Last year I planted my corn in hills three feet apart, but I think I shall put it 40 inches this summer. I find it much easier to cultivate and harvest in hills than in drills. Four or five stalks are enough in a hill. I plant it with a hand planter called the King of the Field.

2.—Flint. I plant the Angel of Midnight. I have tried over a dozen varieties, and this is the best for this northern part of Ontario—Muskoka. I found it difficult to find a corn that would mature in time to escape the frost which usually comes about the 8th of September.

3.—Clover hay, and peas and oats cut green. I sow two bushels of White Siberian oats and one bushel of Prussian Blue peas to the acre. These two varieties are the most suitable for this purpose. I cut it when the oats are in the milk and dry it like hay for winter.

4.—I pasture my cows in summer, but when the pasture gets bad I cut some peas and oats for them once a day, and in the winter I consider the cob corn in the silo and the peas and oats is sufficient grain. The green oats and peas is both better and cheaper than chopped grain. It makes better flavored butter than any other food. My cows will not give enough extra milk to pay for feeding bran. I think the farmer should grow all the feed himself. I find that 50 lbs. of ensilage corn and about 12 lbs. of clover hay and the same amount of peas and oats cut green is a very good ration.

Muskoka, Ont. M. CLIPSHAM.

Success with Corn and Lucerne.

1.—We could not get along very well without corn for our cows. We work it, if possible, to have sufficient to form the principal ingredient in our winter ration. We feed it until the early forage crops are fit to use. We plant the hills 3 x 3 feet, cultivate both ways, which leaves very little to hoe. Give it a light scuffle once a week until it is in blossom, which not only breaks capillary attraction, but is a good weed destroyer. We think the corn is sweeter sown thus, and it grows taller and cobs well.

2.—We prefer the Dent, as we feed a number of hogs, husking the larger ears for the shoats, and cut the smaller ones along with the stalk for the cows. Off of a field of eight (8) acres this year we husked over 700 bushels of large ears, and though some claim the cattle will not eat the Dent fodder with the relish they have for the fodder corn, we think the extra cob more than repays us.

3.—But by far the best fodder crop I know is lucerne or alfalfa. This clover has so many points in its favor. Among the best points is the fact that it has not to be sown every year. Once seeded it is there for years, some say forever if you so wish it. It has not to be plowed up and resown every two or three years, as red clover, nor does it gradually run out as other grasses do. Everything likes it,

and it forms the most complete ration for milch cows of any one food I know of.

4.—As to this question I am not now prepared to give an answer. Our experiments with grain are not complete. Am anxious to obtain all on this subject I can. F. C. ELFORD.
Huron Co., Ont.

Only Good Words for Lucerne.

1.—I use corn in the form of ensilage and also as dry fodder very largely; in fact, it is our main bulky ration. We sow it in drills; about 12 quarts per acre. I don't think there is much advantage in planting in hills over drills, except that you can cultivate both ways, but by harrowing the corn as soon as it comes up, and sometimes before, if the ground happens to get a crust on it, we have no difficulty in keeping our corn crop clean.

2.—In our locality the Dent varieties give the best results for ensilage, but for fodder I have not found any variety give me as good results as Stowell's Evergreen.

3.—Peas and oats mixed and sown at the rate of three bushels per acre, as early as possible in spring, will be ready to feed about the time the pasture begins to fail. Lucerne is also a splendid soiling crop, and will be ready for use sooner than anything else in spring. It does not seem to thrive so well, however, on clay land unless it is under-drained. I have been growing lucerne for about ten years, and using partly for soiling and also for hay, and I have nothing but good to say of it.

4.—I grow peas two-thirds and oats one-half mixed together and get the grain chopped. We rely principally on soiling crops in summer. For a winter ration we have found that thirty-five pounds of good sweet ensilage made from corn well-eared, with about six pounds of the chop mentioned and one quart of oil-cake meal, together with some dry corn fodder, gives us the best results. When bran is a reasonable price we use it. I think very highly of bran as a ration to balance ensilage, but it is generally too high-priced in our market. R. S. STEVENSON.
Brant Co., Ont.

Flint Corn Preferred.

1.—Have had to depend upon corn for over half the feed for our stock during the past two years, clover being so damaged both by frost and drought. I plant part in hills in the ordinary way, using the stalks as fodder and grinding the corn. I feed once per day. I sowed a piece of corn broadcast on new land; could see but little difference as to value between Dent and Western corn; cut part when pasture begins to fail, and feed in the field as I have no silo. The Western corn is hard to cure, but stands up better. I prefer hills for ripening corn, and drills for fodder corn.

2.—I prefer Flint for all purposes. Too much wood in Dent, and if sown thick enough to make it fine the under leaves all rot, leaving only a bare, slimy stalk, and but a few leaves on top.

3.—Clover and timothy, when I can get a catch, grown in the ordinary way. Had a small piece of excellent clover a year ago sown without any other crop.

4.—I grow corn largely because it suits amongst young trees in the orchard, but prefer chopped oats, wheat bran, and a little oil cake meal with it—two quarts a mess twice each day. Am feeding one peck of white carrots once per day to each animal, but do not think them so valuable as a grain ration. We only keep a small herd of thoroughbred Jerseys, and sell milk to customers. Have to be guided by circumstances, so cannot always feed just what I should like. SAMUEL HUNTER.
Oxford Co., Ont.

Ensilage Corn in Quebec.

1.—Would recommend corn to be depended on to supply fully one-half of the bulky food for dairy cows. Always plant it in hills two feet apart in the rows, which are three feet apart; about six stalks to the hill.

2.—For feeding in summer, and also for fodder, where there is no silo, by all means the sugar corns, either the Evergreen or Mammoth. For the silo the Dent is probably the best, but I do not plant it exclusively, as I find some years the Flint does best, so plant some of both. As to the best kinds, the time of sowing has a good deal to do with that. If we are ready early we sow the large kinds, such as Cuban Giant, Red Cob, White Pearl, Yellow Cap, or any large kind; if late, some of the earlier sorts, such as Butler Co., Thoroughbred White Flint, Longfellow, or Canada White; in fact, any kind that will come to maturity.

3.—I also grow tares and oats mixed, about one-third tares, and sown at different times, about ten days apart. Sometimes I sow millet if the season is late. Have not tried rape, but intend to try a small piece this year.

4.—I buy almost all my grain feed. In summer time we feed about 3 lbs. of bran, 1 lb. oil cake, 1 1/2 lbs. meal—that is, peas and oats ground together. Of course, we increase and decrease the quantity according to the abundance of other feed. In winter we just about double that quantity along with the ensilage, hay and straw. I like the ration to be about one half bran, but sometimes bran is too dear and we have to do with very little. After it goes above \$12 per ton we reduce our quantity of bran and increase the remainder of the grain ration slightly. These are the average rations per day, some cows receiving more and some less. I am obliged to produce the same quantity of milk the year 'round. D. DRUMMOND.
Petite Cote, Que.

Western Ontario Dairy Convention.

DIFFICULTIES IN CHEESEMAKING, AND HOW TO OVERCOME THEM—POINTS IN BUTTERMAKING—CURING ROOMS—SELLING CHEESE—WINTER DAIRYING—COST OF MILK AND BUTTER PRODUCTION—DAIRY FARM CROP ROTATION.

A cheese and butter makers' convention was held at the Strathroy Dairy School, under the auspices of the Western Ontario Cheese and Butter Association, on March 26th. This meeting was the occasion of our visit to the school, which we learned is to be conducted the coming summer as a creamery under the management of its present Principal, F. J. Sleightholm, B. S. A. It is well that some continued use is to be made of this well-equipped and ably-manned institution. While good instruction has been given during the past winter comparatively few students have attended. Sometimes between a dozen and a score, usually nearer the latter number, were in attendance during the best sessions, and at times pupils and instructors were about equal in number. In conjunction with the regular creamery capacity, the institution will continue to be run as an experimental station and school of instruction to those who wish to attend.

The convention was continued through an afternoon and evening session. At the former, 1st Vice-President J. S. Pearce occupied the chair, when some 80 or 90 were in attendance, among whom was a goodly sprinkling of ladies. Unfortunately, the bad condition of the roads prevented a large attendance of farmers.

Principal F. J. Sleightholm welcomed the visitors, and invited them to make a careful inspection of the School, its equipment, and the work being accomplished.

DIFFICULTIES IN CHEESEMAKING, AND HOW TO OVERCOME THEM

was the subject of a paper by Mr. Wm. Waddell, the cheesemaker of the School. Tainted milk is a great source of trouble, and should be always returned to the patron if the taint is detected before it is commenced to be manufactured. Every cheesemaker should occasionally visit his patrons, especially the more careless ones, and in a friendly way suggest improvements that may be made in producing and keeping milk, and impress the need of avoiding feeding foods likely to produce badly-flavored milk. The patron must feel that he has an interest in the finished product before he will do his best to send only the best quality of milk.

Gassy curds arise from many causes: cows in ill-health, breathing impure air, drinking bad water, dirty milk cans, want of aeration, and many other improper conditions the result of carelessness on the part of patrons. It more frequently occurs after cool nights when aeration was considered unnecessary. It was claimed that aeration is of far more importance than cooling. Gassy milk should be set when the milk coagulates from 2 to 4 seconds less than the ordinary time by the rennet test. Add more rennet, do not cut fine, don't over-stir at dipping time, pile curds deeply and stir often after milling. It was suggested to wash curds in hot water (105 degrees F.) when very bad. This, however, is liable to waste fat. One maker suggested that sweet whey from another vat be used to wash the curds.

Overripe milk should be returned to the patron. Always be ready to go on with the making as soon as the milk is in. Always use the rennet test. Do not commence to heat up until the milk is all in. Add a trifle more rennet, mixed with cold water. Dip with less acid on the hot iron.

Tampering with milk is overcome by paying by quality as indicated by the Babcock test.

During the discussion which followed it was recommended that there be less opposition in milk routes than is frequently the case. Two milk wagons going over the same route causes an unnecessary expense. Whey should be sold to the highest bidder, and not fed near the factory nor carried home in the milk cans. With regard to "starters," it was recommended that only pasteurized milk be used, to which a quantity of starter having a perfect flavor is added. Thick, soured "starter" should be thinned with pure cold water and carefully broken up and strained into the vat.

THE HANDLING OF CREAM SEPARATORS

was discussed in a paper by the School buttermaker, Mr. Henry Smith. Without going into this subject exhaustively, it might be stated that a cream separator should have a solid foundation and sit perfectly level. In a new creamery it was advised to use a spirit-level almost daily for the first few weeks. Uniform running power is very important. The belts, governors, etc., should be right. Use only specially prepared oil.

POINTS IN BUTTERMAKING.

The foregoing paper was followed by a discussion on buttermaking, when the following points were brought out:

It is a disadvantage to add cold water to butter when coming into granules when there is trouble in getting the butter to gather.

The advantage of having butter made in a creamery over the dairy was clearly shown. During the past winter dairy butter sold for 10 cents to 13 cents per pound, while creamery butter usually brought 20 cents.

In the creamery, practically all the butter-fat is recovered from the buttermilk, while there is a great loss in fat in the average home dairy.

Having the butter made at the creamery takes a great deal of drudgery away from the women on the farm.

Good butter cannot be made from milk produced from poor, inferior feed.

The cows must be healthy and properly cared for in a clean, light, comfortable stable.

Separated milk, before being taken home by the patron, should be heated to 160 degrees Fah., which will keep it sweet in a cool place for two or three days for calves or pigs.

CURING ROOMS.

Mr. R. Robertson, of London, introduced a discussion on cheese-curing rooms, when it was pointed out that much well-made cheese had been spoiled in defective curing rooms and those kept at too high or too low temperature. A curing room that allows the inside temperature to vary with the outside will have cheese leave it at a variety of prices seldom reaching the top. Most of the points made were much in keeping with those contained in our reports of the Guelph and Brantford dairy conventions. Cheese should be sold every two weeks to the highest bidder to avoid risks. It also pleases patrons to receive their cheques regularly. [NOTE.—If large enough.—Ed.] It is well to whitewash the windows thoroughly in hot weather, also the entire outside of the factory and curing room.

The evening meeting was presided over by Sec. J. W. Wheaton, who emphasized the importance of paying special attention to quality, as a greater quantity of dairy produce is not wanted except of the finest quality.

WINTER BUTTERMMAKING

was the subject given Mr. J. B. Muir, of Avonbank factory, who referred to the management of the Avonbank factory. It is controlled by a joint stock company. The butter is made and marketed for 3 1/2 cents per pound. Half of the butter of this past winter was sent to Manchester, Eng., and half to Toronto. The average price for the winter in either case has been 19 1/2 cents at the factory, or 16 cents to the patrons. Nine-tenths of his patrons have silos, which enables them to supply an abundant quantity of milk all winter. When a patron sees another sending more milk than he is able to do from the same number of cows he at once seeks to learn the secret. This explains the prevalence of the silo. Patrons form clubs of 3, 4 or 6, and deliver the milk alternately. One of his patrons commenced on November 18th with six fresh cows and five or six strippers. In March he had ten fresh cows and three strippers, and has made his year's rent in butter (\$400), besides selling about a dozen fat hogs and feeding some skim milk to calves.

The question was asked, Will winter milkers give as much milk in summer as though they came fresh in spring? One patron had ten cows come fresh in February and two in April, and when the dry pasture came the early calved cows retained their flow quite as well as the later ones. It will cost some \$550 to equip a cheese factory with buttermaking machinery without having to put in a boiler or engine.

COST OF PRODUCTION.

Mr. Sleightholm, by the aid of a table, emphasized the importance of paying especial attention to cheapness of production. We cannot control the price except by making a superior article, but we have control of the cow through which the entire product must come. The following table shows the latest researches along the line of the cost of producing butter:

STATION.	Cost per lb. butter			Keep of cow one year.	Cost per day.	Cost of 100 lbs. of milk.
	For year.	Summer.	Winter.			
Minnesota.....	10 1/2c.	.....	14c.	\$38	.....	62c.
Cornell.....	14c.	.....	.....	.....	.....	65c.
Guelph.....	14c.	4c.	18 1/2c.	31	9-22c.	.....
Farm work.....	12 1/2c.	5c.	17.5c.	25	4-18c.	58c.

*June.
The causes of dear milk and butter are numerous, among which may be mentioned poor cows, poor feeding, poor care, and too short milking period. Frequently patrons are found who study their business and by seeking to supply favorable conditions realize from each cow often from \$50 to \$70 a year, while others who cannot be bothered with cows in the winter time, but seek to save money by feeding at about \$1 per month per cow, will draw from \$10 to \$15 per year for each cow's milk. This is the wages of ignorance and shiftlessness. Too often these are the men that proclaim the unprofitableness of dairying. A frequent cause of unprofitable summer milk production is the practice of allowing cows to stay out in the field fighting flies and hunting grass during scorching days. It is vastly more profitable to house them during such days and feed them well and allow them access to good pasture during the night. There are great differences between cows. Individuals vary more than breeds. Productiveness in cows depends more on conformation than on size or breed.

Mr. Leach claimed that he produces winter butter at 10 cents per pound. He feeds ensilage (which

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he grows at the rate of twenty tons per acre), clover hay, oat straw, and five or six pounds of mixed chop per day. He claimed to be able to winter cows profitably, while milking, on food from one-third the ground it took to pasture them in summer. Mr. Leech recommended a rotation of cropping similar to that practiced by D. M. Macpherson, M. P., viz.: roots and corn, spring grain (seeded), clover, pasture, pasture, fall wheat. The farm should be divided into six equal sized fields, and if treated in this way the supply of fertility and humus in the soil will not diminish. Mr. Leech pronounced in favor of Mr. Macpherson's plan of establishing a good, practical, money-making farmer in each county or district as an object lesson to the farmers of the locality.

POULTRY.

How to Make Hens Pay.

- 1.—How many hens do you consider it wise to keep on the average 100-acre farm, and to what age?
- 2.—With a view to eggs, table birds or both, what breeds or crosses would you recommend as likely to give most general satisfaction?
- 3.—What plans would you suggest for improving an ordinary farm flock of mixed fowls, such as selection or "weeding out," new breeding birds, setting of eggs, etc.?
- 4.—What period of the year is it advisable to retain male birds with the flock? How about numbers together?
- 5.—By what means do you secure the best eggs for hatching?
- 6.—What treatment would you suggest for a pen of breeding hens (from which the eggs are to be set) during the latter part of winter and spring?
- 7.—What sort of a house do you recommend with regard to (a) size, (b) location, (c) warmth, (d) sunlight, (e) ventilation, (f) dust bath, and (g) watering, and to what extent should fowls run out in winter?
- 8.—How do you manage to keep hens free from lice and disease?
- 9.—What foods or mixtures do you recommend for (a) egg production, (b) fattening, (c) how often would you feed per day, and (d) what value do you place on green bones, and vegetables, and sunflower seed?
- 10.—How many eggs per year should a good farm bird lay to be profitable, and at what age should broilers be sold?
- 11.—Should turkeys, ducks or geese be allowed to run in the same house with hens; if not, why?
- 12.—What is your idea of keeping turkeys, ducks or geese on the average farm, and how do they compare with hens as to profit, etc.?

A Strong Plea for Infertile Eggs for Table Use and the Market.

1.—Every farmer throughout the Province should keep 50 good hens on a 100-acre farm. That number I consider as many as can be profitably kept in one flock. There is no reason why more may not be kept profitably, but if the farmer is not going to give them more than ordinarily good attention, or, in other words, if he is not going to make somewhat of a business of poultry raising, 50 hens will be enough. Keep no hens more than two winters.

2.—My experience is that two good varieties crossed make very good layers, are hardier, very often, than the pure-breeds, but when you have to go on breeding you will find that your cross-breeds do not equal good pure-bred varieties, and besides your flocks are not uniform, they are only "mixtures" at best and are not as valuable as pure-breeds. I believe in pure-breeds every time. Nothing can beat good Leghorns, Minorcas or Red Caps as layers, and Plymouth Rocks and Wyandottes are the best general purpose varieties. As chicks they grow fast and are plump and ready for the pot any time after they are ten weeks old. The Indian Game crossed on a Plymouth Rock, Wyandotte or Brahma makes a very good table fowl. The pure Indian Game is itself one of the best, if not the very best, table fowls we have.

3.—Go to work the beginning of December and kill off all those old hens that are not through molting. Kill off all the fence-corner-hatched chicks that put in an appearance long after the hatching season (end of May) was past. Keep only those hens and early pullets that are plump and in full feather.

Always use a pure-bred male bird and on no account inbreed. Every farmer should have a pen partitioned off of his henhouse for a breeding pen, into which he should put 10 or 12 of his very best hens and a pure-bred male and he should gather eggs for hatching from these only. By selecting only your best hens each year as breeders, using only pure-bred males and never inbreeding, you will in a very short time greatly increase the value of your flock in egg and meat production.

4.—No farmer should keep male birds in his flock at any time. A farmer requires but one male bird, and that one should be in his breeding pen with the 10 or 12 hens he wishes to gather eggs for hatching from during the time he wishes to gather eggs for hatching only, say March, April and May. After you have gathered all the eggs you require for hatching, turn the hens out of the pen, but on no account allow the male his liberty. Far better kill him unless you wish to use him again next spring.

I find it a remarkably prevalent idea amongst my fellow farmers that in order to get the maximum number of eggs from a flock of 50 or 60 hens you must keep at least 5 or 6 males in the flock. This is an old fogey idea that we must get rid of if we are ever going to build up a satisfactory egg trade. In the first place the male does not make the hen lay, the hen makes the egg out of the food you give her. She manufactures the egg out of what she eats. All the male does to the egg is to fertilize it or put life into it. It is agreed by all who have ever experimented along this line that hens without males will lay as many and even more eggs as with them. Now let us look at the

difference between fertilized and unfertilized eggs, or, in other words, the eggs laid by hens with a lot of male birds in the flock and those with none. A fertilized egg contains the germ of life. All that that germ requires to start it growing is heat; 80, 85 or 90 degrees will do it. We will suppose that you are extremely careful in gathering your eggs, and it is summer time. A number of hens laying on a nest in quick succession will start the germ to grow. Remember it doesn't take 24 hours of heat (90 degrees and over) to spoil an egg. An hour or two at that temperature will start life in that egg. How often do you go to-night and find no hen sitting on the eggs and to-morrow night you go and find 6 or 8 eggs in this carefully watched nest with a clucking hen on them? You foolishly think that because she was not there last night that these eggs are all right and you put them away with your others, perhaps you pack them. Now, what has happened to those fertile eggs. Why the life started to grow under the heat and it died when you took it from the heat. You know that wherever there is death there is decay, and there is decay going on, slowly perhaps, but surely, in every one of those eggs. Now take the eggs laid by a flock of hens with no males. Eggs that have no life in them. You may have a hen set on such eggs for a week—yes, for months—and there will be no decay. All the hen can do to those eggs by sitting on them is dry them up. An egg is composed largely of water, and if a hen sits on one long enough all the water will evaporate and only the dry matter will remain and still there will not be decay.

For my tea this evening I had a piece of cake made with infertile eggs that were in the incubator seven days, and it was a very fine cake indeed. What kind of a cake would it have been, I wonder, if my wife had put fertile eggs in instead that had been subjected to 102 to 103 degrees of heat in the incubator for 7 days? Say they had been in just a day or two? Well, you are selling to our city brethren just such eggs as these—that some old hen has sat on all day and all night and often two or three days—and you expect them not only to make cakes of them, but fry, boil and poach them. Ask the egg dealers of our towns and cities if they find it an easy matter to get reliable eggs, and they will, with one thundering voice, yell NO! Ask the most careful farmer's wife whose husband keeps from 6 to 10 male birds in the flock "to make the hens lay" if her customers ever find fault with her eggs, and she must, though perhaps reluctantly, say yes. In order to avoid all this faultfinding, and to get eggs that are eggs and always will be eggs—never chickens—go out to your henhouse and give your hens the very strictest orders to lay infertile eggs only from now on. Tell the 10 or 12 hens you put into breeding pen to lay fertile eggs as long as they are there and turn each fertile egg into a chicken. That is all that kind of an egg is fit for. That is all it was ever intended for. Do you know, sir, that when I eat egg I like to know that it is really egg, and when I eat chicken I like to see wings, legs, crower, etc., and then I am sure that it is chicken.

We are looking forward to a great egg trade with England, and one thing we must do, if we are ever going to succeed in satisfying the demands of that market, is raise only infertile eggs, so that our eggs may be eggs when they get across the Atlantic.

5 and 6.—Give your laying hens from which you wish to get eggs for hatching plenty of exercise, not too much grain, plenty of green food and ground green bones.

7.—Allow six square feet of floor space for each bird and more if you can afford it. (b) Must be on dry soil and should face south. Near the barnyard, so that the hens can get out in winter, would be best. (c) It should be so warm that water will freeze but little in the coldest weather; 40 to 45 degrees is good temperature. (d) Face south and have about one-third of south side windows. (e) The fresh air should be brought in under ground from a short distance. Put tiles down below frost to admit air. Distribute the air at a number of points inside by using say inch pipes leading from tiles to 8 or 10 inches above the floor. The air will be warmed. For outlets put pipes through the roof reaching down to 2 or 3 feet of the floor. (f) Sand on floor or road dust placed in a box where sun shines on it. (g) I use fountains and pans. I prefer fountains. One fountain can be made to do for two pens by placing it in the partition. If possible fowls should be in barnyard every sunny day in winter. If they cannot get in barnyard I never let them out as long as there is snow on the ground.

8.—Clean the house out often. Put coal oil on the perches once a week in summer and twice a week in winter. Keep nests clean. Put cigars or refuse tobacco in nests.

9.—(a) Cut clover hay, all kinds of vegetables, green cut bones, middlings, bran and crushed oats, wheat, buckwheat, barley and oats. Scald the clover hay and mix a little crushed oats or middlings with it. Boil turnips and potatoes and put crushed oats or middlings with it. Feed grain in litter, give all wheat they will eat at night. Let them have plenty green bones. Keep them scratching all day. (b) Middlings and corn meal, cracklings ground and corn at night. (c) About four times, giving soft food in morning, a little grain scattered about say at 11 o'clock and again about 2 or 3 o'clock and a full feed just before dark. (d) Green bones are excellent. Vegetables are most essential. Sunflowers are excellent for aiding through molt and for growing chickens.

10.—A good farm hen should lay from 150 to 200 eggs a year, and by careful breeding and selection they can be made to do that. Broilers should be sold at from 10 to 12 weeks old and weigh from 3 to 4 pounds per pair.

11.—They should not be allowed to run with hens. Turkeys are very quarrelsome. Ducks and geese are too filthy and noisy, and they do not require the same sort of food.

12.—I believe, when handled properly and the proper varieties, that turkeys, ducks and geese can be profitably raised. Turkeys require very little food once they get a good start, so that if you are successful in starting them there is money in raising them. There are two very important things about raising turkeys, viz., see that the hen is perfectly clean and free from lice before the poult hatches out, and keep them dry after they hatch. Ducks should be forced and marketed when 9 to 10 weeks of age, when if you have the right variety they will dress 8 to 10 pounds per pair. There is very considerable profit handling them that way.

Waterloo Co., Ont. J. E. MEYER.

GARDEN AND ORCHARD.

Hints for the Fruit-Growing Farmer.

BY MARTIN BURRELL.

In districts where fruit growing is not a specialty, but a "side issue," it is unreasonable to expect a very keen interest to be shown in horticulture pure and simple. One is struck, however, with the fact that so few of the farmers attempt to grow any fruit besides apples. Where the mercury seldom drops lower than twenty-five degrees below zero—and this should embrace a considerable portion of Ontario—there should be no difficulty in successfully growing berries, cherries, and the hardier varieties of grapes, pears, and plums, and at all events every farmer should grow enough for his own use. The apple orchard, with its civilizing and humanizing effect on the face of the country, is visible everywhere, but this year too many farmers have assumed a tone of pessimism in reference to their old friend the apple. An abnormal crop, inadequate transportation facilities, and careless packing all contributed to create unprofitable prices; but this state of things is not going to continue, and the wise man will be awake to the fact. It is certain that the future will see a big change for the better in the transportation business, and with honestly packed fruit laid down in the British market in good shape we may confidently predict an era of remunerative prices. It will repay farmers to look more carefully into the subject of spraying for insect and fungous pests. The year 1896 saw a big crop of apples and a comparatively small amount of injury from codling moth, apple scab, etc. Naturally, the farmers regarded the spraying question with indifference. This year, however, conditions are more than likely to be reversed. We shall probably have a small crop of apples and a big crop of worms, and those who don't spray will get left. This will be all the more irritating, because in such a case prices for good fruit would undoubtedly rule high. There will be money in spraying this spring. Every man with a good apple orchard should look thoroughly into this subject. In districts where there are no big orchards it would be a good plan for some one to invest in a reliable pump and undertake the spraying of all the orchards in the neighborhood for so much a tree. I am convinced that many farmers would gladly avail themselves of the chance to get the work done in this way, and it would be an excellent object lesson for the whole community. The oyster-shell bark-louse and canker worm have badly affected apple trees in some sections. It cannot be too often pointed out that with all insects and fungi the battle should be commenced early enough. They increase with such rapidity that an immense amount of labor is involved in fighting them when thoroughly established. All old trees should be thoroughly scraped, leaving a smooth, clean trunk. Spray with Paris green for canker worm; the same operation will do for codling moth. If the oyster-shell bark-louse is strongly in evidence, scrape carefully and then spray with kerosene emulsion in June when the young lice hatch out, or apply a strong caustic wash to loosen the scales during the winter. There are still a good many farmers who part with their wood ashes. A good unleached wood ash contains from five per cent. to seven per cent. of potash and about two per cent. of phosphoric acid. A bushel of such ashes is worth about fifteen cents and for this the farmer usually gets a bar of soap worth about three cents! It is a suicidal policy to practice. Ashes are about the best fertilizer for corn, which is a heavy potash feeder; to help a clover crop there is nothing better, for the bacteria that secrete the nitrogen in clover roots cannot work freely unless there is a good supply of potash and lime in the soil, and ashes contain an immense quantity of lime; and, finally, for fruit trees in bearing ashes are simply an ideal fertilizer, containing the very two elements of which fruit is nearly altogether composed. Hang on to your ashes and keep them dry till you want to use them.

In the colder parts of the Province there should be good money in top grafting. Many of the choicer varieties of apples are a little tender as to the tree, but grafted on a hardy, vigorous stock, such as Talman Sweet, good results might be expected. But a man should be as careful in selecting his

scions and his grafter as he is in choosing new varieties of trees. I know of one man who concluded to top graft a young orchard of Talman Sweets. He was not very well posted in varieties, but a professional grafter came along and agreed to undertake the whole thing and supply scions of good varieties. So far so good. The grafted trees thrived mightily, but lo! when they bore the whole orchard was Red Astrachan. There are too many frauds of this kind. The tricks and guiles of tree agents are unspeakable. An acquaintance of mine the other day was barely saved from giving \$2 a dozen for a new kind of strawberry that grew up in bush form, and the same catalogue had an "elegant female" perched on a chair picking raspberries from a phenomenal bush. Nothing is so maddening to a farmer who plants a small orchard than to find after years of patient waiting that half his trees are untrue to name. Many nurserymen put in their agreements what is known as the "substitution" clause. This is all right in some cases, but if a farmer is very anxious to get certain varieties he should not sign an agreement with such a clause in, as the substitution of a "variety equally good" often means a "variety of which I have got a big surplus." There are many good reliable nursery firms. It will pay to deal straight with them. As a rule fight shy of the much-vaunted "new" varieties. Try chiefly what has been tested in your own locality. There is money in good winter apples yet, but we cannot afford to neglect any of the little details that contribute to successful production.

ENTOMOLOGY.

Injurious Insects, III. -- Spraying -- Spring Work.

BY DR. JAS. FLETCHER, DOMINION ENTOMOLOGIST.

The almost phenomenally large crop of all kinds of fruit, and particularly of apples, in every Province of the Dominion during the year 1896 leads us to anticipate that during the coming season the product of our orchards will be considerably smaller, the trees having exhausted themselves to an unusual degree in producing the enormous yield of last year. There will also probably be an exceptional occurrence of some of the orchard pests, for, as a consequence of the large crop, much of the fruit attacked last season, being of imperfect shape and poor appearance, was carelessly left undisturbed in the orchards, and thus became a breeding ground for these enemies.

The diminution in the quantity of the crop need not, however, necessarily reduce to any large extent the returns which will be obtained by the more progressive fruit grower; for, although the yield of his trees will be less, he will by careful spraying secure fruit of the very best quality, free from blemishes of all kinds, while that of his negligent neighbors may be hardly worth picking.

The art of spraying for the prevention of injuries by insects and fungous diseases has during the last decade made great strides and has now passed quite beyond the experimental stage. The sudden leap into popularity of spraying has been from a solid foundation of truth, and is due to the decidedly satisfactory results which have been obtained by following carefully the recommendations of those who have made a special study of the various insect pests and fungous diseases, the cause of so much loss as well to the individual as to the country at large.

It must not be lost sight of that most of the successful experiments in spraying which have been so widely published were carried out by specialists who took every pains to do the work thoroughly and conscientiously, and, moreover, this operation of spraying is one which requires, as a general thing, a little more skill than the ordinary work of the farm. Although the great utility of careful spraying is undoubted, very much poor work has been done, which naturally has failed and has to a certain extent discredited the method among the many fruit growers who have never tried it.

Spraying is, as its name implies, the breaking up of the liquid into the smallest possible particles; that is, into an actual mist or spray. The object of this in the case of applications against injurious insects or fungi is two fold. In the first place, to apply to the plant to be protected only just so much poison as will destroy the enemy, but at the same time will not injure the foliage, but at the same time many of the applications being of a caustic or corrosive nature; and, secondly, to economize as much as possible the material used.

It is the poorest possible economy to try and save a dollar or two by buying a cheap sprayer, for it is not at that end of the operation that the saving is made, but the advantage shows up when a dollar or two more is returned for every barrel of sprayed fruit marketed. After considerable experience I have come to the conclusion that it will repay anyone who has to apply insecticides and fungicides to any crop, even potatoes and other vegetables, to go to the expense of procuring a good sprayer. Such makeshift contrivances as ordinary watering cans, whisks, wisps of hay or bunches of leaves, which are frequently used, actually cost far more in wasted time and materials that would pay for the special instruments, added to which, when the work is done it is neither satisfactory nor effective.

For satisfactory and effective work in spraying

a good force pump and one or more suitable nozzles are indispensable. The pump should be durable, so that there may be no delays from breakages, and powerful but easy to work, so as to transform the liquid into spray and throw it as far as possible with little labor. There should be a large air chamber, so that the spray may be discharged with an even force, and also with a minimum of labor. When in use it is, of course, necessary to see that all joints are well packed and the parts firmly in place, or there will be a waste of material as well as injury to the pump.

Pumps may be divided into three classes, according to the size of the reservoirs to which they are attached. First of all there are the small hand pumps, which can be used in any ordinary pail, costing about \$2 to \$3 each, and are useful for many purposes about the house or buildings, besides their use in the garden. Secondly, the knapsack sprayers, which consist of a metal tank of from four to six gallons' capacity, with a force pump and spraying nozzle attached. These are carried on the back, and are very convenient for low-growing crops, as cabbages, potatoes, small fruits, etc. They cost from \$10 to \$15. Thirdly, barrel or tank sprayers on wheels, which are necessary for field work or larger areas than can be covered by the pumps previously mentioned. There are many kinds of all these pumps, and fruit growers are advised before the spring opens to obtain catalogues from the various makers and select such as they consider will meet their requirements best.

Of equal importance with a good force pump is the spray nozzle, the chief requirements of which are the greatest atomizing power with the least tendency to clog, facility of cleaning out, or a ready separation of its component parts for that purpose. There are several spraying nozzles on the market, some good, a great many decidedly otherwise. Those which have given the greatest satisfaction are the Vermorel, which is a modification of the Riley-Cyclone nozzle; the MacGowan and the Nixon, all of which do excellent work, and can be easily obtained from most of the leading Canadian seedsmen and implement sellers, or will be found advertised in the agricultural journals of the country. It may be well here to treat briefly the four subjects—Why, What, When, and How to Spray.

Why to Spray.—In reply to the question, Why should fruit growers spray their trees? It is merely necessary to draw attention, on the one hand, to the frequent and extensive losses due to insect enemies and parasitic fungi, and, on the other hand, to the large percentage of increased and improved crop which has been secured wherever spraying has been adopted as a general practice.

What to Spray.—Insects may be divided into two classes: *Biting insects*, furnished with jaws, which consume the substance of their food, as caterpillars, potato beetles, and grasshoppers; and *sucking insects*, which have instead of jaws a hollow tube, by means of which they suck up their food in a liquid form, as the true bugs, plant lice, bark lice, and flies.

As a remedy for biting insects, all that is necessary is to place some poison on their food plant. With sucking insects this would be useless, as they would push their beaks through the poisonous material and suck out the juice from beneath the surface. For these some substance must be used which will kill by mere contact with their bodies. Cheap and available remedies have been found which will control both of these classes of insects. Against biting insects Paris green is a sure remedy, and, on the whole, has been superior to any of the other materials which are sometimes recommended. It is, of course, very poisonous to man as well as to all other animals, and care must therefore be taken to keep it out of the reach of children and farm stock, but its characteristic green color advertises its poisonous nature and prevents many accidents that might arise from carelessness. The standard spraying mixture of Paris green which may be applied to all fruit trees is:

1 pound of Paris green,
1 pound of quicklime,
and 200 gallons of water.

On peaches it might perhaps be well to increase the quantity of water to 250 gallons.

For sucking insects the standard remedy is known as kerosene emulsion, and is an emulsion made by churning together for five minutes, by means of a syringe or force pump, 2 gallons of kerosene (coal oil) and 1 gallon of hot soap suds containing 1/2 pound of soap.

This gives the stock emulsion, which must be diluted with nine times its volume of water before used on foliage. This is a most fatal destroyer of all insects upon which it may be sprayed. It is particularly effective against bark-lice or scale insects, which are very difficult to treat.

Fungous diseases, like injurious insects, may be divided into two classes: those which attack the plant internally and those of which the spores or reproductive organs falling on the surface germinate there and feed as parasites on the tissues of their hosts. Familiar instances of these are the black spot of the apple, the mildew of the grape, and the potato rot. It has been found that this latter class of fungi can be very successfully treated by spraying with the mixture of copper sulphate, lime and water now known as the Bordeaux mixture. The original formula for this mixture, and the one which gives the best results in preventing the potato rot, is composed of:

6 pounds of copper sulphate,
4 pounds of fresh lime,
and 22 gallons of water.

This, however, is expensive and rather difficult to spray. By doubling the quantity of water, we have a mixture which is very nearly as effective in preventing disease, much easier made as well as to spray, and which only costs half the price. This latter modified formula is the one now recommended for treating potato rot.

The copper sulphate is first diluted in one vessel, which should be of wood or earthenware, and the lime is slaked in another with sufficient water to make a milk of lime which can be strained through a fine sieve or coarse sacking so as to remove all lumps which might stop up the nozzle. A further modified form of the Bordeaux mixture is recommended for use on fruit trees and consists of:

4 pounds of copper sulphate,
4 pounds of lime,
and 50 gallons of water.

In the Bordeaux mixture the active agent is the copper sulphate, which is very deadly to all fungi. The lime in the mixture neutralizes the corrosive effect of this salt upon foliage.

As several of the fungi which cause diseases of fruits pass the winter as spores resting on the bark, many of these latter may be destroyed by spraying over the trees in early spring a simple mixture of:

1 pound of copper sulphate
in 25 gallons of water.

This solution cannot be sprayed onto the foliage without injury, so must only be applied before the buds burst. The pump used for mixtures containing sulphate of copper should be brass, or, at any rate, have all the exposed parts lined with brass, as copper sulphate destroys iron.

How to Spray.—To get the best results from spraying it need hardly be pointed out that the work must be thoroughly done. The object aimed at is to cover the whole surface with a light film of the material used. For this purpose it is necessary that the liquid be distributed over the trees in the finest possible spray and only sufficient of the mixture applied to dampen the whole surface. To secure this, two or more nozzles combined and discharging at different angles may be necessary, or, at any rate, will much facilitate the work. As soon as the liquid begins to drop from the tips of the leaves the nozzle should at once be directed to another part of the tree. If the foliage is drenched it will be found that much of the poison is washed off the foliage altogether or runs down and accumulates at the tips and edges of the leaves.

The question of elevating the spray so as to reach the top of trees is merely one of attaching the discharge pipe of the pump to one end of a small brass or rubber tube bearing the nozzle at the other end and running through (or lashed to the side of) a bamboo or other light pole of the required length. A wedged-shaped washer, cut out of thick sole leather, placed just below the nozzle will lead off the drip and prevent it from trickling down the pole upon the operator.

When to Spray.—The best time to spray must be decided by the habits of the pests to be controlled. For all fungous diseases and insects that pass the winter on the bark of trees, strong winter washes, which would injure the foliage but do not affect the bark, can be applied to advantage at any time before the buds burst. Of these mention may again be made of the simple copper sulphate solution, 1 pound in 25 gallons of water, for all fungi; and of kerosene emulsion for bark-lice on the plum and apple. For the cigar case-bearer and bud moth the emulsion should be used immediately before the buds burst, to be followed after a few days, before the blossoms open, with the Bordeaux mixture containing Paris green. One great advantage of the Bordeaux mixture is that Paris green may be applied at the same time in combination with it, being mixed in exactly the same proportions as it is when applied in plain water; that is, one-quarter of a pound of Paris green in 50 gallons.

Among orchard pests, the three worst, viz., the codling moth, the black spot of the apple, and the plum curculio have been most successfully treated by spraying, and at the same time many other enemies have been destroyed.

The treatment of these should form an important part of the spring work of every fruit grower during April. The work is simple, inexpensive, and most effective. If the following instructions are carried out, results will certainly be secured which will much more than repay all expenditure for time, labor, and material:

INSTRUCTIONS.

ON APPLE.

1st Application.—Just before buds open, spray with copper sulphate solution (1 lb. to 25 gallons) against black spot.

When the trees are infested with black-lice, cigar case-bearer, bud moth or apple aphid, spray with kerosene emulsion.

2nd Application.—Just before blossoms open, Bordeaux mixture with 4 oz. of Paris green against black spot, cigar case-bearer, bud moth and canker worm.

3rd Application.—One week after blossoms fall, Bordeaux mixture with Paris green as before, against black spot, codling moth, canker worm and leaf rollers.

4th Application.—Ten to fifteen days later, as before. West of Toronto, spraying with Paris green must be continued longer for the second brood of the codling moth.

ON PLUM AND CHERRY.

1st Application.—Before buds open, copper sulphate solution.

2nd Application.—When fruit has set, Bordeaux mixture with Paris green.

3rd Application.—Ten to fifteen days later, as before.

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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. Enquirers must in all cases attach their name and address in full, though not necessarily for publication.]

Veterinary.

HEAVES OR BROKEN WIND.

J. R. HERDMAN, Hastings Co., Ont.:—"Would you kindly give, in your next issue, a cure for heaves or asthma in a horse?"

[We would gladly, if it were possible. When the disease is firmly established there is no cure for it. The peculiar movement of the flanks and abdomen are characteristic of the disease, but in recent cases it is not so marked. It is not a fatal disease but occasions great inconvenience. The animal always suffers from indigestion, which causes him to frequently pass a quantity of wind which is of a very offensive odor. Much confusion exists with regard to the nature of this complaint, but amongst veterinary surgeons it is pretty generally thought to be due to spasm of the bronchial tubes and termed asthma. The lungs becoming involved giving rise to what is known as vesicular emphysema. The only method that will relieve the distressing symptom is careful attention to feeding. Give small quantities at frequent intervals, and be careful to prevent the stomach from being overloaded. Clean oats, a very small quantity of hay, and that only once a day, is sufficient. Carrots, chopped turnips, and vegetable food is a good diet. Give the animal water before feeding, and dampen the food; never work the horse immediately after a meal. Many medicines have been tried without success. The only one that affords the slightest benefit is Liquor Arsenicali standard. Each ounce contains about $\frac{1}{4}$ grains of arsenic. A tablespoonful once a day in twice the quantity of water for several weeks will be found a good method of giving this remedy.]

WM. MOLE, M. R. C. V. S., Toronto, Ont.]

CURB—SCRATCHES.

GEO. LEAK, Essex Co., Ont.:—"I have a young mare which has lumps on the back of the hock; the swelling is quite solid, as though formed of muscle. Kindly give treatment? 2. I have a three-year-old mare which was very much out of condition about a year ago. Last fall she broke out with a dry scab around fetlock, causing the legs to swell. What is the cause of the trouble, and what can I do to cure her?"

[1. The cause of the swelling is due to a sprain of the calcaneo cuboid ligament known as curb. There is only one method that is always successful, that is firing and blistering; get a qualified veterinary to run the firing iron down the swelling and afterwards apply a moderately strong blister of: cantharides, powdered, 1 ounce; lard, 4 ounces; resin, 1 ounce; to be melted over a slow fire and applied with a good amount of friction to the parts.]

2. You have a condition known as cracked heels or scratches. Your treatment seems to be on the right lines, but do not wash the animal's leg or apply water in any form when wet from mud. Brush off mud and apply dry bandages, then apply the carbolic ointment again. Feed an occasional mash of boiled flax seed, and do not use cornstalk ensilage, but carrots and oats liberally every day.]

DR. WM. MOLE, M. R. C. V. S.]

PERIODIC OPHTHALMIA.

DAVID MILLS, Grey Co., Ont.:—"I have a valuable horse, coming six years old, troubled with some disease of the eyes. About a month ago I noticed a little water running from his right eye, which was partly closed, and a whitish skin formed over the orb. A week or so later it went from his right eye to his left, and now it is in his right again. I put eyewater in, but it did not seem to do any good. He appears to be partially blind. His feed consists of oat and wheat straw cut and mixed with oats three times a day, hay twice a day. He is in good condition and is kept in a well-lighted stable. Would you please tell me the cause, and what treatment would you advise?"

[You describe a case of periodic ophthalmia, or a constitutional affection showing itself in the eyes. You mention the fact that your stable is well lighted; is it equally well ventilated and drained? Give your horse a good dose of physic on an empty stomach: Aloes, 1 ounce; calomel, 1 dram; ginger, 3 drams; dissolved in a pint of cold water. Restrict the diet to bran mashes the day before and following the purge; and if it does not operate in 24 hours, give exercise. Following the purge give the following powders in feed: Nitrate of potash and soda bicarb., of each 2 ounces; powdered colchicum and powdered nux vomica, of each $\frac{1}{2}$ an ounce; arsenic, 36 grains; divide into 12 powders and give one night and morning. For the eyes apply the following lotion: Sulphate of zinc, 16 grains; fl. ex. belladonna, 2 drams; carbolic acid, 10 drops; water, add to 8 ounces. Mix and bathe the eyes twice a day, allowing some to get into them; also bathing well with warm water will do good. He will become blind as soon as cataracts form. Report in two weeks.]

DIARRHOEA IN CALVES.

J. P. HART, Oxford Co., Ont.:—"A bad case of diarrhoea or scours in calves claimed my attention recently, and a remedy was tried which was recommended at the Dairyman's Convention two years

ago, viz., a teaspoonful of rennet extract in their milk at each meal. The two calves in question had been fed twice a day new milk, and had got so bad that they were hardly able to stand and were not expected to live when the remedy was tried. A few doses cured them, and an occasional dose since has kept them in good health and doing well. The extract was procured from the maker at a neighboring cheese factory."

INVERSION OF THE UTERUS.

SUBSCRIBER, Peel Co., Ont.:—"I had a valuable ewe which gave birth to a very large and strong lamb in the night and was found in the morning with her lamb-bed out the whole size of it, much swollen and very cold. I tried to return it, but failed on account of its swollen condition, and had to kill the ewe to put her out of misery. How could this have been avoided?"

[We have known many similar cases successfully treated, even after many hours' exposure and much swelling and inflammation. Patience is needed. Bathe for half an hour with warm water to reduce the swelling of the organ before attempting to replace it, the last bathing to be with a weak solution of carbolic acid, say one part of acid to twenty of water. Place the ewe upon her side and let an assistant hold her hind parts high above her head; commence to work the uterus in at the sides of the vulva first, keeping it firmly pressed in till the whole organ has been replaced; shake the body vigorously to facilitate the return of the womb to its normal position, pour in a quantity of the diluted carbolic acid, tie several locks of wool tightly across the opening of the vagina, place a sack of hay or straw under the hind part of the patient to keep it elevated above the level of her head, and leave her in quietness for a few hours. Then give a dose of 4 ozs. salts and a dessert-spoonful of laudanum. Keep her quiet and the probability is that there will be no further trouble; but if signs of pain and forcing are observed we would inject the carbolic solution and repeat the dose of laudanum.]

Miscellaneous.

PRUNING GRAPEVINES.

FRUIT GROWER, Middlesex Co., writes:—"I read a few months ago an article in the ADVOCATE describing how to prune grapevines, by M. Burrell, which I thought excellent, but he omitted one very important point, and that was with regard to the time of pruning. I have a Concord grapevine nine or ten years old, which bore heavily last year, but the fruit was not as large or fine as it should have been. I neglected attending to this matter through the winter, and am told if I prune grapes now they will bleed to death. Is this the case, and if so, when can I prune them before the coming fruit season? There seems to be a good deal of small wood about the vines. Please let me know how and when to deal with them?"

[The reason that the fruit on your Concord vine was not large or fine was, no doubt, because it bore too heavy a crop, and you probably did not prune close enough last year. Do not be afraid of your vine bleeding to death. It is better to prune before the sap starts, but while it may weaken the vine to a certain extent, "bleeding" is not so injurious as some people imagine. I have had very good yields from vines pruned when the buds were almost ready to burst. Far better to prune late than not to prune at all. Cut out that small, ill-ripened wood freely, leaving four to six good strong canes of last year's growth, cutting them back to about ten or twelve buds each.]

M. B.]

TO PREVENT SMUT IN OATS.

W. B. J., Elkhorn, Man.:—"Will you be kind enough to give me the best plan to prevent smut in oats, as I was not successful in treating my seed oats last year?"

[We have not found very satisfactory results from sprinkling coarse grain with bluestone liquid, as recommended for the treatment of wheat. The following is, we consider, a much better plan: Prepare the liquid by dissolving one pound of bluestone in three pails of water. Coarse grain—viz., oats or barley—is immersed in this liquid for five minutes. The grain is then spread out for a short time to dry, and in a few hours is fit to be sown. For small quantities of grain we use a coarse bran or rice bag, and dip the grain in the liquid, but for large quantities we use two coal-oil barrels with a three-quarter inch hole bored to run the liquid off as soon as the grain has been treated. By this plan a large number of bushels can be treated in a short time, and the same liquid used repeatedly.]

Manitoba Exp. Farm.

S. A. BEDFORD.]

CEMENT CONCRETE FOR GRANARY.

S. K., York Co., Ont.:—"1. Would cement concrete do for a granary floor and walls, or would it be too damp for holding grain or meal? 2. If not too damp, would it do built on the surface of the ground raised high enough to keep out the surface water? 3. Would gravel that washes up in small banks in the rivers do for mixing the cement with? 4. (a) How thick would the floor and walls need to be? (b) Would the floor do made the full size and then commence the walls right on the floor? 5. How much cement would it take to the rod if the wall was twelve inches wide, and one put all the small stones in they could, as small stones and river gravel are plentiful with me; can get the gravel not much coarser than sand, also coarse as hens' eggs? It would need to be strong enough to

carry joists and a mow of grain on the top of granary."

[1 and 2. The only case of the kind of which we have personal knowledge was a driving barn with cement concrete floor and walls, one corner of which was used as a large oat bin. The first season a couple of inches spoiled on the bottom owing to moisture from green floor, but last year they kept perfectly, except at one corner where surface water ran in through a door. The ground should be free from moisture, raised about a foot above the level, and floor and walls should be constructed about six months before being used, so as to have "set" thoroughly.]

3. Fine sand or gravel is objectionable. It should be coarse, "sharp" and perfectly free from soil of any kind. Large quantities of stones can be bedded in the walls with advantage, making the wall stronger and reducing the cost by lessening the quantity of cement used.]

4. (a) About six and twelve inches respectively.

(b) Yes.

5. About one barrel cement for thirty-five feet of wall one foot high and one foot thick, if plenty of stones are used.]

If any of our readers have had experience with cement granaries we would like to hear the result for the benefit of others.]

SEEDING FOR PERMANENT PASTURE.

SUBSCRIBER, Quebec:—"Is it not better in laying land to permanent pasture to sow grass seed mixture by itself without sowing grain?"

[The probability is that by the plan suggested a more certain catch of seeds would be obtained; the only danger would be that weeds would grow up and choke the young clover and grass and rob the soil of moisture. This could be obviated to some extent by running the mower over the ground occasionally to keep the weeds down. We would, however, rather advise sowing thinly some kind of grain and cutting it with the mower when it was about six or eight inches high and allowing it to remain on the ground as a mulch to conserve moisture. The mowing should be repeated as often as necessary and the crop each time left as a mulch.]

RAISING CALVES WITHOUT MILK.

ALLAN P. POPE, M. D., California, U. S. A.:—"I am in the milk-selling business and would like to learn whether or not calves can be advantageously raised without milk."

[While it is much easier to raise calves with milk than without it, they can be raised successfully and economically on other foods after they are four or five weeks old. We speak from experience when we say this, because we have frequently done so. Of course we always gave them all the milk we could get, but that very often was not more than "a drop in the bucket." When one can get sweet whey it can be worked in to good advantage. We assume, however, that Mr. Pope has neither milk nor whey to feed. We would not think it wise to feed any substitute for new milk until the calf is three weeks old. It could then be commenced on an adulterated and mixed diet made from preparations from flax seed. Most of the larger feed and seed stores sell what are termed calf-meals made mostly from oil meal. These we have found very satisfactory fed as gruel or porridge. It is necessary to have it thoroughly boiled and fed as a drink. It should be commenced when the calf is three weeks old, to be fed along with the milk in small quantities at first and increased in proportion until the calf is five or six weeks old, when the milk may be displaced entirely by it. If prepared calf-meal cannot be obtained, the following will be found a good substitute: Boil thoroughly a pint of flax seed and a pint of oil meal in ten or twelve quarts of water. This should be fed mixed in warm water and thinned to the consistency of a drink. When the calf has become accustomed to it, allow it a good half-pail or more twice a day until six months old. During this time such other foods as would be given along with the milk should be supplied. In case of a tendency to scour give for a meal or two in the gruel a few handfuls of scorched flour.]

The following has been recommended and should answer well: Take good, early cut hay, run it through a feed cutter, three pounds to each calf for a day's feed. Boil it for half an hour, then strain out the tea through a sieve. Add to it $\frac{1}{2}$ pound of flax seed and $\frac{1}{2}$ pound wheat middlings which have been boiled to a jelly for each day's feed. There should be water enough used so that a calf would have about two gallons of the tea a day.]

CORN GROWING, BLACK KNOT, ETC.

F. W. C., Middlesex Co., Ont.:—"1. How far apart should Leaming corn be planted for the silo? Last year rows were 4 feet and 3 feet apart, cultivated both ways. The corn was fairly tall, but there was not more than 15 tons per acre. Would it be better to plant 3 feet each way, and why? 2. How many stalks in the hill would give best results as regards quality and quantity? Stalks were large last year, but cows ate them readily. 3. Is there a better variety of corn for silo than the Leaming for this county? 4. Can black knot be prevented in cherry trees? 5. Is there any crop or a mixture better than peas to precede a wheat crop?"

[1. The distance apart at which corn should be planted varies with circumstances, such as the condition of the land as to fertility and moisture. In very rich, moist soil no doubt thin planting (4 feet apart each way and 4 stalks to the hill) would give

the best quality and quantity of crop, but on lightish soil, not overly fertile, and especially if the season be dry, 3 feet apart each way should, if well cultivated, produce a maximum crop of well-cared corn. 2. Four. 3. Owing to the fact that seasons differ very widely, it is well to grow two or three sorts. In an average season perhaps Learning can hardly be surpassed for Middlesex. Cloud's Early Yellow and Mammoth Cuban are also very satisfactory varieties for the south-western portion of Ontario Province. A safe rule is to grow two sorts that have given the best satisfaction in the past in your neighborhood. In a very dry season the large Southern Sweet corn is very sure and should mature fairly well in this locality. In a very wet season Butler County Dent should prove satisfactory. Many silo owners who go in strongly for rich ensilage grow some good flint corn for that purpose. 4. See FARMER'S ADVOCATE, March 1st issue, page 109, and April 1st issue, page 154. 5. Provided the peas are grown on clean, inverted sod, there is no better spring crop to our knowledge to precede fall wheat, as it answers well to rot the sod and adds a little nitrogen from the air. Where alsike clover does well as a seed crop no crop can surpass it to precede fall wheat.]

A CHEAP TWENTY-FIVE TON SILO.

PETER McLEAN, King's Co., N. S.:—"Please give through the columns of your paper full instructions for making an inexpensive silo that will hold about 25 tons of ensilage."

[A 25-ton silo seems like a small affair, but no doubt there are many keepers of few cows who consider they have no need for a larger silo. In this case we would recommend the round stave silo, 10 feet in diameter by 20 feet high, which will hold about 30 tons if about full when settled. Its cost should not exceed \$40 and may be built for less, depending upon the price of lumber. If 20-foot two-inch planks can be got they should be used; if not, a mechanic can splice shorter ones. They should be six or eight inches wide, jointed and not beveled at the edges. The staves should be held in position by half-inch round iron bands reaching either half or all of the circumference of the silo. These should have long threads on the ends, which are run through holes bored in upright hardwood 4 x 4-inch scantling, extending the entire height of the silo, standing in even with inside of stave (some put them outside entirely), leaving outside of stave two inches or more, according to size of scantling. These bands can be tightened or slackened with nuts as required.

In building, a perfect circle should be struck, using a stake and string. The ground should be spaded out a few inches deep so that the bottom of planks will rest against the outer edge of the trench. The two hardwood scantlings should be permanently set up on opposite sides and two other scantlings set up temporarily on the other opposite sides. Notches should be cut into the temporary scantlings and the ends of the bands should pass through the permanent scantlings. Now set up a plank, beside or in front of scantling, as the case may be, plumb and nail it to a scantling and brace it from the ground inside. Each plank as set up is toe-nailed to the one beside it and braced. The brace may consist of a twelve or sixteen foot board set against a stake in the center. The planks should also be braced from the outside. Another way to hold the planks in position when set up is to drive a wire nail just above the band and bend it down. The planks should be painted on the outside and edges before being set up.]

MARKETS.

Toronto Markets.

The Buffalo trade was rather quiet owing to trouble about testing some cattle for tuberculosis.

The total value of the live stock exported from Toronto during March was \$110,643.

Mr. A. Thompson has returned from his trip down south in Texas and reports a shortage of range cattle.

Preparations are being made for the opening of the cattle export season, and with the demand for export to the United States as well as to the British markets through the St. Lawrence route, will make prospects brighter than for many seasons.

Export Cattle.—Only a slight demand; offerings poor quality. Prices ruled from 3½c. to 4½c. per lb., with 4½c. paid occasionally.

Butchers' Cattle.—Offerings heavy and buyers not keen. Prices fell off from \$2 to \$3 per head. Some Eastern cattle sold around 4½c., but the supply was limited of this best quality.

Bulls.—Export bulls sell at from 3c. to 3½c. per lb.; 3½c. was paid for a choice three-year-old. Stock bulls are weaker, prices going down to 2½c. per lb. A few really choice bulls will sell at 3c. to 3½c. per lb.

Stockers.—Quiet; the only buyer was Mr. Kie, Chicago, who took ten carloads, some going to Iowa City. Prices 2c. to 3c. per lb. A few stockers were bought for Buffalo, at from 3c. to 3½c. per lb.

Feeders.—A few head moving, at 3c. to 3½c. per lb. Quite a number of farmers were on hand for choice feeders.

Sheep.—Good ones wanted; all on offer sold early; 3½c. to 3¾c. per lb. for wethers, 2½c. to 3c. per lb. for bucks.

Lambs.—Steady, at 4½c. to 5½c. per lb. for good grain-fed yearlings not weighing more than 110 lbs. Spring lambs made their first appearance to-day and are quoted at about \$3 to \$3.50 per head.

Calves.—Offerings sufficient for demand. Prices ruled from \$4 to \$6 per head; a few taken for Buffalo.

Milk Cows and Springers.—Not many on offer; the market quiet; prices ruled \$15 to \$30, one went for \$35; a better enquiry.

Hogs.—Big run caused prices to sag; best prices to-day for finest selections of bacon hogs were from 5c. to 5½c. per lb., weighed off cars; thick fat sell at 4½c. per lb., light hogs at 4½c. per lb.

Dressed Hogs.—Receipts of dressed hogs are light and demand lessened, owing to some of the packers shutting down for the season. Light lean bring \$6.25 to \$6.60. The provision market is active and prices have a strong tone; prospect improving.

Wheat.—Easy, 600 bushels selling at 73c. for red and 63c. for goose; white quoted at 72c.

Oats.—Deliveries light and values keep firm; white oats are quoted at 19c. to 19½c. per bushel; supplies in the market are light; demand good.

Barley.—Quiet; No. 2 quoted at 28c., No. 1 at 31c., and fancy at 34c. to 35c. Feed barley is quoted at 22c. to 23c.

Butter.—Dairy butter in good demand; best selection for table use, 17c. to 20c.; prices firm, at from 14c. to 15c. for large rolls; creamery rolls, 19c. to 20c.; tubs, 18c. to 19c.

Eggs.—Market weaker for new laid, 9c. to 10c. for strictly fresh laid; supplies are large, but demand unusually heavy; prices are well sustained at 9c. per dozen.

Poultry scarce; in good demand; 60c. to 70c. per pair; chickens, 40c. to 60c.; ducks, 60c. to 80c. per pair.

Hides and Skins.—Hides are firm and in good demand. Dealers are paying 7½c. for No. 1 green, being an advance of one cent since last quotation; steer hides, 7½c. per lb.; No. 2, 6c.; No. 3, 5c.; No. 1 cured, 8c.

Skins.—Calfskins, No. 1 green, 7c.; No. 2, 5c.; No. 1 cured, each 70c. to 85c. Sheepskins, \$1 to \$1.25.

Wool.—Fleece combings, 21c. to 22c. per lb.

Montreal Markets.

The principal feature has been the steady improvement in the live stock markets, good cattle and good sheep and lambs meeting with an active demand at prices which must surely make the raiser some money.

Cattle.—The supply of cattle offered was on the heavy side, but drovers held fast to their set prices owing to the tightness of late in the Toronto market, and in most cases got what they asked. Some good cattle were offered; in fact, the best seen here for many a day, one drover having three head which were practically record breakers. Two of these weighed 4,500 lbs., and the other, a two-year-old steer, 1,800 lbs. They were turned over twice in a short time; finally went into a shipper's hand, who, it was reported, gave six cents per lb. for them. Nevertheless, there were others which did make 5½c., and for one or two exceptionally fine ones 5½c. per lb. was paid. These, of course, were exceptionally fancy stock, but 5c. and 5½c. per lb. was quite frequently obtained for real good beasts. Most of the stock in was of a very fair average, very little of it going below 3c. per lb.; fairish beasts making from 3½c. to 4c. per lb.; good heaves, 4½c. to 4¾c.; extra to prime fancy, 5c. to 5½c. and 5½c. per lb.

Sheep and Lambs.—Any one with good sheep or lambs on hand has got good property, judging from the prices that have been paid on this market for some time back, and when lambs two weeks back struck 5½c. it was thought that they had pretty nearly reached their high-water mark, but sales which took place Friday of choice grain-fed yearling lambs showed conclusively that such was not the case; six cents per lb. live weight was paid for a number of fancy lambs; sheep, 4½c. to 5c. per lb. The offerings of this stock have been very light.

Calves.—Heretofore the offerings of calves have been fairly within the range of requirements and on the whole of a fairly good class, but on Friday offerings were very heavy and very few of suitable quality. Though in an odd case \$8 and \$9 each was paid, the range was more between \$2 and \$6 each.

Live Hogs.—Offerings continue light and shippers are getting very fair prices for the stock they are bringing in; 300 in on Monday ranged in price from \$5.25 to \$5.40 per cwt.

Hides and Skins.—Market rather unsettled, due to keen competition among dealers and tanners; but it has not been without its use, as butchers have got a big price for their green beef hides and have also beaten the hide dealers in the matter of where the hides are to be inspected, in future the hides having to be inspected at the abattoirs instead of, as heretofore, in the city. Calfskins are a strong feature of the market and have advanced rapidly from 7c. per lb. for No. 1 to where they now are, 10c. for No. 1 and 8c. for No. 2; green salted beef hides, heavy and light, No. 1, 2, and 3, 9c., 8c., and 7c. per lb.

The British Markets.

Cables are very satisfactory to shippers this week. Short supplies in the home market, helped by an active demand, advanced prices a further half cent per lb., best Canadian steers making 11½c. per lb.; best States, 12½c. (All quotations are for dressed beef.)

Removing Boulders.

J. H. McClure writes: "Perhaps some of the readers of the ADVOCATE may have some large boulders in their fields which they would like to remove, but do not care to meddle with powder or dynamite. I will describe a plan that I never saw fail: Clean the earth away from the stone, make a small fire of chips on top of stone in the center, not to cover more space than 16 inches, keep the fire burning, and keep the outside of the stone cool, if the day is warm, by pouring water around the edge. On the principle of heat expanding and cold contracting, the stone will split to the center in two or four or more pieces, so that it can be easily removed, while not injuring it for building purposes."

Chatty Stock Letter from Chicago.

(BY OUR SPECIAL CORRESPONDENT.)

Following are the current and comparative prices for the various grades of live stock:—

CATTLE.	Present Range of Prices.	Top prices		
		ago.	1896.	1895.
1500 lbs. up.....	\$ 30 to 5 30	\$ 5 05	\$ 4 50	\$ 6 40
1350 @ 1500.....	3 35 to 5 40	5 30	4 75	6 30
1200 @ 1350.....	3 75 to 5 20	5 15	4 50	6 25
1050 @ 1200.....	3 70 to 4 85	4 80	4 40	6 20
900 @ 1050.....	3 65 to 4 75	4 60	4 00	6 10
Stillers.....	4 40 to 4 45	4 80	.....	.....
Stks. and F.....	3 25 to 4 50	4 30	3 85	4 60
Fat cows and heifers.....	3 25 to 4 40	4 75	4 15	5 50
Canning cows.....	1 50 to 2 50	2 50	2 30	2 50
Bulls.....	2 25 to 4 00	4 00	3 50	5 50
Calves.....	2 75 to 5 70	6 10	5 25	5 25
Texas steers.....	3 00 to 4 80	4 30	4 15	5 40
Texas C. & H.....	3 00 to 3 25	3 95	3 00	4 85

The quality of the cattle coming is very poor. Choicest cattle would sell at \$5.60 instead of \$5.30, the present top.

Last April Chicago received 187,635 cattle, 608,674 hogs, and 298,235 sheep. Largest receipts during the month: 20,831 cattle, 42,685 hogs, and 22,553 sheep.

All kinds of live stock continue to sell at prices very profitable to producers and those who sold their stock thin on the theory that a bumper corn crop would make feeding unprofitable would like to be introduced to a kicking machine.

It is thought the high prices being paid for fat cows, heifers, and yearlings, and the abundance of cheap corn, will result in a great shortage in cattle for next year. Breeders are on the move, but it takes time to get a stock of cattle replenished when it is low and there is a growing demand to supply all the time.

Ranchmen are doing more feeding than they used to do, and when they can not get feed at home they are shipping the cattle to where feed is plentiful and cheap. A. J. Meeks & Son, of Sundance, Wyo., had in from Schuyler, Neb., a car of 1,558 lb. fed rangers which sold at \$4.85, and four cars 1,308 lbs. at \$4.55.

It will take some years for Texas cattle raisers to get back to their normal supply, but they are very active in both breeding and feeding operations at present.

John Clay, Jr., who has just returned from Scotland, says: "Supplies of pure-bred stock in England and Scotland are not large and the demand from South American countries is very great at strong prices. Should Americans go to buying fine stock over there it would not take long to create a boom in prices."

Some Texas cattle-men recently bought 87 head of pure-bred Hereford bulls in Illinois, Indiana, Iowa, and Missouri, including the World's Fair champion, Ancient Briton, at a reported cost of \$1,500 for the latter. The young bulls cost from \$100 to \$350 each.

Harry E. Yeomans, of Chicago, is in Ontario buying 750 Shorthorn bul's, mostly 20 to 30 months old, for Pierre Wibaux and other Montana ranchmen.

Jos. Gould bought another lot of prime Texas cattle at Alvarado, Texas, at \$4.00, without shrink. They were for exportation by way of Galveston.

Mexican cattle have lately been rushed forward in large numbers to escape the new tariff.

Northwestern (Rapid City, S. D.) Stockman: "Texas cattle, fed in Texas, \$4.60," remarks the Chicago *Drovers' Journal*. That's the story that cottonseed meal tells. No wonder our Texas brethren don't care to sell their cattle as stockers for the northern range.

At Omaha big, heavy hogs are getting scarcer every day. The average weight at that market last month, however, was around 260 lbs., against 269 lbs. in February, 275 in January, 291 lbs. last December, and 261 lbs. in March, 1896.

The hog supply seems to be short. Of course, receipts are larger than last year, but then they were extremely small and are now far below the average. Hog raisers feel very hopeful.

An Indiana man, Chas. Rountree, lately marketed some cross-bred Tunis lambs which attracted considerable attention. There were 34 head of them, averaging a fraction less than 85 lbs., which sold at \$5 25—dressed 55½ lbs. to the 100 lbs. Had they been sold with wool on the owner thought they would have realized \$6.00 per 100 lbs. Their fat tails were objected to by some of the buyers, but it is claimed that they can be cut and bred off. This lot was crossed with Merinos, and the result seems to make a very fine mutton and wool animal. This little lot of sheep is a remnant of an importation by the Government in 1779, and nothing much was heard of them in late years until some sheep from Algiers at the Columbian Exposition attracted attention to the breed.

Sheep buyers are racing all over the Western country to get sheep and lambs, and they are paying what would have seemed extravagant prices a few months ago. Exporters are paying as high as \$5.00 for Western sheep here and up to \$6.00 for New Mexican lambs fed in Colorado.

Montreal Horse Market.

The shipments going forward are still heavy, but, notwithstanding, horses that are landed in good condition make fair prices, one team of extra choice drafts which were sold in London on Tuesday bringing \$500 for the pair. Locally the demand is good for good horses and good prices are being obtained, both under the hammer and at private sale. Prices range from \$75 to \$85 for small blocks and good trammers to \$90 to \$125 for good to choice drafts, and all the way from \$75 to \$150 and over for carriage horses.



THE HOUSE ON THE MARSH.

A Romance.

BY FLORENCE WARDEN.

(Continued from page 160.)

"You shall see her," said Mr. Rayner, gravely, "and then judge for yourself whether she is in a state to answer questions. I will ask the nurse if you can see her now."

We went up together, scarcely speaking a word; and I sent out the nurse to speak to him and stood watching in her place. Sarah was turning her head from side to side, and moaning and muttering feebly. The only words one could catch seemed to refer to the pain she was in.

Then the door opened, the nurse re-entered, and the detective, with Mr. Rayner behind him, peeped in. A glance at the hollow face and dry lips of the sick woman might have satisfied him that her illness was no sham; but he watched her and listened to her mutterings for some minutes before he retired. I left the room as quickly as I could—the sight of the ghastly figure of the guilty woman sickened me.

"You see," Mr. Rayner was saying as I got outside, "she is quite unable at present to speak for herself. The doctor will be here in the morning and he will tell you when she is likely to be able to give an account of herself. In the meantime you shall spend the night here."

When tea-time came, Mr. Rayner entered with the detective, whom he now addressed as "Mr. Maynard," and treated as a distinguished guest. He went to his room early, and when Mrs. Rayner had gone to hers, I remained in the drawing-room putting the music in order, as Mr. Rayner had told me to do.

"This day's events have upset me more than you can imagine, child," said he, passing his hand through his hair wearily. "That wretched Sarah has always seemed honest—and yet I don't know what to believe."

"And, you know, the portmanteau I found in the cellar," I whispered timidly.

Mr. Rayner started. "Good Heaven, I had forgotten that! We must go at once to the cellar, and—Heaven help us if what I took for your fancy should prove to be the truth!"

I tremulously produced the keys, which I carried about with me; and, much against my will, I accompanied Mr. Rayner into the left wing. We crossed the store-room. There lay the black bag on one side of the trap-door, where I had put it down on catching sight of the little ring in the floor. I put my finger through this and raised it again, and Mr. Rayner went down hastily, while I held the candle for him to see by.

"No, my child, I see nothing," said he, as he peered about. "Perhaps the water has risen higher and covered it!"

"Come down yourself and see."

He came up and took the candle from me, while I descended. The water, I knew by the number of steps which were dry above it, was at the same level as before. I looked through the ladder and round it. Table and portmanteau had utterly disappeared.

"But indeed I did see the portmanteau the first time!" said I pitifully.

"Yes, dear child, I know," said Mr. Rayner. "But I saw he did not believe me; so I forced back my tears as fast as I could and tried to smile."

"We will never mention Sarah's name again when once we are away from her, little one," said he. "But until we go, or until our respected friend Mr. Maynard goes, I am afraid she must still occupy a good deal of our thoughts."

CHAPTER XXVII.

The doctor, for whose verdict Mr. Maynard was waiting, did not come next day until just before dinner; and then his report was as gloomy as possible. He did not think it probable that Sarah would ever recover her reason, and the only change she was likely to get from her sick-room was to the county lunatic asylum. On hearing this, the detective wished to return to town that afternoon; but Mr. Rayner pressed him to stay, saying that he would drive him over to Denham village that afternoon, and, in the character of a friend of his, he could examine the scene of the robbery and make inquiries without any one's suspecting who he was.

The man seemed a little shy at first of interfering in a branch of the work which had been put into other hands. But he was rather put upon his mettle by the fact that his journey had been so far a failure. And Mr. Rayner whispered to me in the hall, with his eyes twinkling, when the detective was already seated in the dog-cart at the door, that he had put that fellow up to discovering something—it did not matter what, wrong or right.

I went back to the dining-room; Mrs. Rayner was sitting by the fire, with Haidee on her lap.

"Are you unhappy at the thought of losing her so soon?" said I softly, leaving my seat and kneeling by her side.

Mrs. Rayner looked at me earnestly, and then whispered—"No, I am not unhappy about her, but about you."

"About me, Mrs. Rayner?" I exclaimed in astonishment. "It is as much as my wretched life is worth to warn you," whispered she, taking the hand I had laid on her lap, and clasping and unclasping her own about it nervously. "I only want to tell you this—when you arrive in London to-morrow, if your mother is not waiting at the station, insist upon going to the house before you go further. Do not on any account enter another train without her. Call the guard—make a disturbance at the station—do anything rather."

"But how can I?" said I gently. "I cannot insist against Mr. Rayner. He would not listen. You know that, when he tells one to do a thing, there is such a strong authority about him, one must do it."

"Try, try," said she earnestly. "I believe you have the power, if you have the courage. You have thwarted his wishes as nobody else has ever dared to do—in sending for Dr. Lowe, in taking Haidee up-stairs. Try once more. It is not Sarah's safety that is concerned this time, nor Haidee's, but your own. For Heaven's sake, try!"

Mrs. Rayner scarcely spoke for the rest of the afternoon; that unusual burst of vehemence seemed to have exhausted her.

The fog, which had been hanging about us for days, grew so thick that it was quite dark when at about half-past four there was a ring at the front-door bell. The cook came in to say that a boy from the village wanted to speak to Miss Christie; and I went into the hall and found a little fellow of about ten whom I did not know, who told me that Mrs. Manners, who was at the school-house, had sent to ask me to come to her at once, as she wished to speak to me about the dole. I went back into the dining-room and told Mrs. Rayner about it.

"Don't go, Miss Christie," said she at once. "It is some trap, some trick; Mrs. Manners never sends messages but by her own boys. Don't go."

I ran up-stairs and was down again ready for my walk in a few minutes. The boy was evidently prepared to accompany me; and the fog was so thick that I was glad of it, for he was more used to the turns of the road than I.

The school was about half a mile from the Alders, among the first houses of the village. When I stumbled against a milestone which was, I knew, not far from our destination, the boy said:

"Here, miss, take care! This way."

And, taking a corner of my cloak, he led me round into a path which branched off to the left.

"It's all right, miss," said he. "I'm afraid of your being run over along the high-road now we're so near the village."

He was very impatient; and I followed him, not without some misgivings. We had groped our way up this lane for what seemed to me a very long time, when the boy stopped and whistled.

"What are you doing that for?" said I sharply.

But the boy, who, by making but a few steps forward, was lost to my sight in the fog, whistled again. I stood for a moment trembling with terror. Then the boy exclaimed angrily:

"Why, he ain't here!"

"He! Who?" I cried in alarm; and at that moment I saw dimly through the fog the figure of a man crashing through the hedge and leaping down from the field into the road.

Smothering a cry, I turned, and ran I knew not whither.

I heard the boy say, "Thank ye," and then the footsteps of the man coming nearer me. My only hope was that I might perhaps escape him in the blinding fog by crouching under the hedge till he had passed; but, to my horror, he was coming as slowly and as cautiously as I. I had found my way to the hedge and knelt down close under it, my face almost in among the briars and thorns. He passed me; I could see the vague form as it went by. But in my joy at the sight I drew a sharp breath; he turned back, groped for me, found and raised me to my feet, all without a word. For the first moment I felt too exhausted by the excitement of those awful minutes to struggle much. I could only feebly try to push him off, crying brokenly:

"Don't—don't hurt me!"

"Hurt you, my own darling! Look up at me. Heaven help me, I have nearly frightened you to death!"

I looked up with a cry, and flung my arms round his neck. It was Laurence, his face so haggard and so dirty as to be scarcely recognizable; but he told me, as he kissed me again and again, that I must not mind that, for he had traveled night and day without a moment's rest since he got my letter on the morning of the previous day.

"And, thank Heaven, I am in time, in time!" he cried, as he pressed me again in his arms.

"In time for what, Laurence? I should have been near you in two days," said I wonderingly. "We were to start to-morrow morning."

"To-morrow morning! Just a few hours more, and I should have lost you!" cried the poor fellow in such agony of horror and relief at the same time that only to see him in that state brought the tears to my eyes.

"Lost me, Laurence! Oh, do tell me what you mean!" I cried piteously.

"Oh, Violet, are you still so innocent as to think that that man would have brought you to me?"

"Why not?" asked I in a whisper.

"Because he loves you himself," said he between his teeth. "Oh, I was a fool, a blind fool, ever to leave you, for father-mother—anybody in the world! But I did not know quite all until your own sweet naive letter opened my stupid eyes."

"Oh, Laurence, Laurence, what dreadful things you are saying!" I cried, shaking with fear even in his arms.

"Never mind, my own darling; you are safe now," said he very gently. "The blow was too much for me; I ought to have warned you long ago; but I could not bear to—"

"But, Laurence, my mother is going with us. Didn't I tell you that? I had a letter from her—"

"Which she never wrote. On my way back to London, I telegraphed to your mother to meet me at Charing Cross Station, and there she told me she had never seen Mr. Rayner and never heard a word of the journey to Monsey."

The blow was too much for me; I fainted in his arms. When I recovered, I found that he had carried me some distance; and, as soon as I began to sigh, he put me down and gave me some brandy-and-water out of his flask.

He had been so much struck by the postscript to my letter, telling him of a suspicious-looking man whom I connected with the Denham Court robbery hanging about the Hall, and promising to visit it again on Wednesday, that he had obtained telegraphing to the chief of the metropolitan police, a force of constables to lie in wait about the Hall that night. He was going to station them himself, under cover of the fog, in places round the Hall, among the shrubs, where they would be well concealed.

We had crept along the high-road until we were close to the cottage nearest to the Alders, when we heard the sounds of hoofs and wheels, and men's voices hallooing through the fog. Laurence opened the gate of the cottage garden and let me inside till they should have passed.

It was the dog-cart, with Mr. Rayner on foot leading the horse, and Maynard still in it.

CHAPTER XXVIII.

We followed the dog-cart a short distance, which was not very far off in the fog until it stopped at the stable-gate. Then we slipped past quite unseen on the other side of the road, while Mr. Rayner was busy opening the gate; and at the front gate Laurence left me, and I groped my way down the drive as fast as I could, and got in some minutes before Mr. Rayner and his companion. And, as I could rely upon the silence of Mrs. Rayner and the cook, I said nothing to anybody else about my excursion.

We were about an hour over dinner, and, when Mr. Rayner had been to the cellar—not the dreadful store-room cellar—himself to get out a bottle of port, he asked Mr. Maynard if he was fond of music.

"Well, I'm not much of a dab at it myself, though I used to toodle a little upon the cornet when I was a boy," replied the detective.

Mrs. Rayner started. Still Maynard slumbered. I looked at the clock; it was seven minutes to nine. Another and another howl from the dog, followed by loud and furious barking. Still the sounds of the violin came to us from the drawing-room without interruption.

When nine o'clock struck, I jumped up, much relieved, opened and shut the door softly, crossed the hall, and turned the handle of the drawing-room door. It was locked. I knocked and said softly:

"Mr. Rayner, it is nine o'clock. You told me to come at nine."

Still there was no answer, so, after one more unsuccessful attempt to attract his attention, I took a lamp from the hall and went into the schoolroom. It was now ten minutes past nine. Nap was barking more furiously than ever. I was so much struck by the noise the dog was making that I unfastened the shutters and opened the window about an inch to listen.

I heard nothing but Nap's barking for a minute; then I saw the dim glow of a lantern and heard a muffled whisper through the fog:

"Who's that?"

"It is I—Violet Christie. Is that you, Laurence?"

"Hush! All right!" he whispered back. "Let me in."

He got in softly through the window, and, rather to my alarm, a middle-aged man in plain clothes, also with a lantern, followed him. Laurence himself looked more alarming than any thief. His face was ghastly white with fatigue, and dirtier than ever through long watching in the fog. He listened for a minute to the violin, then said quickly, but still in a low voice:

"Who is that playing?"

"Mr. Rayner," I answered.

"Who is with him?" asked Laurence again.

"Nobody," said I, surprised and rather frightened by these questions. "Mrs. Rayner and Mr. Maynard are in the dining-room."

"Hasn't Mr. Rayner been in the dining-room at all, dear, this evening?" asked Laurence gently.

"Not since dinner. I left him playing in the drawing-room at five and twenty minutes to eight, and he told me to call him at nine. He has been playing ever since."

"But it is past nine!"

"Yes. When I went to the drawing-room door just now, I found it locked, and I knocked; but he did not answer."

"Will you go and knock again, and say you wish to speak to him particularly, dear?" said Laurence gravely.

I hesitated, trembling from head to foot.

"Why?" asked I, in a low voice.

"Because we want to speak to him particularly," said the other man gruffly.

But I looked at his hard face and panted out:

"You are a policeman, I know! What do you want with Mr. Rayner?"

"Never you mind, my dear; we won't hurt you. Just go and say you want to speak to him."

"No, I won't!" I cried—not loudly, for my voice seemed to grow suddenly weak. "Whatever you think he has done, or whatever he has done, I will never help to harm Mr. Rayner!"

Laurence put me into a chair, whispering "That's a brave girl!"—but with such an anxious, stern face. And the other man came back into the room, followed by a policeman with his hand ready in his hand.

"We must break open the door," said the elder man.

The three men, Laurence, the most stalwart, foremost, placed themselves against the drawing-room door, and by one mighty push burst it open. I ran forward to the doorway just in time to see Gordon, Mr. Carruthers' servant, fling down the violin and rush to the opposite window, the shutters of which were going on until the crash of glass, and at the same instant two policemen dashed through the shattered French window, seized and handcuffed him. Then he stood between them, white and immovable, without a struggle.

"It's no go. We know you're one of the gang," said the middle-aged man. "Game's up. We've got your leader."

"What leader?" asked Gordon calmly.

"James Woodfall."

"It's a lie!" snapped out the immovable Gordon. "Jim Woodfall wouldn't let himself be nabbed by such as you."

"Why not? We've got you."

The man did not answer.

"All his fault for getting soft on a girl! Wish I had her here!" Gordon muttered presently.

I was too bewildered to think or to understand clearly what was going on until I saw him, handcuffed as he was, quietly draw a tiny revolver from his pocket and without raising it, point it at Laurence. With a scream I flung myself in front of Laurence; I heard a report and felt something touch my arm—I did not know what at first—and Laurence sprung forward with almost a yell. But he was encumbered with my form; and, before he could put me down, Gordon had wrenched himself away from his captors, away from the window, and dashed through the open window out into the fog and darkness.

"Tell me what it all means, Laurence," said I. "Did you catch the thieves? Have they really caught James Woodfall? And I hope poor Tom Parkes has escaped!" I whispered.

"Tom Parkes has been caught, and James Woodfall has escaped. I am afraid," said Laurence.

"Then he was there! Tell me all about it," I said anxiously.

"I am afraid, if you get so much excited, your arm will get inflamed, and I ought to be setting off for the doctor now."

"It wouldn't be safe," said I. "Your bandaging will do quite well until the doctor comes as usual to see Sarah to-morrow morning. Now tell me quickly all about the robbery." Then suddenly I sprung up from the sofa. "Where is Mrs. Rayner? Why was Gordon here instead of him? Oh, Laurence, I don't understand it at all."

"You will hear and understand it all in time," said he very gravely and gently. "I found the policemen in the park and stationed them in the shrubbery, and I stood myself, with that man over there and one other, as close as possible to the back entrance of the house; and there we waited until nearly half-past seven, when a man came up through the fog and tapped at the door. One of the maids opened it, by appointment, though I don't believe the poor girl suspected what his real business was, for it was Tom Parkes. And when they went inside, Tom went last, and left the door ajar. A few minutes later another man came up and slipped in so quietly, so quickly, that we could hardly have sworn in the dense fog to his going in at all. Then presently Tom and the girl came out. He walked a few steps away until she had shut the door, then returned and crept alongside the wall of the house until he was under the strong-room window. There were four of our men stationed very close to that, and their chief, who was with me, crept along easily under cover of the fog, which was as thick as ever, to join them. I followed with the other man. In a few minutes we heard a soft whistle from the strong-room window, as we guessed. Tom answered by another, and we saw a third man come up and join Tom. I was so close that I saw a bundle let cautiously down from the window by a cord. Tom handed it to the third man, whom we allowed to walk off with it—followed, however, by two policemen—in order to watch the further proceedings of the other two thieves. Another bundle was let down, which Tom carried off himself; and then we watched anxiously for the next movement of the man in the house. The strong-room window is about twenty feet from the ground; but the man jumped down and landed on his feet. In an instant five of us were upon him, but though I think each of us in turn thought we had caught him, he eluded us all and got clear away, and in the fog escaped us. But that man at the window there, who has been so many years in the force, recognized him and identified him as James Woodfall, and I recognized him too."

"You, Laurence! I didn't know you had ever seen him!" I cried.

"At that moment the elderly man left the window.

"It's of no good, sir, I'm afraid. The one rogue's got off as clear as the other. Can you tell me where Maynard is, miss?"

I got up from the sofa and led the way into the dining-room. Mrs. Rayner was still sitting, pale and upright, with staring gray eyes, Maynard still sleeping. The other detective shook him, and glanced at the wine.

"Drugged," said he shortly.

With a few vigorous shakes he succeeded in rousing Maynard, and when he began to look around him in a dazed way, the other said sharply:

"Pretty fellow you are to be hoodwinked like that, and drink and sleep quietly under the very roof of one of the greatest scoundrels unhung!"

"Who?" said the other, startled. "Mr. Rayner?"

"Mr. Rayner! Yes, Mr. Rayner! to simple folk like you; but to me and every thief-taker that knows his business—the missing forger, James Woodfall!"

CHAPTER XXIX.

As the detective pronounced the name "James Woodfall," I gave a cry that startled them all. I shrank even from Laurence as he would have put his arms round me, and my wild, wondering eyes fell upon Mrs. Rayner, who sat with her hands tightly clasped and head bent, listening to the proclamation of the secret which had weighed her down for years.

I sank down upon the floor beside her, and she put her thin, wasted arms round my neck and kissed me without a word. And the three men quietly left the room.

"Oh, Mrs. Rayner," I whispered, "it is terrible for you!"

"I have known it for years—almost ever since I married him. But don't talk about it any more," said she, glancing furtively round the room. "He may be in the house at this moment; and they might search and watch for months, but they would never catch him."

Laurence tapped at the door at that moment to say that the constables had returned to the house, having failed in the fog to find any traces of Gordon, or of any of the others. He was going to return with them to the Hall, where they would sleep, leaving Maynard to pass the night at the Alders. Then he said very gently to poor Mrs. Rayner—

"Will you forgive me for what I have done in all innocence? I had some vague suspicions, but indeed I never thought to bring such a blow as this upon you."

"It is no blow to me," said she. "That man—my husband—would have got rid of me long ago, but that he hated violence and dreaded it."

There was a tap at the door, and the voice of the elder detective said—

"Are you ready, sir?"

"All right," said Laurence; and then added, in a voice for me only, "I'm not ready; I should like to stay and comfort you forever. Take care of your poor little wounded arm. Good-night, good-night, my darling!"

I just managed to crawl upstairs to my room, and, throwing myself upon the bed without undressing, I fell into a deep sleep which was more like a swoon. In the early morning I woke with hot and aching head, and found that my arm was beginning to be very painful.

I was just going to see how Mrs. Rayner was when Dr. Lowe arrived on his daily visit to Sarah. He said very little in comment beyond telling me that I was a "little simpleton to be so easily humbugged," and that he had always mistrusted Mr. Rayner; and then, strictly forbidding me to leave my bed until his visit next day, he left me.

Laurence told me, in one of his little notes he kept leaving for me all day long, that he was expected to see Mr. Rayner would brave everything and return to the Alders sooner or later, if only for a flying visit, and that, in consequence, the search of the house which must take place was to be postponed, and the place watched, with as much caution as possible, from the outside.

Mrs. Rayner brought one of these notes up to me late in the afternoon.

"I have nothing to tell you," she whispered in my ear. "Mrs. Saunders drinks, and is not a proper guardian for Sarah. Last night she was in nearly as excited a state as her patient, and was very rough with her. I ought to be used to terrors, but I am afraid. Will you leave your door open and the door at the foot of the turret staircase?"

I promised; and two or three times during the night I rose and stood at the top of my staircase, listening, and in this time I heard a faint cry, and presently the soft shutting of a door. I crept half-way down the stairs and found Sarah crouched in a corner muttering to herself—

"I've done it—I've done it! He'll come back now. I've done what he wanted. He can marry the Christie girl now."

I dashed along the corridor to Mrs. Rayner's room and went straight in. The atmosphere of the room was stifling, and I went up to the bed. Mrs. Rayner was lying with a cloth over her face! I snatched it off. It was steeped in something which I afterwards learnt was chloroform. I rushed to the two windows and flung them wide open, pulled the bell-rope until the house echoed, and moved her arms up and down. The cook and Jane came in, terribly alarmed, in their night-gowns. I left them with Mrs. Rayner while I ran down-stairs for some breath.

I was returning with it when I caught sight of a man in the gloom at the end of the passage leading from the hall. It was impossible to recognize him; but I could not doubt that it was Mr. Rayner.

I crept upstairs, too much agitated to be of any use any longer; but happily Mrs. Rayner was already recovering, and the brandy and water restored her to consciousness. I spent the rest of the night in her room, after I had, with the cook's assistance, persuaded the unhappy lunatic to return to her room.

As I lay thinking of all the strange and horrible events which had filled my life lately, the thought of Mr. Rayner lying concealed in some cellar, the existence of which was unknown to everyone else, came uppermost in my mind. How could a man of no kind and sweet-tempered have no redeeming points at all? There were only two things that I could do now. I could pray for him, and I could perhaps let him know how the thought that it was I who had brought down justice upon him tormented me.

A possible means of communicating with him occurred to me. I sprang out of bed and wrote a note asking his forgiveness, and giving him a full explanation of the way in which, in all innocence, I had written the letter which had led to this pursuit of him. And then I put on my dressing-gown and slipped down to his study, where I put the note, directed simply to "G. Rayner, Esq.," just outside the drawer of his writing-table, and crept guiltily upstairs again.

Mrs. Mannors came to see me that afternoon. She told me that, when Laurence had heard of the night's adventure, he had gone to Dr. Lowe and insisted upon Sarah's removal to the county lunatic asylum that very day, and I never saw the poor creature again.

I wanted to see Mrs. Rayner, and find out whether she had heard of Sarah's departure.

I was opposite to the store-room door, when it was softly opened, and without being able to make any resistance, I was drawn inside by a man's arm. I looked up, expecting to see Mr. Rayner, and was horror-stricken to find myself in the arms of Gordon, the man who had shot me.

"Don't tremble so," said he. "I meant to do for you before I left this house; but this has saved you." And he showed me my letter to Mr. Rayner.

"Do you know where he is?" I asked eagerly.

"No, ma'am," said he in his respectful servant's manner; "but I should say that he is on his way to America by now, where he meant to have taken you."

"Mel America!"

"Yes, ma'am. Miss Haidee was to have been left at Liverpool Street Station, and brought back to the Alders."

"But I wouldn't have gone."

"I beg your pardon, ma'am; but I don't think your will would have stood out against James—Mr. Rayner's. And, if this letter had not shown you to be loyal to him, I would not have left you here alive. I may take this opportunity of apologising for having once borrowed a trinket of yours while you were staying at Denham Court. But, as it was one which I

myself had had the pleasure of assisting Mr. Rayner to procure from Lord Dalston, I thought it wisest to pull off the little plate at the back, for fear of its being recognized by Mr. Carruthers, in whose service I was when I was first introduced to Lord Dalston's seat in Derbyshire."

"My pendant!" I cried. "It—it was real then?"

"Yes, ma'am. I have nothing to keep me here now, ma'am; so I shall be off to-night."

He led me courteously to the door, bowed me out, and shut himself in again, while I went on, trembling and bewildered, toward Mrs. Rayner's room.

"May I come in, Mrs. Rayner? I have something to tell you."

"I can't let you in. Can you speak through the door?"

"No, no; I must see you. I have something very important to say about Mr. Rayner," I whispered into the keyhole.

"Is he here?" she faltered.

"No; he is gone to America," I whispered.

She turned the key slowly, while I trembled with impatience outside the door.

But as I stepped forward into the room, I drew my breath fast in horror. For I became aware of a smell of damp and decay; I felt that the boards of the floor under the carpet were rotten and yielding to my feet, and I saw that the paper was peeling off the wet and moldy walls, and that the water was slowly trickling down them.

"Oh, Mrs. Rayner," I cried, aghast, "is this your room—where you sleep?"

"I have slept in it for three years," said she. "If my husband had had his will, it would have been my tomb."

CHAPTER XXX.

"But why did you stay? Why did you say nothing about it? And why were you not glad to go upstairs, instead of begging as you did to remain here?"

"Because," she whispered, "I knew that while I remained down here they would not kill me outright; they could not let me die down here, and introduce doctors and strangers to examine into the cause of my death into this room. I knew that a change of room was my death-warrant; and so it would have been, but for the accident which happened to Sarah on the very night when, but for you, I should have been sleeping upstairs ready to her hand."

I staggered back, suddenly remembering the message Mr. Rayner had in his letter told me to give to Sarah. It was this—

"Tell Sarah not to forget the work she has to do in my absence. And I remembered also the grim way in which she had received it. Could he have meant that!"

Before the end of the day I heard that Mrs. Saunders had disappeared, without any warning or any application for payment of her services, as soon as Sarah had been taken off to the lunatic asylum. She had spared us any pangs of self-reproach on her account, however, by taking with her Mrs. Rayner's watch, and also the cook's, which had been left in the rooms of their respective owners.

"She doesn't expect to see Mr. Rayner again then," I whispered to Mrs. Rayner, who came to my bedside to tell me the news, "or she would never dare to do that."

There was really nothing to keep the poor lady at the Alders now, as I told Laurence by letter that evening all that Gordon had said to me in the store-room, and the idea gained ground that Mr. Rayner had gone to America. But she insisted upon remaining until I had seen her, and she was moved, on an event which I had myself retarded by rashly leaving my room three times since I had been told to keep my bed.

Meantime the fog still hung about the place, and Nap, the retriever, howled ever night. When Monday came, I, anxious to be declared convalescent as soon as possible, and to be able to avail myself of Mrs. Mannors's invitation to stay at the Vicarage, persuaded Dr. Lowe to let me go downstairs. It was about twelve o'clock when I left my room, and I had made my way as far as the corridor below, when I became aware of an unusual commotion on the ground-floor, the sobbing of a woman, and a heavy tramp, tramp of men's feet through the hall and along the passage to Mr. Rayner's study.

I went to the top of the back staircase, descended a few steps, and looked over. The gardener and Sam were carrying between them a door, on which something was lying covered by a sheet. The cook opened the study door, and they took it in. A horrible dread filled my mind and kept me powerless for a few moments. Then I ran along the corridor, down the front staircase, and met little Haidee with awe on her childish face.

"Oh, Miss Christie," she whispered, clutching my arm in terror, "they've found papa!"

Jane ran forward and caught me as I tottered in the child's clasp. Before I had recovered sufficiently to go to Mrs. Rayner in the drawing-room, Laurence and Mrs. Mannors arrived, having heard the ghastly news already. They took us over to the Vicarage at once, and I never entered the Alders again.

In the evening Laurence told me all about the discovery. The garden which led down to the work for the last few days beyond keeping the gate locked and driving away with a whip the boys who would swarm over when they got a chance, "just to have a look at the place," had been attracted that morning by the shrill cries of Mona, who, now more neglected than ever, spent all day in the garden in spite of the fog. He ran to the pond, where she was nearly always to be found, and whence her cries came, fearing she had fallen in. But he found her standing in the water at the edge of it, screaming, "Come out, come out!" and clutching with a stick at an object in the water. It was the body of her father, entangled among the reeds.

The down-trodden grasses and rushes at that corner of the pond nearest to the stile which joined the path through the field beyond told the story of how he must have missed his way coming through the plantation in the dense fog of Wednesday night, and how he had crept back from the Hall to the Alders, slipped into the pond, and been drowned out there in the fog and darkness, while his dog Nap, hearing his cry for help, had tried in vain, by howling and barking, to draw attention to his master's need.

I heard next day that two passages, booked in the name of "Mr. and Mrs. Norris," had actually been taken by him on board a ship which left Liverpool for New York on the very Thursday when we were to have started on our journey "to Monaco." The tickets were found upon him and also a valuable ornament of rubies that had belonged to Mrs. Cunningham. These were the only ones, of all the stolen jewels, which were ever recovered, with the exception of the diamond pendant, which I sent back to its owner, Lord Dalston. Upon the house being searched, the candle which had fallen from my head when I first went into the study, and the store-room was found under the stagnant water there, and also the brown portmanteau, which was identified as one belonging to Sir Jonas Mills; but the jewels, with the exception of a stray drop from an ear-ring, had disappeared.

I was married to Laurence before the trial of poor Tom Parkes and of the subordinate who had been caught removing the plate from the Hall.

He pleaded "Guilty" to the charges brought against him of taking an active part in the robbery at Denham Court, where the various articles stolen were being quietly abstracted one by one at different times by Gordon for two or three days before the Tuesday, when they were finally carried off by Mr. Rayner, and taken by him and Tom to the Alders, where Sarah had received them, as I had seen.

As to what had become of the Jewels afterward, Tom professed himself as innocent as a child; but, whether this was true or not, nobody believed him.

Poor Mrs. Rayner never entirely shook off the gloomy reserve which had grown round her during those long years of her miserable marriage. Kind-hearted Sir Jonas Mills was among the very first to come forward to help her; and, by his generous assistance and that of other friends, she went to live abroad, taking Haidee with her, and Jane, who proved a most devoted servant and friend.

Laurence and I, who were married before she left England, undertook the care of poor little savage Mona, who had grown into almost as nice a child as her sister. And now I have one of my own too.

[THE END.]

Puzzles.

All matter for this department should be addressed to Ada Armand, Pakenham, Ont.

1-CROSS WORD ENIGMA.

My FIRST is in place, but not in spot;
My SECOND is in heap, but not in lot;
My THIRD is in came, but not in return;
My FOURTH is in Amsterdam, but not in Berne;
My FIFTH is in John, but not in Hugh;
My SIXTH is in pierce, but not in through;
My SEVENTH is in pansy, but not in heather;
My WHOLE is a kind of valuable leather.

J. S. CRERAR.

2-DROP VOWEL.

Tr-thor-sh-dt-r-thsh-lr-s-g-n,
Th-t-rn-ly-rs-fg-d-r-h-rs;
B-r-r-r-w-ad-dwr-th-e-ap-n
-ndd-s-m-ngh-sw-rsh-pp-rs.

ETHEL MCCREA.

3-CHARADE.

I've slung my things in my carpet sack;
Like the prodigal son I'm coming back;
You needn't bother about a calf,
My appetite's gone—I couldn't eat half.

Oh! C. E. Edwards I'm after you,
There won't one much left when I get thro';
Now what have you done with Harmond B.,
You've chased him as you couldn't chase me.

And now you kindly prizes drop,
Two the one who'd beat, you've made stop.
There! I've no inclination to fight—
Other fish to fry—so now Good-night.

L'ENVOI.

Oh! Harmond hustle to the fray,
And chase this naughty boy away;
COMPLETE we really can't allow
Such tyrannies among us now.

A. P. HAMPTON.

4-CHARADE (phonetic) AND ANAGRAM.

Oh come with me all puzzlers gay,
Off we'll wander far away;
We'll travel east,
We'll travel west,
We'll travel whither we like best.

Over the boundless sea we'll go,
Over the MASTER GULF, you know,
And when we reach
Our journey's end,
Tidings to Uncle Tom we'll send.

We'll stop at Egypt on our trip,
Whose wonders are on every lip.
We'll PRIMAL last,
If you all please,
Among the TOTAL. Pay your fees.

A. P. HAMPTON.

5-CHARADE.

In the spring when First prevails,
And Total causes much man ails,
He heaves a sigh of heartfelt thanks,
If with the well Two men he ranks;
But if the Total he's among,
A different tune you'll find is sung.

CLARA ROBINSON.

6-DOUBLE BEHEADMENT AND CURTAILMENT.

Life is short, and time is fleeting,
And our part on earth is not
Simply breathing, drinking, eating,
But to exercise our thought.

Sober thoughts together linking,
As we journey on through life,
We can, by our merely thinking,
Be a hero in the strife.

Thought immortal FIRST our being,
Infinite and uncompensed;
Shall we trifle then, foreseeing
Words of meaning by the LAST!

C. S. EDWARDS.

7-ARITHMETICAL.

As I was coming from town I met a man proceeding thither
with a load of turkeys. "Good-morning, sir," said I, "where
are you going with your 20 turkeys?" "I have not got 20 tur-
keys," said he, "but if I had as many and as many more, half
as many, and two and a half, I would have 20 turkeys." How
many turkeys had he?

W. S. BANKS.

8-TRANSPPOSITION.

Aasi ohw gaelis hnitig og gornw
A gshi oto chmu ro a hni ot rentox
Esh oolifw a emes adn on nde fo inpa
Dns eifl si enny hte asme gaani.

MAY MCNIE.

Answers to March 15th Puzzles.

1- TUG STEAN TUEIRON GARUM NOM

2- Small service is true service while it lasts;
Of friends however humble scorn not one;
The daisy by the shadow that it casts
Protects the lingering dewdrop from the sun.

3-Don, Elbe, Oder, Rhone, Trent, Orange, Ganges, Mersey.
4-Whole-some. 5-Marts-arts-star-tars.
6-He filled the lady's vessel and then filled the 3-quart
measure out of it, leaving 4 quarts, or 1 gallon, in the larger
vessel.

SOLVERS TO MARCH 15TH PUZZLES.
J. S. Crerar, Addison M. Snider, Clara Robinson, Ethel
McCrea, Edith Brown, Annie P. Hampton, Jennie Stewart.
The winners of prizes for solutions during January, Febru-
ary and March are: 1st prize, 75 cents, Miss Clara Robinson,
Markham, Ont.; 2nd prize, 50 cents, Mr. A. M. Snider, Flor-
dale, Ont.; 3rd prize, 25 cents, Mr. John S. Crerar, Brussels,
Ont.

Easter Bread.

Mix and set to rise over night, one yeast cake,
two cups of water, and two cups of flour; in the
morning, take six cups of flour, two cups of milk,
one and a half cups of currants, the same of raisins,
half a cup of sugar; rub into these a piece of butter
the size of a large hen's egg, add a teaspoonful of
salt, mix and let rise till it is light, then mold and
put into pans until light, then wet the top with
melted butter and bake one hour.

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THE CHILDREN'S CORNER.

Slyboots.

(Continued from page 160.)

All the next day Rosytoes was in a very tremulous condition. She avoided the company of Chanticleer and Partlet, and wandered alone through the fields, thinking of the red-coated gentleman and his impending visit that night. She knew she should not have strength of mind to resist his entreaties again, and her heart failed her as she thought of the awful step she was about to take. If ill should come of it! Suddenly a bright idea occurred to her. Instead of sleeping in the wood shed that night, she would slip into the henhouse and be safely locked up. As soon as she had made this resolve she told the whole story to her good friend Partlet. "All right, my dear," said Partlet. "I'll tell Chanticleer that the draft in the wood shed has given you a crick in your neck; and then I'll lie awake myself and tackle the cunning old fox. You won't catch him asking me to take moonlight walks!"

Rosytoes thought that possibly he wouldn't care so much about a walk with Partlet, but she was too wise to say so. She carried out her plans, but with a very heavy heart, and when the moonlight shone through the henhouse window she almost wished herself back in the wood shed again. Partlet explained her absence as had been arranged. Chanticleer only remarked, "Her own fault for sleeping on a drafty part of the perch. What fools hens are!" and then dropped asleep. Bitter disappointment was in store for Slyboots. As he glided gently into the wood shed, licking his lips as he thought of Rosytoes, he suddenly noticed that there were only two occupants of the perch, and that they were both portly, middle-aged forms.

"Good evening, Mr. Slyboots," began Partlet; and the sound of her voice awoke a new hope in his mind. An oldish hen was not so nice as a pullet, but was much better than nothing at all, so he answered politely. "I am afraid you are rather disappointed in your visit to-night," went on Partlet.

"Not at all," answered Slyboots, "if you allude to the absence of your amiable young friend. It is just what I could have wished most; for my earnest desire is to have a little private conversation with yourself."

To this remark Partlet replied by a half-incredulous snort.

"Wherever I go I hear you spoken of in the highest terms," went on Slyboots, "as a model mother; and being in considerable domestic difficulties, it occurred to me to consult you."

"Well, that certainly is rather in my line," said Partlet.

"I will not attempt to conceal the fact from you that I come of a wild, lawless race," went on the fox.

"It would be quite useless if you did," answered Partlet.

"I have been badly brought up," said Slyboots, "but my object now is to redeem the past. I may as well confess to you at once one sin which sits more heavily on my conscience than any other."

"Pray what is that?" asked Partlet with some curiosity.

Slyboots paused, and half turned away as if overcome with shame and contrition at the recollection. "I once ate an egg," said he at last.

A visible shudder passed over Partlet's comely person, and Slyboots hastened to reassure her. "Not a fresh egg, dear lady," he exclaimed; "do not imagine anything so dreadful as that; nothing containing a germ of life. Oh, no! it was only an old nestegg; in fact, it was addled."

"That certainly makes a difference," said Partlet.

"Now you know the worst of me; hear the rest," went on Slyboots. "I am still but a young fox, with three little cubs to educate and train. My wife is, I am sorry to say, a gay young creature, so that the chief care of my family rests on me."

"Dear, dear!" said Partlet, "what a terrible state of things. I have the best husband in the world, but I should be sorry to leave the care of the nest to him!"

"Precisely," answered the old fox. "I feel my ignorance, and come to sit at your feet and learn." He looked up so humbly that Dame Partlet's favor was quite won.

"Well," she said, "I'm sure I will do my best to help you. What sort of diet do you provide for your young ones?"

"Purely vegetable, so far," answered Slyboots.

"We are all small eaters, and since that sad affair of the 'egg,' I have never tasted animal food myself."

"I should certainly give them an insect now and then," said Partlet; "there is a great deal of nourishment in a loebworm, for instance, especially with the dew on it."

"Ah!" said Slyboots, "that is just what I thought, and now we come to the point. On my

way here I saw the strangest-looking insect. What it is I cannot imagine. It would make a famous meal for the three cubs, if I were but sure that it is a wholesome kind. Now if you would step out with me to examine it, you would probably recognize it at a glance."

"Why can't you fetch it in here for me to look at?" asked Partlet promptly.

"I daren't take it between my teeth without a competent opinion upon it," answered Slyboots.

"I am afraid I can't help you then," said Partlet. "Chanticleer would never forgive me if I went out walking with you."

"The conceited old curmudgeon!" cried Slyboots, losing his temper.

"How dare you speak of my husband in that way!" exclaimed Partlet. "Be off directly, or I'll wake him up!"

Slyboots was again forced to beat a hasty retreat.

[TO BE CONCLUDED.]

"The Old Mill by Moonlight."

Douzette's "Old Mill by Moonlight" is one of those picturesque scenes of placid beauty which are hard to paint in words, for "the pen is a poor implement to pit against the pencil."

The "Old Mill" stands sentinel-like on the bank of the stream, tall, grim and black in the clear, white light of the moon, and in its somber silence seems to utter a mute protest against being shorn of all its accessories of beauty—the giant trees, the sturdy saplings, the tender foliage, which are all falling a prey to the utilitarian hands of man. The calm Queen of Night, in the fullness of her power,

has been treated, take it up and shake it lightly over the table, when, of course, a great deal of the sawdust will fall out; it should be gathered up and carefully saved. Now lay upon the table two pillows in their slips, and over them spread the garment, fur down this time, and beat it thoroughly with a light rattan or smooth switch. Move the pillows along as they are needed, so as to always have a soft support for the garment. Take it up, shake lightly, brush off the pillows and table, and continue beating until the fur is free from sawdust, when it will be as bright as new fur. White furs are cleaned with plain white corn-meal, in the same manner. Small white furs that are not much soiled may be freshened by the use of cube magnesia, which must be thoroughly rubbed in, and then as thoroughly dusted out. Fur cloaks, light or dark, often become disfigured with carriage grease, but it will yield readily to gasoline applied with a piece of cotton batting. Gentle rubbing and a renewal of cotton frequently are necessary to secure success. Pitch, paint, resin, tar and oil stains can all be treated in this way, and if they do not readily disappear, oil of turpentine, benzine or spirits of ether can be used.

Respect Due to Farmers.

In the *Globe* of Saturday, March 6th, Mr. Ernest Heaton, of Goderich, in a paper on "Effects of Education," made some striking statements regarding higher education and farm life. Much that he said is only too true, but in regard to the complaint in one paragraph, I think the farmers have only themselves to blame. Allow me to quote Mr.

Heaton's words: "Surely in an agricultural country such as this is, the first and paramount object of our national education should be to add dignity and nobility to life upon the farm. And yet, I can truthfully say that I have never been in any country where (by the young people) farm life is held in such contempt. The farmer is called a 'hayseed,' and I have heard men who have gone into other occupations complain that they have 'sprung from the soil.' It is not so in Great Britain. It is not so in our Northwest or in the Western States. How do you account for it in Ontario?"

I agree, our farmers are not looked upon with the same respect as men of like profession in Great Britain, or the West, but I contend it is their own fault. Respect is something the world is bound to give—in fact, cannot withhold from—the person who by his appearance and manner demands it.

I have spent several years in the West, and know that the farmers there are among the first men in the land, and recently I had a splendid opportunity of studying rural life in England and found the social standing of farmers high. But I can see the reason for this in both cases.

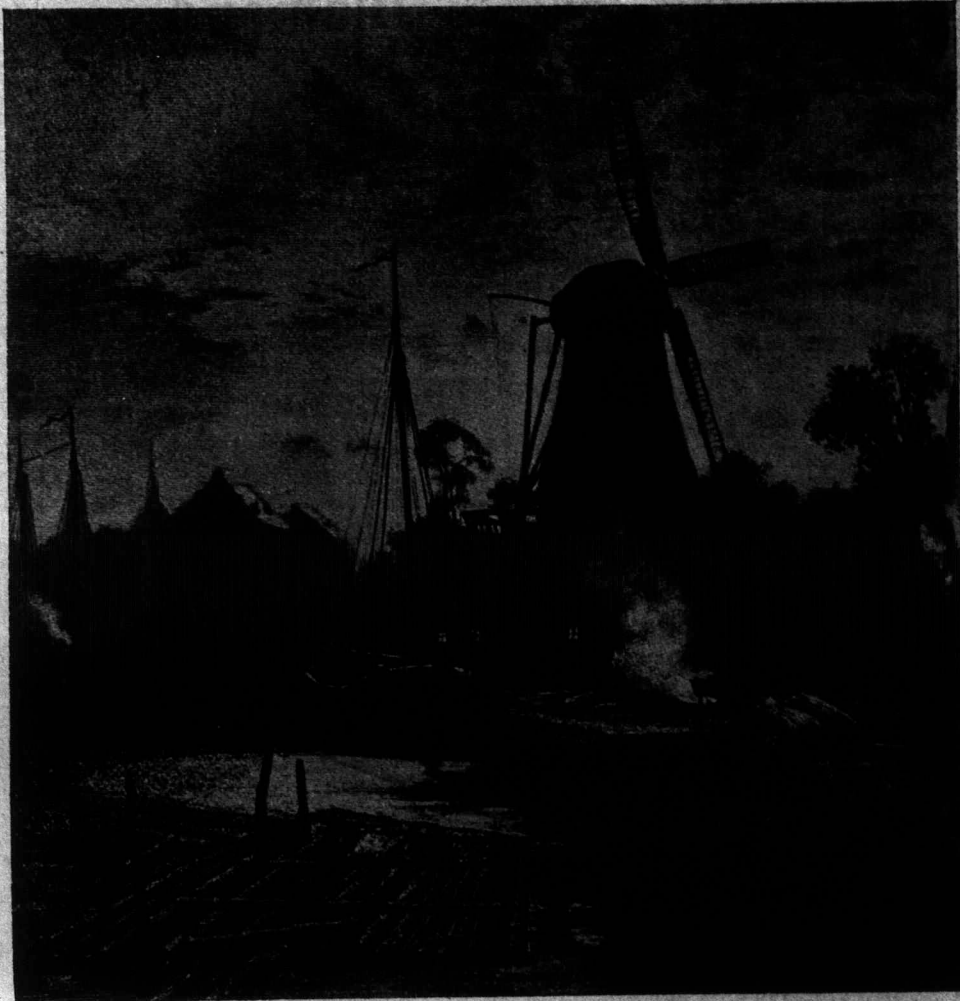
Many of the farmers in the West are the go-ahead young men of our Province who have struck out for themselves. Their eyes are open to all improvements; they are not slow in seeing that the man who wants to get to the front must take care of himself, be particular about his personal appearance, and not allow cobwebs to gather in either his hair or brain. The English farmer, though not so energetic, is proud and careful as to appearances. When he goes to market his freshly shaven face, clean collar and tie, polished shoes (I

noticed that the English were exact about blacking shoes), and the absence of coarse language or loud voices called for and received the respect of the townspeople. Why this lack in our own fair Province? Young people (and many old ones too) judge from what they see and hear: they cannot discern the true worth which often lies behind a rough exterior. It is wrong to speak of the farmer as a "hayseed" or "mossback," but have they not to a great extent brought these titles on themselves? Look carefully at the groups of farmers standing in the street on market day. How many have thought it necessary to "tidy up" before coming to town? Very few, I am sorry to say. Instead, is it not a familiar sight to see the hands jammed into the pockets of the begrimed working-day clothes, a pipe or quid of tobacco in their mouths, and their whole general appearance showing a great lack of care and their manner just as great a lack of refinement.

The day is past when it was considered dudish to be particular about one's dress or person, or to lift the hat to a lady, an act belonging solely to the town gentleman, nor is it deemed effeminate to be kind and polite. It is easier to criticise and find fault than to suggest remedies. However, in this case the remedy lies on the surface.

With some little care given to their personal appearance and manners, the many fine-looking, intelligent, energetic farmers of Ontario would acquire a dignity and nobility commanding even greater respect than that given the slow-going Englishman or the over-sharp Westerner.

"FRATER."



"THE OLD MILL BY MOONLIGHT."

shines with such a radiant light that the flames from the burning brushwood are absorbed in her rays. The water sings a plaintive little song of its own on its way to "the infinite main"—now passing into the deep shadows cast by the bank, where it seems still and silent, and then breaking into smiling ripples with a gurgle of pleasure when it again reaches the broad stretch of moonlight, passing the timber moored there with a sudden rush, as if afraid it might be detained as it hurries along "to the golden sands and the taintless tide"; and the water weeds steal down to its very brink to be caressed by its loving touch, where—

"Bright with glad, mad rapture, fierce with glee,
Laughs the moon, borne on past clouds o'ertaking."

Take Care of Your Furs.

Fashionable women who own expensive furs will be glad to know how they can restore them when soiled, as to most women the art of cleaning and brightening them is a profound mystery. A bright English woman whose husband is a furrier recently divulged the secrets of the trade for the benefit of women who desire to be economical, and are willing to take some trouble to be so. She says that all dark furs, such as seal and mink, are best renovated with mahogany or fine cedar sawdust, which is kept in stock by all furriers, and of which enough to clean a dozen garments can be purchased for a small sum. Lay the garment flat on a table, fur side up, take a handful of sawdust and rub it thoroughly into the hairs. Spare neither sawdust nor strength, for the appearance of the fur afterwards will warrant the lavish use of both. When the garment

Two Proverbs:

"TWO HEADS BETTER THAN ONE."

"MANY HANDS MAKE LIGHT WORK."

How true in the work of the farm! New conditions of soil, climate, transportation, and markets arise; fresh problems in stock breeding and feeding, fruit growing, insect pests and fungous diseases confront us week after week. Busy brains and busy hands all over the country are working out these questions; each in a different way, perhaps, but all seeking the same end—success. The final test of all theories and the results of all experiments is on the farm, the orchard, the dairy, and in the feed lot. (1st) High quality, (2nd) uniformity, and (3rd) prompt delivery are three great present-day essentials upon which the consumer insists. The producer must meet these requirements, and he must so conduct farm work as to produce what he sells at a profit. If it costs the farmer more to grow and market a bushel of wheat, or a fat steer, to make a pound of butter, to grow a bushel of fruit, than they bring him, sooner or later he must go under. But he need not fail. We have too much evidence to the contrary. Thousands of our readers are succeeding in these various lines. What they do others can. One can help another without hindering himself. "Two heads better than one" on the farm! Solomon said: "In multitude of counsel there is safety"—nowhere more true than on the farm.

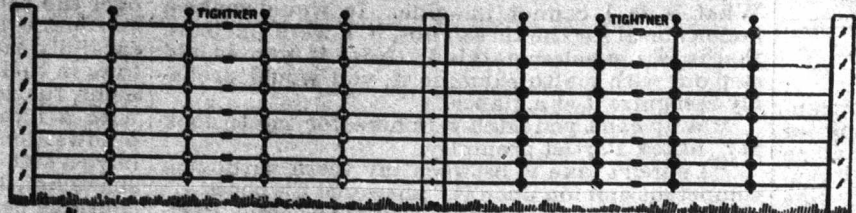
It is the business of the FARMER'S ADVOCATE to carry help from one worker and investigator to another. A progressive farmer will send a helpful thought round the world in the ADVOCATE. Why not give others the benefit of your experience? Warn them of the cause of failure; tell the way to success. A few minutes with pen or pencil and paper will do your part. You will be the gainer by it. The whirling presses pour out their thousands of papers for every Province in the Dominion, the neighboring States, Great Britain, Australia, New Zealand, India. One man tells how he succeeded in building a serviceable barn and in fattening cattle; another in the winter care of sheep; still another in horse breeding; some one else in building up a profitable dairy herd; a sixth about poultry-keeping; a seventh on seed-grain selection, corn growing, soil cultivation, manuring, or the feeding value of corn ensilage; and so on, as you will see by turning over again the pages of the last copy of the ADVOCATE that reached you. Keen, practical men scan its pages, and if a slip is made it is quickly corrected and a flood of experience given on the same point. So the good work goes on.

The FARMER'S ADVOCATE is the Exchange where thinking farmers may meet to talk things over—things of mutual and intensely practical interest. If any of your friends or neighbors are missing this privilege of contact with the highest minds in the world on agricultural subjects, now is the time to let them know what the FARMER'S ADVOCATE is.

Let every subscriber order by post card at least one free specimen copy sent to some one who does not now take the paper, or, still better, secure and send in their subscription at once. In no other way can you bring within their reach half so great a fund of helpful information.

THE WILLIAM WELD CO. (Ltd.),
London, Ont., Canada.

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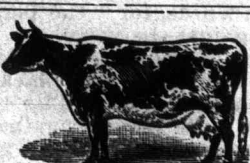
The above half of cut represents Diamond Grip, using straight patented No. 7 wire for stays and No. 9 straight wire for lateral, best American galvanized steel in all cases. Patented.

The above half of this cut represents the double lock, but we specially recommend the Diamond Grip, as it gives the best satisfaction, and is the very thing every farmer should have; cheaper than woven wire, and lasts ten times as long. Farmers, do your own building on the ground; you can use Barb, Twisted or Plain Wire. We manufacture all and sell cheapest. Plain Am. Galv. \$2.35; Barb, \$2.60. Cash with order. Agents wanted in every Township.

Canada Fence Co.,
London.

MAYOR LITTLE, OF LONDON, SAYS:
LONDON, 4th Sept., 1895.
DEAR SIRS,—In reply to your enquiry, I have much pleasure in stating that the Diamond Wire Fence (about 100 rods) which you put up on my place is satisfactory in every respect. Yours truly,
J. W. LITTLE.

Ayrshire Bull and Heifer Calves, and **JERSEY Bull Calf** (2 mos. old).
ALL ARE ELIGIBLE FOR REGISTRATION.



Holstein Bull and Heifer Calves.
Will sell at hard-times prices.
Barred P. Rook Cocks, \$1 each.
Eggs from imported stock, \$1 per 15.

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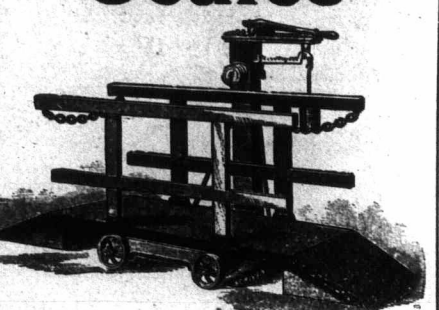
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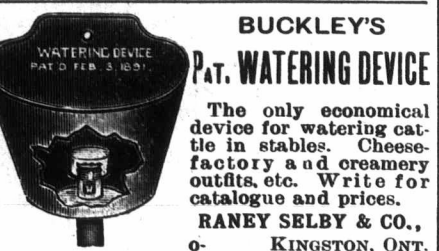
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Kept for use of my own and daughter's families, but I do not wish to increase the number, hence I can usually offer something uncommonly choice. Just now I have
1 BULL, NEARLY 2 YEARS OLD,
1st prize winner, and fit for any herd.
1 SPLENDID BULL CALF, 7 MOS. OLD
The best, I think, I ever raised.
1 EXTRA BULL CALF, 3 MOS. OLD.

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HELPS—Covering nearly 2,000 subjects—contain all features so popular in the past, and an endless amount of fresh matter, including concordance on new and improved plan, dictionary of proper names and places, with pronunciation and meaning. Size, 8 1/2 x 5 1/2 inches (closed). Ordinarily would retail at from \$4 to \$5. We will send (carefully packed, post prepaid) this Bible to any one sending us the names of three new subscribers to the FARMER'S ADVOCATE at \$1.00 each.

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This volume contains a collection of beautiful flowers, gathered and pressed in Palestine, by Rev. Harvey B. Greene, together with description of each and Scripture references. Mr. Greene has frequently visited Palestine, and gathered and assorted with his own hands these specimens. The flowers are beautifully preserved with all their natural tints, and are attached to extra finished heavy chromo paper, specially made for the purpose, with description on the page opposite to each specimen. It is neatly bound in antique finish cover; title, "Pressed Flowers from the Holy Land," embossed in gold on front page. We will send a copy to any one sending us the name of one new yearly paid-up subscriber.

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GOSSIP.

D. G. HAMMER & SONS' SHROPSHIRE. Our representative called on the firm of D. G. Hammer & Sons, Mount Vernon, Ont., breeders of Shropshire sheep, and found them well stocked, having on hand about 200 head.

MR. DUNCAN'S JERSEY HERD. The dairy herd of Jerseys visited by us at the farm of Mr. D. Duncan, Don, Ont., was found a very desirable lot. Among the cows specially noteworthy may be mentioned Regnetta, bred at Woodstock, Vt., out of Regnetta, third at test at Chicago, sired by Lead-see, Columbia.

MR. HOBSON'S SALE OF SHORTHORNS. The dispersion sale of Mr. John I. Hobson's herd of Shorthorns at Mosbora, Ont., on April 6th, brought together a very large company of stockmen, and was successful beyond the expectations of the most sanguine.

- Cleopatra 3rd, A. Chadbourn, Ralphton, Man. \$125 00
Aggie Ury, A. Chadbourn, Ralphton, Man. 130 00
Lovely Gem, A. Chadbourn, Ralphton, Man. 125 00
Cleopatra 2nd, A. Love, Eagle, Ont. 100 00
Starlight, John Birrell, Mosbora, Ont. 85 00
White Soaks and B. C. W. R. Stewart, Ft. McLeod, Alberta. 105 00
Cleopatra (Imp.), C. M. Simpson, Ivan, 100 00
Miss Joan, A. Love, Eagle, Ont. 100 00
Muriel, John Morgan, Strathroy, Ont. 85 00
Queen, Jas. Chinnick, Chatham, Ont. 90 00
Duchess of Gloster A., J. Chinnick, 130 00
Cherry Bloom 14th, W. R. Stewart, 70 00
Cherry Bloom 13th, A. Boulton, Arm- strong's Mills, 75 00
Joan 8th, Capt. D. Milloy, Paris, 70 00
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Aggie Ury 2nd, A. Chadbourn, 130 00
Maude, H. Arkell, Arkell, 50 00
Lady Clara 2nd, R. Talbot, Everton, 65 00
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Lady Hildrop 4th, H. Oakes, Oustie, 65 00
Lady Joan 2nd, W. R. Stewart, 60 00
Pansy, M. Scott, Killam, 60 00
Lady Roy 3rd, John Gordon, Acton, 65 00
Beatrice McDuff 2nd, D. Milloy, 70 00
Joan 9th, R. Buchanan, Gourcock, 80 00
Clipper, D. H. Snyder, New Dundee, 100 00
Minnie, J. Horn, Attwood, 45 00
Cinderella, J. Horn, 75 00
Florrie, W. Fink, New Germany, 100 00
Ada 2nd, D. Milloy, 100 00
Judith, W. Shafer, Berlin, 80 00
Joan 6th, W. & M. Bell, Springfield, 80 00
Ada 4th, P. S. Kennedy, Acton, 50 00
Lovely Gem 2nd, W. Wright, Britannia, 55 00
Joan 10th, W. Wright, 60 00
Cleopatra 5th, D. Milloy, 60 00
Cleopatra 6th, D. Homing, Highgate, 45 00
Aggie Ury 3rd, J. Birrell, 45 00

- War Eagle, G. & E. Thompson, Guelph, 95 00
Royal Standard, W. D. Shattuck, Cal- gary, Alberta, 100 00
Prince Dagmar, R. Buchanan, 100 00
Duke of Gloster, J. Birrell, 90 00
Cresader, W. H. Wallace, Mt. Forest, 40 00
Royal Saxon, W. R. Stewart, 40 00
Stanley, A. F. Jackson, Downsview, 46 00
On-Stanley-On, M. Lamb, Acton, 35 00
Arthur, D. Milloy, 55 00

J. G. CLARK, Woodroffe Stock Farm, Ottawa, Ontario, HAS FOR SALE

Three Clydesdale Mares

Weighing from 1,650 to 1,800 pounds, and their colts from 1 to 3 years old. Choice young Yorkshires of both sexes. Choice Young Ayrshires of both sexes For sale cheap.

EGGS. I am now offering to farmers, eggs from choice yards of Blk. Minorcas, Barred Plymouth Rocks, S. C. Brown Leghorns, White S. C. Leghorns, R. C. Brown Leghorns, Light Brahmas, and Black Hamburgs, at \$1 per dozen. These birds have all been im- ported or from imported stock. I have a re- spective pen of White Plymouth Rocks for which I charge \$2 per dozen.

W. L. BROWN, London West, Ont. G. BENNETT & PARDO, CHARING CROSS, ONT.

Breeders and Importers of Chester Swine and Poultry - F. Cochins and L. Brahmas, B. P. Rocks, Golden, Silver and White Wyandottes, W. & B. Leg- horns, Silver-Gray Dorkings, and Cornish Indian Game. Eggs, \$1.00 per 13 the remainder of the season. Safe shipment and a fair hatch guaranteed. 10-2-y-om

NOW IS YOUR CHANCE

To get Black Minorcas (Rev. W. E. Scott's strain), White Wyandottes, Silver-Gray Dork- ings, White and Brown Leghorns. Eggs, \$1.00 per fifteen. All winning strains. Also Berk- shire Boars and Sows, all ages; Shorthorn Cattle and Leicester Sheep.

ALLAN M. SNETSINGER, MOULINETTE, ONT.

breeder of highly-bred Wh. S. C. Leghorns, great layers, large sized, beautiful. First prize winners. Eggs, \$1 per 13; carefully packed.

FOR SALE - PURE TAIWORTH'S

Four September Sows, fit to breed; two yearling boars. Spring pigs in pairs not akin.

ROSE BANK POULTRY YARDS.

R. C. Leghorns, "White" Red Caps, Black Langshans, Golden Poland, Blue Australians, Silver Gray Dorkings, Light Brahmas, Houdans, S. C. B. Leghorns. Price, \$1 per 13 eggs.

EGGS FOR HATCHING - Silver, Golden and White Wyandottes, B. P. Rocks, and Pekin Ducks, \$1.50 per setting, \$2.50 per two settings. Send for my illustrated incubator circular.

Jacob B. Snider, GERMAN MILLS, ONT., breeder of highly-bred L. and D. Brahmas, Black Langshans, Barred and White Rocks, G. and E. W. Wyandottes, Black Minorcas, Red Caps, and Indian Game. Eggs, \$1.25 to \$2 per setting. Write your wants.

THE IMPROVED VICTOR Incubator

Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market. Geo. Ertel & Co., London, Ont. or QUINCY, ILL.

BOARS! BOARS!

For next thirty days we will sell Yorkshire and Berkshire Boars, weighing from 140 lbs. to 200 lbs. (registered), for from \$10 to \$15, crated on cars. Orders booked for young pigs ready for shipment next month, with registered pedigrees, \$6 each.

F. BONNYCASTLE & SONS, CAMPBELLFORD, ONT.

Breeders of Shorthorn Cattle, Cotswold Sheep and Berkshire pigs. Heifers, heifer calves and bull calves for sale at prices to suit the times.

Shorthorns!

TWO bulls, 20 months; two bulls, 15 months; one bull, 12 months; one bull, 10 months; six in all; colors, red and roan; good animals, in good working shape, and reasonable price.

D. Alexander, BRIDGEN, ONT.

THOS. ALLIN & BROS., LAKE VIEW FARM, OSHAWA, ONT.

Breeders of SHORT- HORN Cattle and SHROPSHIRE Sheep. 2 choice young bulls now for sale, also a few choicely-bred cows and heifers. Hard-timber prices. Correspondence solicited.

CENTRAL NURSERIES.

Orders are coming in lively (Thanks). Our trees and plants are up to date. A splendid assortment to select from yet. Our stock and prices will please you. Try them. Snap shots by mail all strictly 1st class. Po. pd. 8 Lowdon or Columbian raspberry plants, \$1; 9 grapevines, 2 years -3 each M. Diamond. Vergerion, Wordon, \$1; 6 beautiful roses, all 2 years, assorted colors, \$1; 2 Clematis, purple and white, 2 years, \$1; 59 asparagus, 1 year -Columbian Mam. or Palmetto, or Colossal -60c. Choice Seed Potatoes. Priced Catalogue Free.

Norway Spruce.

All sizes; twice transplanted; good roots; stout, bushy tops; fine healthy color. WHITE SPRUCE, ditto. Other Evergreen Trees. Prices very low. Get our new descriptive price list.

THE LESLIE NURSERIES, 4 Lombard Street, TORONTO, ONT.

4 Scotch Shorthorn Bulls for Sale

Ten to thirteen months old, from Duchess of Gloster, Lovely, and Nonpareil dams, and sired by imported King James. Also a few Partridge Cochins Cockerels for sale, \$1.50.

Bulls For Sale

I have some good young Shorthorn Bulls of choice breeding which I will sell cheap, consider- ing quality. S. B. CORWILL, Fanshawe, Ont.

FOR SALE. A few choice SHORTHORN HEIFERS, also two BERKSHIRE BOARS fit for service, sired by J. G. Snell's Enterprise. Prices right. Correspondence solicited. F. A. Gardner, BRITANNIA, PEEL COUNTY, ONT.

FOR SALE! 10 SHORTHORN BULLS

and a few heifers, nearly all from imported cows and got by an imported bull. JOHN ISAAC, Kinellar Lodge, Markham, Ont.

H. K. Fairbairn, Thedford, Ont.

Breeder of pure-bred Shorthorns. I now have for sale two good young bulls, 11 and 13 months old, of choice breeding. Will sell cheap, con- sidering quality.

A. J. WATSON, CASTLEBERG, ONT.

(ASHTON FRONTVIEW FARM), breeder of choice SCOTCH SHORTHORNS. Young stock of either sex, and choicest breeding, for sale at reason- able prices. Correspondence solicited.

GOSSIP.

Mrs. E. M. Jones, of Brockville, Ont., makes some choice off-rings of young Jersey stock in her new advertisement. Read it. See also announcement re "Dairying for Profit" in premium column.

Messrs. H. Bennett & Son, St. Williams, Ont., in writing us to change their advertisement, mentions that they are receiving inquiries and orders for Berkshire pigs and B. P. Rock eggs almost every day. Their advertisement refers to a young sow in pig. We understand she is a right good one and will be sold right in season just now.

Messrs. H. Cargill & Son, Cargill, Ont., having sold all their young bulls fit for service, change their advertisement in this issue. They also report having sold six females, but they still have other cows, heifers and heifer calves to dispose of. They report twenty calves this winter and spring and more to follow. Although feed is scarce in the Cargill district this herd is in its usual excellent form, the result of good breeding and judicious care.

The American Cotswold Record (John C. Snell, Snelgrove, Ont., President; Geo. Harding & Son, Waukesha, Wis., Secretaries) offers the following cash prizes for Canadian-bred Cotswolds owned by exhibitor, and registered, at the Toronto and London shows for 1897: For the best flock, consisting of a ram any age, one ewe two years or over, one ewe one year and under two years, and one ewe lamb - First prize, \$10; second, \$5. For the best pen of four lambs, consisting of two rams and two ewes - First prize, \$10; second, \$5.

The horse-breeding season just opening promises to be one of the best for years, especially for good draft sires. Mr. Robert Davies, Thorncliffe Farm, Toronto, Ont., is doing the Clydesdales interests a decided benefit in al- lowing such horses as he offers elsewhere in this issue to pass into districts where they are so much needed. Energy is a rangy, smooth horse of superior action, and an excellent sire; King's Own and Black Prince are as good as imported, the former having secured a number of noted premiums at leading exhibitions.

SUCCESS OF THE DIAMOND GRIP FENCE.

Mr. Fred Gregory, of Milton, writes that he built 170 rods of Diamond Grip for Mr. Ken- nedy, of Roundhill; and to use Mr. Kennedy's own words: "It is the best and cheapest fence on the market." He gave it a very severe test. He had a young horse that ran full tear against the fence, and it sent him back; he tried to drive the pigs through the fence with the dog, but the fence would not give, and he justly declares it the best in the market. The Dia- mond Grip is built by the Canada Fence Co., London, Ont. They also make Barb Wire from the best Am. Galv. wire at \$2.65, and Smooth Wire, \$2.35 cash.

NOTICES.

FARM SUPT. RENNIE, OF THE O. A. C., ON ROLLING.

E. C. Coleman, Manager Estate of T. T. Cole- man, Seaford, Ont.

Dear Sir, - In reply to your favor of yester- day, beg to say that we have one of your Dale Pivoted Land Rollers on the Experimental Farm, and that it gives entire satisfaction.

As to the importance of rolling land, that depends somewhat upon circumstances. If the land is moist at time of seeding it would be advisable not to roll until dry, even if the grain should be up three or four inches.

Experiments teach us that rolling when the land is moist tends to form a crust on the sur- face, which will cause the land to dry out through evaporation.

Loose land should be rolled before seeding, which will pack the soil, and in seeding the surface will be pulverized, forming a mulching which will retain the moisture.

Yours respectfully, WM. RENNIE.

Guelph, March 30th, 1897.

In another column Messrs. Osler, Hammond & Nanton, Land Agents, 351 Main St., Winni- peg, Man., advertise a little pamphlet of in- terest to anyone thinking of settling in the West. This pamphlet can be obtained, along with list of lands for sale, for the asking.

VETERINARY COLLEGE CLOSING.

The Ontario Veterinary College terminated its session on March 25th by the accustomed annual dinner, at which were present among other notables, Hon. G. W. Ross, Hon. John Dryden, Hon. Wm. Mulock, W. F. McLean, M. P., Major Lloyd, V. S., J. H. Reed, V. S., Dr. Ryerson, Henry Wade, and a number of Toronto aldermen. Principal Prof. Andrew Smith, F. R. C. V. S., who occupied the chair, made a short address to the students. Major Lloyd in an address dwelt particularly on the necessity for all to endeavor to keep pace with the advancing knowledge of the day, there being no standing still in science.

The graduates of which there were some 65, are from several States of the American Union, Scotland, Newfoundland, Manitoba, Quebec, and Ontario. The gold medal for best general examination was taken by E. C. Cliff, Hamilton, and the gold medal for most dis- sected specimens by G. S. McDonald, Toronto.

GOSSIP.

Wm. Grainger & Son, Londonboro, Ont., writes under date of April 9th, 1897: "In sending you a change of advertisement would say that we consider the ADVOCATE a good medium to advertise in. We have this season sold the following young bulls: Golden Horn, a beautiful roan, to John F. Learned, of Cook- shire, Que., to head his herd of dairy Short- horns; Pride of Hawthorne to D. N. MacKen- zie, of Amherst, Ont.; Sam Gidley to Mark Cassel & Son, Wingham, Ont.; and Dock Per- due to Duncoo Forbes, Stratford, Ont. They are all excellent bulls, as good a lot as ever left 'Hawthorne,' and have been sold at a slight increase on former prices. Our young calves for next season are an extra good lot. They are the first of the get of our present stock bull, Beau Ideal, and they go to show that he is a good stock-getter. The heifers that we advertise are an even, good lot, in nice breeding condition, and from AI dairy cows. Wishing the ADVOCATE every success, we remain,

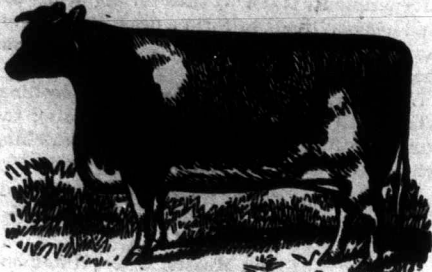
HERBERT WRIGHT'S OXFORD DOWNS AND SHORTHORNS.

A better pen of OXFORDS would be hard to find than the one we were shown at Mr. Herbert Wright's, a few miles out of Guelph, the last week in March. Mr. W. has over 90 head, half of which are breeding ewes, which have or will lamb this spring. The lambs that have arrived are strong, active fellows, one weighing 20 lbs. at 24 hours of age. The pen of 15 ewe lambs (one year old this spring) are an exceptionally good lot, having size with quality and are well covered with useful, lustrous wool, their skins being in splendid condition; they look as if they would clip a dozen pounds apiece this spring. The two-year-old stock ram, bred on the farm from imported sire and dam, is a sheep of great substance and strong bone. He is well put up as to form and has a faultless fleece of wool coming from a clear, pink skin. He has proved himself a great sire of females, indicated by last year's crop of lambs. His dam was bred by Alex. Esel, Fairfield, Eng., and his sire by W. J. P. Bowdler, of Lincoln, Eng., and which were im- ported by Mr. Wright in '83. The flock also comprises 12 yearling bucks, a magnificent pair of two-year-old rams sired by an imported sheep sold in February. Mr. Wright has on his place an ideal sheep pen which is well lighted from all sides, and being built on a slightly declining grade, affords good drain- age. The root collar occupies one end, while the dry feed is stored overhead.

Among the Shorthorns, Mr. Wright has Lady Bright 2nd, Queen, and Beauty, daughters of the noted Lady Bright which was shown at the World's Fair in the milking class, a cow capable of making 21 lbs. butter per day, and giving her 80 lbs. of milk. All three daughters are producers and able to retain the repu- tation handed them by their mother as milkers. The old cow's yearling granddaughter, of rich roan color, is particularly well quartered and has sufficient bone, a beautiful head and horn. Mr. W. sold all his bulls in February, and is now getting for the Cochrane ranch at Calgary a bunch of yearlings, which will be shipped in May, with two carloads of stock bulls, for the ranch. These animals were purchased in Wellington Co., and Mr. Wright says they are doing nicely, for they were on the thin side when they arrived.

100 BEST EVERGREEN SEEDLINGS
 delivered free by mail, only \$1. 100 best
 evergreens 2 to 5 ft. delivered east of
 Rocky Mts., only \$10. Write for free
 catalogue and price list & 50 big
 bargains, selections from complete
 nursery stock. Cash paid for get-
 ting up clubs or to salesmen with
 or without experience. Address
D. HILL
EVERGREEN SPECIALIST, DUNDEE, ILL.

Arthur Johnston,
 Greenwood P. O. and Telegraph Office,



HAS FOR SALE AT EXCEEDINGLY
 LOW PRICES

EXTRA GOOD SHORTHORN BULLS

fit for service; also an equally good lot of
Cows and Heifers,
 the best we ever offered.
 Send for Catalogue and prices. Enquiries
 answered promptly. Clarendon Stn., C.P.R. or
 Pickering Stn., G.T.R. Our motto: "No busi-
 ness, no harm." 5-1-y-om

FOR SALE: Good Young Cows

two years old, yearlings and
 heifer calves out of imported and
 home-bred cows, and the imported
 bulls, Royal Member and Rantin
 Robin. Come and see them, or write, if you want something
 special. om- **H. CARGILL & SON,**
 Station on the farm. Cargill Stn. & P. O., Ont.



SHORTHORNS FOR SALE

18 Young bulls (12 red and 6 roan), also 20 red
 heifers, bred from the best Booth, Camp-
 bell, and Cruickshank cattle. Awarded
 first for best herd of Shorthorns at Toronto,
 Ottawa, and Montreal, 1896. In Chicago, 1893,
 three first herds out of five; also sweepstakes
 for bull, heifer, and herd, under two years old,
 all best breeds competing; winning more
 money and first prizes than any herd shown in
 Chicago. Price from \$50 to \$125 each. An
 electric car on the Yonge Street Road, from
 Toronto, passes the farm three times a day.
J. & W. RUSSELL,
 1-c-om RICHMOND HILL, ONT.

RIVER BOW STOCK FARM.

B. SNARY & SONS, Groton, Ont., Breeders of
 Shorthorn Cattle, Poland-China, Duroc-
 Jersey, and Chester White Swine, and
 Leicester Sheep. We now offer for sale five
 good young bulls, and also heifers of choice
 quality and breeding, sired by Chief Captain,
 a son of Indian Chief. Young pigs of both
 sexes & all ages at exceedingly low prices.

W. G. PETTIT, FREEMAN, ONTARIO,

BREEDER OF **Shorthorns, Shropshires, and Berkshires**
 Offers for sale eight young Shorthorn bulls
 from 12 to 18 months old (4 reds and 4 roans),
 of very choice quality and breeding. Price,
 \$50 to \$75 each. Four heifers and two young
 cows in calf, twenty ewe lambs, and a choice
 lot of young Berkshire sows and boars.

THE GRAND VALLEY STOCK FARM

G. & W. GIER, Props., Grand Valley, Ont.,
 Breeders of Shorthorns and Imp. York-
 shires. We offer for sale young bulls, cows
 and heifers of choice breeding and good
 quality at very low prices; also choice
 young Yorkshires of both sex. 13-y-o

Hawthorn Herd

of deep-milking SHORTHORNS for sale.
 Heifers and cows of the very best milking
 strain. Inspection invited. 13-y-om
WM. GRAINGER & SON, Londesboro, Ont.

BROOK HILL AYRSHIRES....

are still to be
 front. One young
 bull 18 months
 old for sale.
 Orders taken for
 young stock. Speciality
 in bull calves. Corre-
 spondence solicited.
W. F. & J. A. STEPHEN,
 Trout River, Que.

ADVERTISE IN THE ADVOCATE

GOSSIP.

Mr. John Isaac, Markham, whose ad. ap-
 pears in the ADVOCATE, has four young bulls
 left, and six heifers, all choice animals of un-
 questionable merit.

We visited on our trip east the premises of
 P. R. Hoover & Sons, Green River, Ontario,
 breeders of Tamworth swine, and found at the
 head of the herd a yearling stock boar bred by
 H. Revell & Son, Ingersoll, Ont., a hog having
 capital bone, deep body, and is a prompt,
 smooth, strong hog, and is a prompt,
 extra strong bred hog. There are also four
 among the sows, one of which has just
 farrowed, the other three to farrow in a few
 weeks. They are as promising brood sows as
 we have seen on our trip, having an abundance
 of bone, depth of body, activity, good disposi-
 tion, and are the best of feeders. We saw in
 all forty-six young animals, ranging from three
 weeks to four months—young boars and sows
 of indisputable breeding and quality, and
 ready for sale at any time, all in the condition
 of health, with sufficient flesh to make them
 strong and vigorous.

Our representative called on Mr. John Bell,
 Amber, Ont., and reports having seen on the
 farm a lot of exceptionally fine animals,
 among which we desire to especially mention
 a Clydesdale mare, Lady Eardley 1076, regis-
 tered in the Canadian and American Stud
 Books and eligible in Great Britain. She has
 grand bone and muscle and is beautifully
 marked; was sired by the noted Granite City,
 and has raised very fine foals. Among the Tam-
 worths we found at the head of the herd the
 boar Amber Rodmen 319, three years old, a
 smooth, strong hog with abundance of bone,
 having a long, deep, smooth body. Also a
 good stock of young boars and sows now for
 sale at prices to suit the time. Our readers
 will remember the admirable description given
 in our Feb. 15th issue by Mr. Bell of his sys-
 tem of swine rearing, which, coupled with his
 grand foundation stock, would ensure a high
 standard of excellence in his herd.

The extensive poultry-rearing establishment
 of Jacob B. Snider, German Mills, Ont., was
 visited by our representative. Mr. Snider is a
 practical poultryman, as his flocks show. He
 has several breeds, notable of which were the
 Light Brahma, 20 in all. The cock, coming
 two years old, was imported by Mr. Snider,
 last fall from the pens of C. C. Shoemaker,
 Freeport, Ill. He is considered by competent
 judges a very superior bird. The hens and
 pullets are very evenly marked, choice lot.
 "A cockerel," says Mr. Snider, "that I am also
 breeding from is of Felch stock, being one
 year; he is a strong, well selected fowl, hav-
 ing extra dark hackle, a good comb, and
 middle-toe feathers." At the head of the pen
 of Dark Brahmas is a cock from the pen of
 George & Spetigue, of London, bred from an
 imported hen and a cock descended from a
 World's Fair winner. Mr. Snider has ten
 Dark Brahmas, selected true to markings,
 lacing, etc. Black Langshans.—At the head
 of this pen is a bird which scored 93 points at
 Guelph, and won 2nd prize. He was purchased
 from the pen of Mr. Smith, Preston, also ten
 hens having that small color peculiar
 to this breed. The Plymouth rocks were the
 next pen seen. We found there the cock
 purchased from Mr. Duff, of Toronto, coming
 one year old, a bird well barred, having
 nicely-marked yellow legs and well-shaped
 feet and plenty of bone. The hens are of fine
 form, well barred, and lay a large-sized
 egg. The White Rock are of the Hawkins
 strain, from eggs purchased from Mr. Gibson,
 of Berlin.

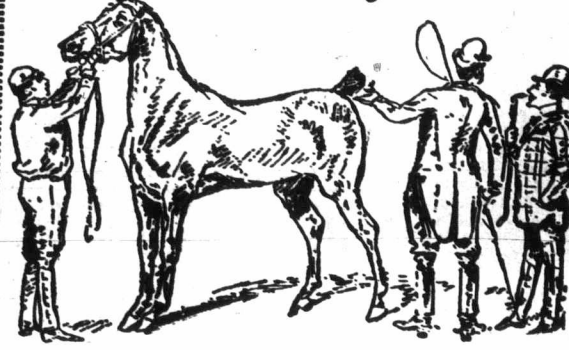
MR. HENRY ARKELL'S OXFORD-DOWNS.

Henry Arkell, Arkell, Ont., has a very choice
 lot of Oxfords now on hand, and reports to
 our representative as having done a land
 office business among them last year, having
 sold over 400 head. Mr. Arkell's flock now
 comprises some very choice animals, the two
 imported aged rams being good ones, having
 size and quality. There are also some 43 year-
 ling rams, 50 aged ewes (all to lamb this spring),
 and 25 yearling ewes. Among the late sales
 were: 18 ewes, 12 ewe lambs, and 2 ram lambs
 to E. O. Wood, Flint, Michigan; 32 ewes and 3
 ram lambs to W. A. Patterson and F. G. Smith,
 Flint; 5 rams and 4 ewes to A. Wood and P.
 Stuart, Souris, Manitoba; a yearling buck to
 J. McNeil, Flint, Mich.; 2 ewes to F. J. Griffin,
 Burgessville, Ont.; 2 ram lambs to Alcide
 Richard, Joliet, Que. Mr. Arkell is also
 feeding two show pens for next fall that will
 be heard from, as he has the material to work
 upon. The young lambs are coming strong
 and smart.

J. & W. RUSSELL'S SHORTHORNS.

A representative of the ADVOCATE recently
 visited the farm of Messrs. J. & W. Russell, at
 Richmond Hill, Ont., and their magnificent
 herd of Shorthorns was carefully looked over.
 Lord Stanley, the five-year-old stock bull, was
 first shown us. His reputation as a show-ring
 winner is too well known to require further
 introduction, as he headed three first-prize
 herds at the World's Fair. Isabella, five years,
 won first at Toronto, Montreal and Ottawa,
 and was one of the group in the prize herd at
 Chicago, which speaks for her quality. She
 was also the sweepstakes female at Montreal
 last fall. Isabella 30th was sweepstakes heifer
 at the World's Fair in class under two years,
 and first prize heifer calf, but was not shown
 last fall. Nonpareil, the first-prize three-year-
 old at Toronto and second-prize heifer calf at
 Chicago, is an animal of superior beefing quali-
 ties, and at present in prime condition. Coral
 won the first at Toronto and sweepstakes. A
 pair of yearling roan heifers of the Isabella
 stock are developing into very heavy, smooth
 beasts. Seven young bulls, bred from the
 best cows, are now ready for disposal. Their
 conformation, strong breeding and smoothness
 qualifies them for any position to which they
 may be called among the prominent herds in
 this country or abroad. Nine bull calves, a
 dozen heifer calves, with three cows yet to
 calve, compose the present season's crop.
 Five heifers, coming one year, two of which
 were shown last fall, one capturing first at
 Ottawa, as well as winning for herself a place at
 Toronto. Two Isabella-bred bulls, rising two
 years, of rich roan color, have the finish and
 beefing qualities so strongly stamped upon the
 Isabella strain.

Suit you exactly, Sir!



I picked him up from
 a man who knew nothing
 about a horse. The neigh-
 bors said he was "hard
 to keep." I knew where
 the trouble was. His
 hair stood on end like
 the feathers on a Poland
 hen. His hide was so
 tight that the slap of your
 hand on him sounded like
 the beat of a drum. He
 was so thin you could see
 him only when he was
 "broadside on." Yes Sir. Brought him home under a blanket—
 was ashamed to be seen
 with him—gave him Dick's Blood Purifier and now after six weeks just see him.
 Yes Sir—just six weeks—You can't beat Dick's, it simply puts an animal right.
 Its worth dollars where it costs cents. You can get it from druggists or at general
 stores but if they don't have it don't let them palm off something else on you—because
 you can send 50 cents to Dick & Co., P. O. Box 482, Montreal and they will send
 you a trial package—post paid.

FOR BUILDING...
**STABLE, SILO, AND OTHER
 WALLS, CISTERNS,
 STABLE FLOORS, HOG
 TROUGHES, ETC.**

Queenston Cement

Farmers and others who contemplate building next season, make your plans early; get
 your supply of gravel and field stone on the ground during the winter, thus saving both
 time and money, and making your next season's outlay very small indeed.
SEND FOR OUR NEW PAMPHLET OF 1897, CONTAINING FULL INSTRUCTIONS, FREE.
 For prices of Cement and other particulars, apply.

ISAAC USHER & SON, Queenston, Ont.
 15-y-o

Prize-Winning AYRSHIRES FOR SALE.



I have at present one
 of the largest
 and best
 herds in Ontario,
 which
 has been very
 successful in the
 prize
 ring. They
 are deep
 milkers and
 of a large
 size. Bulls,
 cows and
 heifers for
 sale always
 on hand.

JAS. McCORMICK & SON,
 ROCKTON, ONT. 20-2-y-o

OAK POINT STOCK FARM

Ayrshires FOR SALE.



I have now for
 sale a choice lot of
 young bulls and
 heifers of fine
 quality, and bred
 from best milking
 strains. Particu-
 lars on applica-
 tion.

J. B. CARRUTHERS,
 KINGSTON, ONT. 17-y-o

THE GLEN STOCK FARM

Our stock comprises Clydesdales, Ayr-
 shires, and Shropshires. High-class
 Ayrshires a specialty. We are making
 a special offering of ten very promising
 young bulls, and a number of very choice
 cows and heifers of the heaviest and
 richest milking strains, any of which
 will be sold at very moderate prices.
 We also have Rough-coated Scotch
 Collies for sale, eligible for registry.

7-y-om WHITEBROS., INNERKIP, ONT.

AYRSHIRES FOR SALE.

Six choice young
 Bulls, one and two years old,
 Douglas of London 1381, bred by D. Morton &
 Hoard's St., G.T.R. o Wellman's Cor., Ont.

JNO. SANDILANDS, Williamstown, Ontario,
 BREEDER OF CHOICE
Ayrshire Cattle.
 Young stock of both sexes now for sale at farm
 prices.

Ayrshire Calves

from deep-milking strains
 for sale at \$10 each; if
 pedigree furnished
 to **GEORGE & SONS,** on Crampton, Ont.

Maple Cliff HERD OF... Ayrshires

Are noted for their successful show-yard
 career. Choice quality and heavy milking
 families. A few exceptionally choice young
 animals of both sex now for sale. Prices in
 keeping with the times. For particulars
 address

ROBERT ROBERTSON, Prop.,
 16-2-y-om CROMPTON, QUE.

GLENGARY STOCK FARM.

My herd comprises
 the best strains pro-
 curable. Am now
 offering young bulls
 and heifers de-
 scended from the
 importation of the
 late Thos. Brown.
 PRICES RIGHT.
JNO. A. McDONALD, JR., Williamstown, Ont.
 4-2-y-o

Maple Cliff Dairy Stock Farm

Ayrshire Cattle, Berkshire and Tamworth
 Pigs.

Special offers for this month—Bull calf, Jack
 of Maple Cliff, 7 months old, by Gold King, and
 from Mysie Carrick (a very deep milker), \$35.
 Berkshire pigs, 1 month old, \$5.00 each; Tam-
 worths, 2 months old, \$7.00 each.

R. REID & CO., Hintonburg, Ont.
 20-1-y-o One mile from Ottawa.

WILLOW GROVE HERD OF JERSEYS.

Sweepstakes herd of
 1893, 1894, 1895 and 1896.
J. H. Smith & Son, Highfield,
 Ont., are offering 12 females, to calve
 shortly; one first prize bull, dam Elena of Oak-
 dale (19 lbs. 4 oz. of butter in seven days), gran-
 dam Menies 3, A. J. C. C., test 20 lbs. 1 oz. in
 seven days. Dam of bull won 1st prize in dairy
 test, Guelph, 1896, and he is half-brother to
 King of Highfield. -om

FOR SALE! 2 FINE YOUNG REGISTERED JERSEY BULLS,

about 17 months old; heifer and
 bull calves, and a choice lot of
 young Berkshire pigs. Prices
 right. -om

D. H. Ketcheson, MENIE P. O.

GLEN ROUGE JERSEYS.

WILLIAM ROLPH, Markham, Ont., offers
 twelve Jersey Bulls and Heifers (pure St. Lam-
 berts), out of tested cows. Grand individuals.
 Prices right. 22-y-om

The Don Herd of Jerseys

Comprises the choicest strains
 obtainable, including St. Lambert,
 Tennessee and combination blood.
 Am now offering a choice year-
 ling Bull of superior quality and
 strong breeding, from imported
 stock. Also a choice bull calf.
 Address: **DAVID DUNCAN,**
 9-1-y-o DON P. O., ONT.

Another JERSEY BULL CALF FOR SALE

at a very low figure. Grand pedigree, good
 quality, solid color, black tongue and switch-
 on **P. H. BIRDSELL & SON,** Birdsell, Ont.

Important Announcement.



A PERMANENT BRANCH HOUSE AT LONDON, ONT.
 Here we shall always have on hand not only a complete line of our latest Binders, Mowers, Reapers, Hay Rakes, Corn Harvesters, Binder Twine, and Harvester Oil, but what is equally important, a complete inventory of repairs. In addition, we have made transfer and shipping arrangements in other parts of the Dominion, from which our agents may secure their supply of machines and repairs on short notice and at small cost for transportation. We are establishing agencies in every principal farming community, and will be glad to extend our business further in points not yet covered.

Ever since 1892, when we were the first to apply Roller and Ball Bearings to harvesting machines, this style of bearings has increased in popularity until to-day American and Canadian manufacturers who have from the first ridiculed and opposed the idea are on the market with cheap, faultily-constructed imitations. Be sure to examine the ORIGINAL DEERING BEARINGS before deciding what machine to buy.

If you do not know who is the Deering agent in your locality, write us, either at London or Chicago, and we will give you a letter of introduction to him.

DEERING HARVESTER Co.,

CHICAGO, U. S. A.

LONDON, ONT.

Columbia Bicycles

"A thousand dollars would not buy a better bicycle than the Columbia--nor 'just as good'--because none so good is made."



\$100 TO ALL ALIKE

Hartfords are next best, *85 and *65

POPE MFG. CO., Hartford, Conn.

Greatest Bicycle Factory in the world. More than 17 Acres Floor Space. Branch House or dealer in almost every city and town. If Columbias are not properly represented in your vicinity, let us know. You should know about bicycles. Send for the handsomest bicycle Catalogue ever issued. Free if you call at any Columbia dealer; by mail from us for one 2-cent stamp.

AGENTS:

Wm. Gurd & Co., London, Ont.

ADVERTISE IN THE FARMER'S ADVOCATE.

GOSSIP.

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

Geo. Walker, Wellington Co., Ont.:—"I have read the FARMER'S ADVOCATE for 25 years and like it better all the time."

Mr. Scott, of Brampton, has purchased from Mr. Rennie, Farm Supt. Ontario Agricultural College, the fat cattle fed there, at 50c. per lb. for May or June delivery.

When renewing his subscription for 1897, Mr. John A. Walker, of Vaudorf, Ont., says: "I do not see how I could do without the ADVOCATE, as it is by far the best journal I know of for the kind, and I take several. The January and February numbers were just grand."

Mr. S. B. Gorwill, of Fanshawe, Ont., offers for sale elsewhere in this issue a few good young Shorthorn bulls, sired by the imported Roan Prince. In a note to this office Mr. Gorwill is good enough to say: "I am much pleased with the ADVOCATE. I find it a great improvement on some other agricultural papers I have been taking."

Henry Herron, Avon, Ont., writes:—"During the last few months I have disposed of all my boars at fair prices. Have some more to part with; bred to farrow in April, May and June. Anyone requiring stock of the Chester White and Poland-China breeds should not fail to look us up. First to order gets choice, if any." See advertisement.

The sale of the Belmont Jersey Herd of Mr. Jas. Fell, Brantford, advertised in the FARMER'S ADVOCATE, took place on March 29th, and was most successful. The number of registered Jerseys being small, few attractions were offered to buyers from a distance. Some of the heifers reached nearly \$70; other stock sold exceptionally well. The stock was offered in exceedingly good condition.

A representative of the FARMER'S ADVOCATE in calling upon Mr. Smith Evans, Gourlock, Ont., found his Oxford sheep in good shape, the lambs coming strong and healthy. Mr. Evans has some 25 breeding ewes, all dropping lambs this spring; 13 strong yearling ewes; 2 yearling rams, and 2 aged rams. An extra fine yearling ram and two ewes are worthy of special notice, being excellent in size and quality, well-covered, strong animals. They were bred by Mr. Geo. Adams, of Ferrington, England, and, barring accidents, will be heard from later.

A. J. Watson, "Ashton Frontview Farm," Castlederg, Ontario, writes:—"My Shorthorns have come through the winter in fine shape. I make fitting show stock a specialty. Princess Josephine--the second prize heifer calf last fall at London, is going along fine, and promises to be a hard one to pass next fall. The first prize three-year-old is going to make a strong aged cow next September. I am also fitting two extra fine two-year-old heifers. They will make a sweet pair. Prairie Flower--gave me a bull calf this year, and it is going to make a winner if all goes well. I still have on hand several heifers, and four bulls fit for service, that I will part with cheap if taken away soon. They are all of the best Booth and Cruickshank blood."

Mr. H. J. Davis, Woodstock, Ont., writes:—"Enclosed please find amount to pay for my advertisement. I might say it has given even better satisfaction during the past year than formerly. It has been the means of selling stock into nearly all the Provinces and some of the States. I have recently sold a pair of Yorkshires to H. Hittcher, Smithsburg, Pa.; Berkshire boar to Chas. Friend, Madisonville, Ky.; Berkshire boar and Yorkshire sow to Gordon, Man; Yorkshire boar to Jos. Heard, Whitby; Yorkshire boar to M. Dennis, Hickson, Yorkshire and Berkshire boars to Oliver Blake, Strathallan; Berkshire sow to Henry Pawling, Pt. Dalhousie; Yorkshire sow to Mr. Davidson, Minto, Ont.; Berkshire sow to J. Marson, Hickson; Berkshire sow to John Macdonald, South Middleton; one Yorkshire boar and eight Berkshires to F. Standaen & Sons, Motherwell, Ont. Have still some very fine young boars and sows on hand ready for service, and several very fine strong litters of young pigs, the get of show boars. Please change my advertisement as per enclosure. Thanking you for past favors."

Andrew Graham, Pomeroy, Man., returned home a short time ago from an extended trip among the most noted Shorthorn breeders of Ontario, bringing with him a carload of stock selected with great care from among the "tops" of several of the herds visited. From Arthur Johnston, Greenwood, he purchased two cows; the Canadian Duchess of Gloucester first--2333--sired by Imp. Duke of Devonshire--1243--(51135). This is a rich red five-year-old, has proved herself a successful breeder, having produced three calves. She is a strong, compact cow, with level top, good crops and heart girth, a nice head and stylish carriage. The other, Missie Morton--2704--by Indian Chief--1700--stall mate and half-sister to roan Village Beauty 7th, the first prize winner at the Toronto Industrial last fall (illustrated in the October 1st, 1896, issue of the FARMER'S ADVOCATE). Mr. Graham considers his purchase a decidedly superior animal now to Village Beauty; it will certainly take a good one to down her. She is called Village Boy, a young bull out of the dam of Village Beauty 7th. From Jas. Russell, Richmond Hill, Rose of Autumn 17th, by the World's Fair champion Lord Stanley. This is a roan three-year-old, nicely turned, and full of quality; she is suckling a heifer calf by Scarlet Velvet--2144--he by Imp. Golden Crown, out of Salina (Imp.). From Capt. Robson, Ilderton, a roan yearling bull, sired by Golden Robe, a son of Knight of St. John (Imp.), let at Toronto in '95. This young bull is out of Lovely Lorne. Forest Home Stock Farm is known for the superior quality of Yorkshire swine bred there. Now Mr. Graham has added Berkshires to the purchase of two young sows from S. J. Pearson, Meadowvale, and a boar bred at the Ontario Agricultural College. Mr. Graham has a few young bulls still to dispose of, and a number of choice Yorkshires.

ENGLISH BRANCHES

Arithmetic
Spelling
Penmanship
Grammar
Letter Writing
Geography
U. S. History
U. S. Civ. Government
Book Keeping
Algebra, etc.



TO WORKINGMEN BUSINESS MEN YOUNG MEN

and women who cannot afford to lose time from work. Send for Free Circular and References Stating the Subject you wish to Study, to The International Correspondence School, Box 900, Scranton, Pa.

FOR SALE....

ONE Jersey Bull Calf
 One DUROC-JERSEY and three POLAND-CHINA BOARS, all thoroughbred. Also, W. & R. P. Rocks, Black Largehens, R. B. R. Garre and G. P. Hamburg cockerels. Eggs from 11 varieties in season.
McCuaig & Robertson,
 VANKLEEK HILL, ONT.

LEE FARM REGISTERED JERSEYS.

Bulls fit for service, . . . \$50 each
 Heifers in calf, . . . 50 "
 Young cows in calf, . . . 75 "
 Heifer calves, . . . 30 "
 Solid colors. None better bred in Canada for dairy purposes. Come and personally select or write for description and pedigree.
R. PHELPS BALL,
 17-y-o Lee Farm, Rock Island, P. Q.

FOR SALE....

Ten Cows in calf, - \$400.
 Four Bulls, - \$100.
 All solid color, and all except two are St. Lambert strain. Address--
JONATHAN CARPENTER,
 12-2-y-on WINONA, ONT.

JOHN PULFER, BRAMPTON, ONT.

Breeder of choice Jerseys reg. and high-grade Jerseys of fine quality. Also TAMWORTH SWINE. Young stock always for sale at prices that should sell them. 12-2-y-o

Ingleside Herefords.

UP-TO-DATE HERD OF CANADA!
Bull Calves
 OF THE RIGHT SORT
For Sale.
 Address--
FRED NORTON
 (HERDSMAN),
 17-y-on Compton, Que.

GUERNSEYS

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

"Gem Holstein Herd."

STOCK FOR SALE!
 We only keep and breed registered Holstein-Friesians. We have no show stock, also some older animals, all of the very best dairy quality, that we will sell, one or more at a time, on reasonable terms. Correspondence solicited.
HILLIS BROTHERS,
 BEDFORD PARK P.O., ONT.
 Shipping Station, Toronto. 7-y-on

A. HOOVER & SON,

EMERY, ONT., BREEDERS OF
Holstein-Friesians of the choicest blood and most fashionable type; selections from our herd won the herd prize at Toronto Industrial and Montreal in 1896. Herd now headed by the two-year-old Baron Witzkyde, who has never yet been beaten in the show rings of Canada. Stock for sale. Prices right. 10-2-y-on

HOLSTEINS

None but the best are kept at
BROCKHOLME FARM, ANCASTER, ONT.
 Write me for prices if you want first-class stock at moderate figures. Holsteins in the advanced registry. Yorkshires all recorded.
 12-y-on **R. S. STEVENSON, Prop.**

HOLSTEIN BULLS FOR SALE.

Two 2 year-olds and a yearling; also some young females; all bred in the purple, as their pedigrees will show. Prices right.
A. C. HALLMAN, New Dundee P. O.,
 Springbrook Stock Farm.

FOR SALE--A PURE-BRED HOLSTEIN bull, 13 months old. A superior animal.
DUNCAN FORBES,
 P. O. Box 165, om STRATFORD.

Route Bills,
Folders, etc.



CUTS
OF ALL ANIMALS
FREE

Printed on shortest notice and at lowest prices.

LONDON Ptg. & Litho. Co.
(Limited),
Lithographers and Printers, London, Ont.

MAPLE HILL Holstein-Friesians. For rich breed, heavy production, and uniformity of type, the Maple Hill Herd is not excelled by any in America. My cattle have won over \$1,000 in prizes in the last three years, and I never had as many crack show animals as at present. Many are closely related to Netherland Hengerveld, De Kol 2nd, and DeKol 2nd's Pauline, whose official butter records have never been equalled. Write or visit—
11-y-om G. W. CLEMONS, St. George, Ont.

HOLSTEINS!

WE now offer young stock that have won prizes, and calves from our show herd, from one month to one year old, whose dams have large records—any age or sex—FOR SALE, at very low prices to quick buyers. Also some Poland-China Pigs, 1 and 6 months old; same quality (the best).
A. & G. RICE,
Brookbank Stock Farms, CURRIE'S CROSS-ING, Oxford Co., Ont. 18-y-om

LITTLE'S PATENT FLUID
(NON-POISONOUS)
SHEEP DIP
AND CATTLE WASH

THE ORIGINAL Non-Poisonous Fluid Dip.

Still the favorite dip, as proved by the testimony of our Minister of Agriculture and other large stockmen.

FOR SHEEP:
Kills ticks, maggots; cures scab, heals old sores, wounds, etc.; and greatly increases and improves growth of wool.

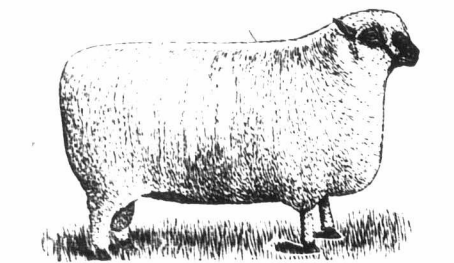
CATTLE, HORSES, PIGS, ETC.:
Cleanses the skin from all insects, and makes the coat beautifully soft and glossy. PREVENTS the attack of warble fly. HEALS saddle galls, sore shoulders, ulcers, etc. Keeps animals free from infection.

NO DANGER; SAFE, CHEAP, and EFFECTIVE.

BEWARE OF IMITATIONS.
Sold in large tins at 75c. Sufficient in each to make tins at wash, according to strength required. Special terms to breeders, ranchmen, and others requiring large quantities.
Sold by all druggists. Send for pamphlet.

Robt. Wightman,
DRUGGIST, OWEN SOUND, ONT.
Sole agent for the Dominion. —om

MILLER'S Tick Destroyer



Effectually Destroys Ticks, Scab, and Vermin

Makes the skin clean and healthy, and imparts a silky softness and luster to the wool.

HUGH MILLER & CO., TORONTO, CANADA.

FREE GIFT TO SHEEPMEN

Valuable book premium to purchasers of Miller's Sheep Tick Destroyer between April 1 and July 1, 1897. The book is "The Sheep Tick Destroyer" and contains full directions. Apply to HUGH MILLER & CO., Toronto, Ont. Send receipt or 25¢ in cash to receive the book. If local druggist cannot supply, send \$2 for 40¢ book to HUGH MILLER & CO., Toronto or Montreal.

Twelfth Annual Meeting Holstein-Friesian Association of America.

The twelfth annual meeting of the Holstein-Friesian Association of America was held at Buffalo on March 17th, 1897. President C. R. Payne, of Hamilton, N. Y., called the meeting to order, and in his opening address called attention to the growth of the Association, carrying the total number of members to 514. There were present 27 members, and 139 breeders were represented by proxy.

President Payne referred to the thrifty condition of the business of the Association and the grand record of the breed in the dairy production of the past year, in which the Holstein-Friesians won a majority of all prizes offered for largest production of butter. The officially authenticated butter records when placed before the public must force an acknowledgment of the superiority of the breed as butter cows. The report of the Secretary, F. L. Houghton, Brattleboro, Vt., contained the details of the registration for the year, and included names of 28 new members.

The total number of members admitted under the \$25 fee was 179. Report of the Treasurer, W. R. Smith, of Syracuse, N. Y., showed cash balance on hand of \$13,928.27. The sum of \$1,517.50 had been paid out for butter prizes at fairs and officially authenticated records during the year. The report of the Superintendent of Advanced Registry, S. Hoxie, Yorkville, N. Y., was of the greatest interest. There had been fifty-nine entries of officially authenticated butter records, fifty-two by experiment station officials, three by State inspectors, and three by special inspectors, and two by an agent of the Wisconsin Board of Regents. Fifty-six of these records were entered for butter prizes of the Association. The total number to date of officially authenticated seven-day records was forty-nine full-aged cows, whose average butter record was 19 lbs. 5 ozs. per cow; twenty-eight four-year-olds, whose average butter record was 18 lbs. 5 ozs.; eighteen three-year-olds whose average butter record per cow was 16 lbs. 3 7/8 ozs., and forty two-year-olds, whose average butter record per cow was 11 lbs. 11.5 ozs. Comparison with the records of other breeds was challenged.

Amendments to the by-laws were made, suspending for one year the age penalty fee for animals over one year of age. Fees for registry now stand: for non-members, females \$2, males \$5, transfers 50c.; for members, females \$1, males \$3, transfers 25c. Life membership, \$25.00.

Public institutions were made eligible for membership and will be admitted upon payment of \$25 fee for limited term of twenty years.

The sum of \$1,250 was appropriated for prizes for officially authenticated records, and \$250 for supplementary butter records based on economic production with a scientific standard of value for all foods used. Special prizes for dairy tests at fairs were arranged, and \$1,500 appropriated therefor. These prizes will be offered for competition, when won by animals recorded in this herd book, at California, Nebraska, Ohio, Pennsylvania, Michigan, New England, Bay State, New York, Iowa, Illinois, Wisconsin State Fairs, and at Toronto Industrial Exhibition, Provincial Fat Stock and Dairy Show of Canada, and others.

The result of the special butter prize offerings at fairs of the past year showed that the Holstein-Friesian cows in open competition have won over all breeds at State fairs of California, Ohio, Nebraska, West Virginia, Toronto Industrial Show, Ontario and Provincial Fat Stock and Dairy Show. Analysis of these results shows Holstein-Friesian cows won majority of first and second prizes for largest amount of butter at fairs of 1896. General adoption of the Ohio herd book was recommended to all fair associations for future dairy tests.

The election of officers resulted in following choice:

President, W. G. Powell, Shadeland, Pa.; Treasurer, W. R. Smith, Syracuse, N. Y.; Secretary, F. L. Houghton, Brattleboro, Vt.; Supt. Advanced Registry, S. Hoxie, Yorkville, N. Y.; Vice-Presidents—S. Burchard, Hamilton, N. Y.; M. R. Seeley, Farmington, Mich.; W. S. Carpenter, Menominee, Mich.; W. J. Gillett, Rosendale, Wis.; Directors—D. H. Burrell, Little Falls, N. Y.; W. J. Hayes, Ravenna, O.; C. R. Payne, Hamilton, N. Y.; Henry Stevens, Lacona, N. Y.; Isaac Damon, Cochituate, Mass.; L. T. Yeomans, Walworth, N. Y.

The next annual meeting was decided to be held in Buffalo, the third Wednesday in March, 1898.

JAS. S. & H. W. SMITH'S SALE.

Although the day was rather unpleasant and cold, there was a good attendance at the annual public Shorthorn sale by Messrs. Jas. S. Smith and H. W. Smith, at Maple Lodge, Ont., on 25th inst. Buyers were there from almost all parts of Western Ontario, and some from Manitoba and Michigan. Capt. Robson conducted the sale with his usual manly and straightforward manner, and very satisfactorily. The prices, though not large, were like the cattle offered—uniform. The following is a list:

Princess Ninetzin 12th, Wm. Golly, Maple Lodge	\$90 00
Pride of Glo'ster, R. Delbridge, Winchelsea	45 00
Lord Lottie 11th, S. D. McCurdy, Tilsonburg	95 00
12th Princess of Thule, A. F. McTavish, Stratford	90 00
Giotto, Jas. Chinnick, Chatham	80 00
Rosy Queen 1th, W. Taylor, Wheaton	58 00
Model Duke, Robt. Warwick, Wingham	80 00
Lord Lottie 12th, Wm. Grogan, Manitowish, Man.	97 00
Lord Lottie 13th, J. B. Bryan, Granton	61 00
Lovely Queen 19th, John Lee, Highgate	71 00
Princess Ninetzin 13th, W. H. Taylor, M. P. P., McInnis	61 00
Gold Boy, Richard Laird, Theford	50 00
23rd Prince of Thule, D. A. Dempsey, Stratford	63 00
18th Princess of Thule, Duncan Forbes, Stratford	70 00
Lord Lottie 11th, W. S. Haskshaw, Glenworth	85 00
Con. 5th of Maple Lodge, Chas. Carvich, Milford, Mich.	75 00

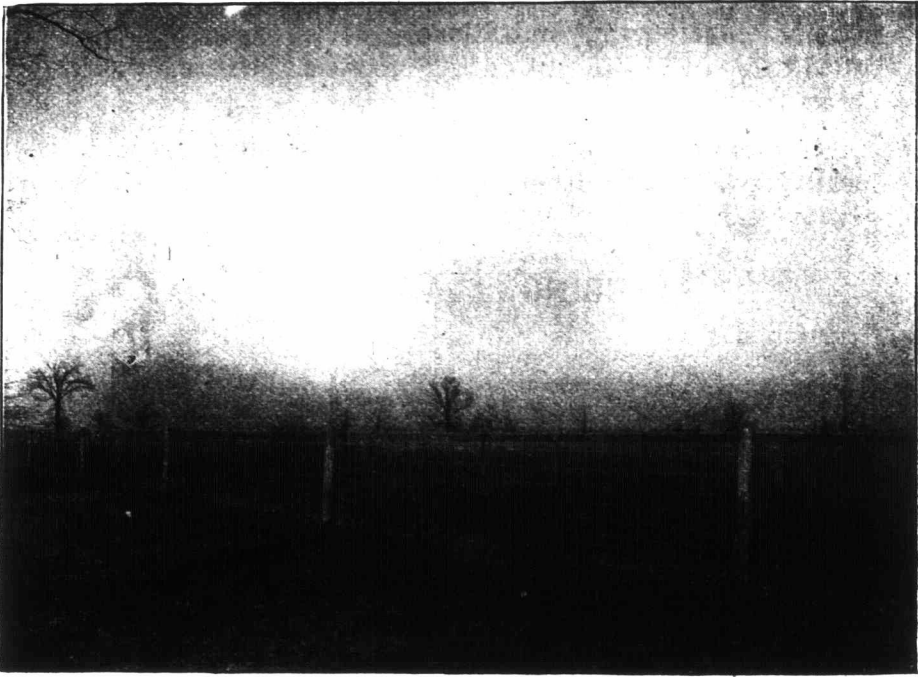
Any one can use Paint that is properly prepared and use it in the right place. The difficulty is that most people do not know the difference between good paint and poor paint, nor the proper place to use even a good paint. All paints are not alike. One may be good for outdoor use, and not for indoor use, one may give a bright, glossy finish, another an oil finish that can be washed. It is knowing what to use, and where to use it, that makes painting a success.



THE SHERWIN-WILLIAMS FAMILY PAINT
is made for touching up the little things about the house. It gives an oil finish. It can be washed—so it is suited for shelves, cupboards, etc.

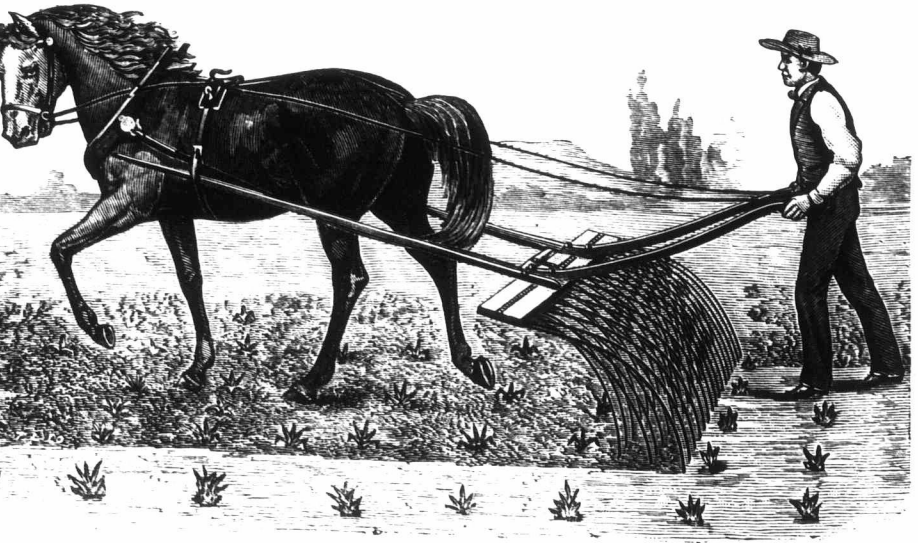
Our booklet "Paint Points," covers the ground. It tells what you need to know about good or bad paint. It tells what to use for a buggy, what for a bath tub, for iron bedstead, for a house, for a floor, for a bench. It is a practical book for the home. It is free to any address. Send for it to-day. For booklet address, 20 St. Antoine St., Montreal.

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Page Woven Wire Fence on farm of Messrs. Walker & Sons, Essex County, Ontario. If you want some instructive illustrated literature treating on fencing, write to the Page Fence Co., Walkerville, Ont., and you will get what you want.

MAXWELL WEEDER!



A new implement, thoroughly tested and endorsed by prominent agriculturists. The most labor-saving tool on a farm. Send for catalogue.

David Maxwell & Sons, St. Mary's, Ontario.

A Lesson in Hoeing

Take a lesson in hoeing. Try the "PLANETARY" No. 8 Horse Hoe and you will see much and how well you can hoe. You will go the right way about. The 1897 model of the "PLANETARY" Hoe is the best of its kind. It has some very important improvements. Write for catalogue. It is free to any address. Send for it to-day. For catalogue address, S. L. ALLEN & CO., 1107 Market St., Philadelphia, Pa.

