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# FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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## Result of a Bacon Curing Test.

Some months ago a shipment of typical Canadian bacon hogs ("Wiltshire" brand) were purchased in Western Ontario for Armour & Co., of Chicago, Ill., in order to cure and sell abroad as a comparative test alongside the cured products from hogs bred and fed according to Western States methods. The Armour people now authorize the statement that the bacon turned out entirely satisfactory, commanding a premium in the English market, as might naturally be expected, but the premium was not sufficient to cover the extra expense of purchasing the live hogs in Canada and then paying on them the Dingley duty. Judging by references to this subject in Western stock papers, the Western hog raisers will be slow to adopt modern bacon pig principles. Ephraim is joined to his idols. They excitedly resent the idea of swine improvements by the introduction of what one journal styles the blood of "the wild hog or his semi-civilized cousin."

## Rip Van Winkle Advice to Dairymen.

According to the daily papers, the Montreal Cheese and Butter Association has been petitioning the Dominion and Provincial Ministers of Agriculture to warn buttermakers (and we notice some circulars are being distributed) against the use of "preservatives," most of which, as our readers are aware, contain boracic acid, and which would bring the product within range of the British Adulteration Act. This advice is all right, though somewhat belated. Five or six years ago, when some of the "special purpose dairy papers" were busy advertising one of these substances, called "preservative," pushed by a United States firm, the FARMER'S ADVOCATE refused a tempting offer and instead of inserting their advertisement published an exposure of the deleterious nature of the substance and warned dairymen against its use as not only dangerous but needless. On various occasions since we have repeated the warning for the special reason that it became evident that the British authorities were determined—for the double object of protecting home producers and consumers, so they claimed—to put a ban upon imported products generally, on much the same principle as their embargo against Canadian cattle, and especially so in the case of dairy and other foods. Our advice to the Canadian dairyman was to make and sell products which, like Cæsar's wife, must be above even suspicion. As has been pointed out a thousand times, what was wanted was absolute cleanliness and up-to-date dairy methods (including the use of a suitable quantity of pure dairy salt) from the cow and her food to the butter package in transportation. That formula still holds good. Subsequently reports appeared of the successes of Australian butter in which "preservitas," a similar substance, was used. At our request the representative of the Canadian Government in Australia, Mr. J. S. Larke, investigated the matter there more than a year ago and found our suspicions well grounded, adding his most emphatic warning to Canadians against resorting to any such expedient, for the reasons already stated. These warnings were widely repeated in the newspapers, so that for years our dairymen have been thoroughly on the guard. The wisdom of this became very apparent when the United States Secretary of Agriculture, on the strength of a consular report more distinguished by audacity than veracity, published in his official annual report last fall an unfounded slander reflecting upon the character of Canadian butter shipped to England. With unblushing Yankee assurance he claimed that "the products of the United States and Denmark have been found to be the only absolutely pure butter imported into England; all others, including the product of the British Colonies, contain more or less injurious ingredients used as preservatives." From various quarters in the Dominion naturally indignant pro-

tests reached us, the Agricultural and Dairy Commissioner, Prof. James W. Robertson, among others in our last Christmas number, branding the slander as utterly untrue and without foundation. The letter which we published in our last issue from the well-known importing firm of Liverpool, Eng., Messrs. Hodgson Bros., shows that Canadian butter has already from the low place once occupied forged to the top, like Canadian cheese, and being pure, clean, and of top quality, does not need to be doctored by so-called preservatives. Had the worthy members of the Montreal Association of dealers been attentively reading the FARMER'S ADVOCATE their anti-preservative squib might have been fired off a year or so earlier when the real campaign was on, but better late than never.

## Transportation of Stock Eastward.

Breeders of pure-bred stock have by combined effort and persistent agitation succeeded in securing from the trunk lines of railway a classification and tariff of freight rates on shipments which are a decided improvement on those which formerly prevailed, and which it is safe to say are already bearing fruit in the shape of a largely increased volume of business, both for the railways and the breeders. Shipments of pedigreed stock from Quebec and Ontario to the Northwest we venture to say have been in the last two months largely in excess of those of any corresponding term in the history of the railways carrying freight west of the Ontario Province line. Unsatisfactory transportation facilities and freight rates for east-bound pedigreed stock still prevail, and we submit that there is yet work for the breeders' associations in the direction of seeking improvements whereby the farmers of the Maritime Provinces may have as good facilities and as favorable freight and express rates as are enjoyed by those in the West. In our issue of April 1st we published a letter from the Minister of Railways in reply to a communication we had addressed to him asking whether it was his intention to make the same concessions to stock breeders for the carriage of pure-bred animals on the Intercolonial as have been granted by the Western railways. In his reply he stated that the I. C. R. tariff in that regard is now very much lower than that of other railways, and that it was a question as to whether or not further reductions should be made, adding that it was his disposition to give it very careful consideration. We have not had an opportunity of comparing these tariff rates, but we presume the breeders' associations will look into the matter and make such representations to the authorities as the subject seems to demand. The question of express rates and facilities for the carriage of crated sheep, pigs, calves and poultry is also one which the breeders' associations might well take up with a view to securing more favorable terms. In this connection we publish in this issue a letter from Mr. J. A. MacDonald, of Prince Edward Island, showing the very primitive, tedious and unsatisfactory system of express service which prevails in that island—a system which would have been more in keeping with the commercial conditions of half a century ago than with the requirements of the present day. These are live questions, which concern the stockmen of both the East and the West, and should not be allowed to rest until the required improvements are granted and secured. In the meantime our columns are open for the discussion of this and kindred questions, and we trust our stockmen will not be backward in stating their views, backed by such a presentation of facts as they can marshal in support of their contentions.

We publish in another column the text of an interesting proposal presented by Prof. J. W. Robertson, by direction of Hon. Sydney Fisher, to the House of Commons Committee on Agriculture, for the establishment and maintenance of Illustration Stations for farmers in each county, and which merits careful consideration.

## The Farmer and Horse Breeding.

It may seem to many that during the last two or more years the FARMER'S ADVOCATE has said enough along the lines of advice to farmers to breed more but only good horses. It does seem, however, at this time, that we are not yet quite awakened to the real situation. A glance at almost any district shows that good horses are not plentiful, and the alarming feature is that good sound draft brood mares are indeed scarce. Were one to go through any district of the country comparatively few good, sound, valuable horses between four and seven years old would be found; the fact is, many farmers are doing their work with old, unsound horses, and in a few cases with some three- and four-year-olds. True, some of the older mares are raising foals, but comparatively few farmers are in a position to raise enough for their own use, to say nothing of preparing to meet the improving market demand. The reasons for this are easy to understand; horses could be bought cheaper than they could be raised, and among those that would bring a fair price were the breeding mares. The result is just a repetition of history—the depression caused largely by an ill-directed overproduction of inferior horses brought its own cure. Inferior, no-purpose stuff is no longer raised, the \$5 service fee mongrel-bred stallion has been castrated, and we, in a sense, have to commence again with too few of the really good foundation stock. It might be a good thing for the future of our horse-breeding should the Government step in and by legislation enact some safeguard by inspection that would avoid the great loss entailed by such indiscriminate breeding as was followed some eight to fifteen years ago. In place of this, however, we have the experience of the past, which should guide us in using only the best pure-bred sires obtainable on all the good mares of the same or similar breeding at our command.

For two reasons, all the good mares left in the country should be bred this season: One, for self-preservation, as farmers need these young horses as soon as grown to do their farm work, and exporters will need them to keep up the foreign demand, which should not be lost sight of, but should be cultivated and provided for. There is no danger of a glut of good horses in four, five, or ten years. Many of the mares are old, and as some have not bred for four or five years, a large proportion will never breed again. The aim should be to breed large, good horses, and when the foal has arrived feed and care for him well, and thus grow him to his full capacity, instead of a dwarfed chunk of 1,300 to 1,400 pounds, when he might have been made to reach 1,600 in salable form.

It is hoped that many farmers will take advantage of the favorable railroad rates during the present week and visit the Toronto Horse Show, where the types to seek to produce can be seen of all breeds and classes. Saddle horses and those for heavy harness carriage purposes will be especially in evidence, as well as draft and road types, besides military remounts, brought out in perfection of form.

## Our Agricultural Shows.

BY JAMES ELDER, "HENSALL FARM," MANITOBA.  
In undertaking to suggest improvements in our local shows the first step should be to improve the educative facilities. Local shows should bear the same relation to provincial or central shows which common schools bear to high schools or universities. To many, country schools are but stepping-stones to university education, but to many others they furnish all the education ever received, and with no higher education thousands become useful members of society. So with local shows. Many who commence by competing at our local shows.

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in course of time compete successfully at the larger. But whilst many never do, it does not follow that they are not benefited or that they should be deprived of their more modest competition.

How can we improve the educative facilities? Under existing regulations, when a prize is awarded, some express approval, others disapproval, while others pronounce the judge "no good," but none are any the wiser. Unfortunately, the insinuation or assertion *re* the judge is sometimes too true. I once saw a man act as judge at a local show who did not know a Yorkshire hog from a Suffolk, nor a Berkshire from a Poland-China. The decisions of such a man had no educative value, quite the reverse. This defect in our show system has been greatly remedied of late years. Now, instead of one set of judges being appointed for all the sections, we choose men specially interested in the classes in which they are asked to judge. A thoroughly competent judge secured, I would reject the common idea, which sometimes takes the form of a director's injunction, that the judge must not discuss the grounds of his decisions. I would suggest quite the opposite. I would have the director in charge select from his section certain classes. Then when the awards have all been made, have the selected classes brought into a suitable place and have the judge show the points of excellence, and explain the grounds upon which he gave the awards. I know that the objection to this plan is the danger that the judge may meet with adverse criticism by some disappointed competitor. But under existing regulations we find it necessary to insert restrictive clauses in our rules, which, by the way, are sometimes hard to enforce. Now, I believe that dissatisfaction is often due to ignorance of the points which constitute superiority, and that in many cases the man or woman who maintains a sullen but, per force, silent dissatisfaction would go away quite satisfied when the points were made clear to them. And then look at the educative value of such a system, not only to the competitors but to the spectators. Were this done in each section (simultaneously if necessary) what an amount of valuable information would be disseminated; how much would it assist in intelligent breeding or manufacturing.

This suggestion is on the lines practiced by our most efficient school teachers. Where would a teacher be to-day who would simply tell his class that Tom Brown had given the best answer, John Smith the second, and Sam Jones the third? He is supposed not only to show each wherein he is

wrong, but to help him reason the matter out himself. This is on the principle of the score card; with this advantage, that whilst the score card informs the exhibitor concerning his own animal or article, this plan would inform all the spectators of the defects and excellencies of the different exhibits. I would be pleased to see some of our local societies try this innovation, and see if it does not prove the most interesting part of the exhibition. Of course, this would involve *expertness* on the part of the judge, but this is essential in any case. And if the shows were arranged in circuit it would not be very difficult to secure a competent judge to attend a number of shows. Then after all the shows were past the awards at each could be published, showing exactly the position of each animal or article judged by any one man, although these exhibits may not have met in the same showing.

[The plan of having the judges lecture on the animals after the awards have been placed, pointing out the points of superiority of one and inferiority of another, is practiced in a few of the American exhibitions, and was done with very satisfactory results at the Winnipeg Industrial some few years ago, when Mr. O. C. Gregg and Prof. Shaw, of Minnesota, were judging cattle. The great difficulty in carrying out such a plan is the scarcity of competent men. Many excellent judges cannot make public addresses. More tact than most judges are blessed with would be required when pointing out the defects in an exhibitor's animal.—EDITOR.]

Another improvement I would suggest is, to have an auction sale at the close of the exhibition, at which articles exhibited would have the preference, afterwards anything which anyone might wish to dispose of. There are few things which attract a crowd better than an auction sale, and an attraction of this kind would certainly be an improvement on those now in vogue. Other suggestions could be made, but I think if these two are tried by some of our enterprising directors they will find them quite an improvement both from an attractive and an educative point of view.

### Only Medals as Prizes.

The report is current that the management of the Trans-Mississippi Exposition, to be held at Omaha, have in their wisdom decided to offer medals instead of cash prizes in the classes for live stock as well as for manufactures, etc. This proposition, if adhered to, will effectually settle the question of the success or failure of the show, and it will be a case of failure sure. The idea that owners of stock would incur the expense of shipping their animals hundreds of miles, and submit to a whole month's detention on the show ground, with the added expense which that means, all for the glory which a cheap gold medal brings, could only have been evolved from the minds of men who know little of the cost of preparing stock for such an event, and of carrying them through it. We are quite sure we express the sentiments of Canadian breeders when we say that unless the decision to award only medals is revoked there will be no exhibitors from Canada. Only cash prizes will induce our people to compete in the live stock departments, and, moreover, they will require some assurance that the prizes offered will be paid in cash at the rate of one hundred cents on the dollar. The experience of some of our stockmen in this regard in connection with more than one of the rather pretentious shows held on the other side of the line in the past has not been such, we regret to say, as to establish entire confidence in the *bona fide* character of their published prize lists.

### Better Transportation Facilities Wanted for Maritime Provinces.

To the Editor FARMER'S ADVOCATE:

SIR,—There is one thing that seriously hampers trade between the Upper Provinces and the Maritime Provinces and causes our dealers here to charge very high prices for seeds, agricultural implements, fertilizers, etc., etc., and that is the want of through freight rates from Toronto, Montreal and Hamilton, to Prince Edward Island. We, here, being isolated from the rest of Canada, I. C. R. rates will reach only Pictou or Point DuChene. This is as far as goods can be taken by land. Goods for the Island will then have to be ferried across Northumberland Strait by an alien steamship company, who have not hitherto been restricted by the Central Government in their rates schedule. The water rates are out of all proportion to rates on land. Goods on arrival on the Island are next taken by the P. E. I. RR.—a road that has rates all

its own, and a government road like the I. C. R. Why these two roads were not amalgamated, and the ferry steamers made a part of the system, I cannot for my life see. The addition of about 200 miles of our Island railways to the I. C. R. system would not be much of an addition to that road, and that would mean owning or leasing the water service connecting both roads. If this were done we might have very moderate freight rates to and from this Island. The dealers and merchants care nothing about this. They simply charge the consumer—the Island farmer—the freight rates, with some extra for interest, and the horny-handed toiler pays the bills—if he can.

We have, too, a very poor express system here on the Island. The business is done by the Canadian Express Co., but they have never been able to cover the Island. They have no express cars, or even compartments, on the railway, and there are but two offices in the whole Province! I, myself, have tried to get the company to give us a good system of expressage along the line of railway. I believe they have tried last summer to improve their system, but as far as I know nothing has yet been done. It seems a compromise could not be effected with the Railway Department. This miserable express system makes it very inconvenient to our farmers who are importing pure-bred stock, as everybody knows young pigs, calves, and sheep *must* go by express; also poultry and small packages of seed. It would never do to ship a young pig or calf or sheep by ordinary freight, and it is not safe to ship even a mature animal by freight unless a caretaker goes with it. It will be thus seen what a drawback to our farmers is the absence of a complete express system along all points of our Island railway. No express cars, no express messengers, no express offices—not one in this county! On what I have to ship by express, I must first pay freight to the nearest express office at Charlottetown, notify the agent a day beforehand that the stuff is going to reach him such a day, and have him forward it. Young blooded animals coming down here from Ontario must and can only be expressed to one of two points—Charlottetown or Summerside—whether the consignee lives fifty miles from either of these points or not, and if not prepaid, the animal, I suppose, must lie in the office till the consignee is notified to pay the express rates, and then be forwarded to destination by rail, if the animal is living. This is the state of affairs—"I swear it by Mahomet"—and I would ask shippers of pure-bred breeding stock in Ontario who send animals down here to use their influence with the Canadian Express Co. to improve their system in P. E. Island. The officers of the company in the Maritime Provinces are very obliging, and do even more for shippers than they need to, and if this were not so, it would be intolerable. J. A. MACDONALD.  
King's Co., P. E. I.

## STOCK.

### Origin of Various Breeds of Carriage Horses.

Under date of April 15th we received a communication from W. C. Young, of Lanark Co., Ont., asking from what breeds of horses did the French Coach, Cleveland Bay, and Hackney originate. In the brief space at our disposal we endeavor to supply the desired information, which we hope will be of interest and value to many readers at this horse-breeding season of the year.

#### FRENCH COACH.

About 1780 the French Government undertook a systematic improvement of the native horse stock of the country, especially for cavalry purposes. To this end Thoroughbred and Hunting stallions from England were introduced. From that time up till about 1840 Thoroughbred stallions and their best male gets from French mares were largely used in the stud. Since that time the introduction of Thoroughbred stallions has fallen off in that portion of France devoted especially to Coach horse breeding, while the number of native-bred horses selected for use in the stud has proportionately increased. Occasionally, however, at considerably later dates, when those in authority thought well, Thoroughbred stallions were made use of.

When the system of breeding above alluded to was inaugurated the produce of the union of Thoroughbred sires with French mares were called *demi sang* (half-blood), and notwithstanding the "breeding up" process which has constantly been going on for over one hundred years these horses are still called *demi sang*, so that it must be concluded that Thoroughbred blood is largely contained in the make-up of the modern French Coacher.

#### CLEVELAND BAY.

The origin of the Cleveland Bay breed of horses is not clearly known, but the most feasible theory is that it has been produced by a system of natural



his improvements about the year 1760. . . . In 1538 a law was enacted that said: No tenant farmer should have more than 2,000 sheep. Roast beef at Christmas time appears to have been a luxury of modern times—thanks to the turnip, mangel, cake, clover and other winter food; for, formerly, as soon as the pasturing season ended the fat animals were killed and salted to prevent their becoming lean again, the hay being required for cows and young, growing animals. Bullocks and sheep were a long time growing to perfection for the butcher, much as it is now in foreign countries, whose agriculturists, when they visit England, express surprise that our live stock should be so large and so fat at an early age.

Now, cousin Canadians, you are no doubt aware that in point of quality your herds and flocks are almost on the ground of equality with the best the world has ever produced. I have myself seen specimens of both cattle and sheep (Canadian home raised) that would not necessarily concede a single point to the best found in the Old Country; but does not the feeding of roots tend considerably to the production of such marvellous specimens? Do you think the efforts of the Webbs, the Bakewells and Collings would have been crowned with the success that attended them without the aid of roots? Do you think the climate of Lincolnshire could have made such wonderful specimens of the "golden hoof" to be found in that country to-day without the aid of roots and improved modes of feeding? Climate figures, but not to the extent that some may suppose. The climate of Ontario allows of the growth of the animal to weights equal to that of any country, and it lies in the skill of the herdsman and flockmaster in mating and producing type whether she or England shall lead in the production of the best stock. It is not a matter of climate, but skill in mating and feeding, of which the Canadian is pretty near a master. As regards the health of the flock and herd, Canada has a climate equal to if not surpassing that of England. Of course, climatic and geological influence warrants diversified modes of management in the various countries to bring about a successful issue.

Wishing the opinion of a brother Englishman—of no small repute as a breeder and grazier of fine stock—as regarded the great Toronto Exposition of '96, I ventured: "What did you think of the Canadian exhibit of home-bred sheep?" His reply was: "It was a surprise to me. I was not prepared to see such grand specimens bred by what I erroneously thought to be novices. No country can boast of finer specimens, and the wonder is they do not let South America know what they have to sell. Canada will one day prove a great competitor with England in supplying first-class stock to other countries. As far as my personal experience goes, there is no fairer sheep country found than in Canada. Especially does this apply to Ontario. Good sheep are there, and in their company good shepherds, and an abundance of roots."  
Richmond Co., Que. SHEPHERD BOY.

#### Governing Sex.

In a letter recently received from our correspondent, Mr. D. P. L. Campbell, of Prescott Co., Ont., it was pointed out that the theories of how to regulate sex in offspring, as set forth by Mr. C. T. Fields Clark, are not of recent origin, as similar views were held and expressed some years ago. Mr. Campbell quotes from an old authority among other theories the following, which agree in the main with those set forth by Mr. Clark: "The development of the fetus in the right horn of the womb will secure a male, and in the left horn a female." "The male germ is supplied by the right testicle and the female by the left;" "in females that give off a single ovum at a menstruation every alternating ovum that reaches maturity is of the opposite sex to the one immediately preceding it." In conclusion, the question is raised: If such is the case could not males or females exclusively be secured by removing the right testicle and ovary or the left, according to the sex desired? It is suggested that it would prove an interesting and profitable experiment for some of our experiment stations to take up.

#### No Fear of the Sheep Industry Dying Out in Manitoba.

To the Editor FARMER'S ADVOCATE:

It is somewhat difficult to answer your inquiry as to whether the sheep industry in Manitoba is in as good condition as some years ago. The question falls to be answered by a comparison of the numbers now with the numbers then. It is doubtful if this can be done with any degree of accuracy, as no statistics on the subject were collected by the Agricultural Department during several years. The last bulletin gave the number of sheep as 36,680. Whether this number is greater or less than in previous years we cannot take it as matter for boasting, but must accept the fact that the sheep industry does not occupy that place among the agricultural interests of the Province which might reasonably be expected. Several reasons may be given for this, among which may be mentioned the fall in prices, the necessity of suitable fencing, and the loss from wolves in many districts.

We cannot expect prices to rise to the figures of eight or ten years ago. Unless there is an export market prices will continue low, as the local demand is easily supplied. The market for early lamb has been adversely affected by the sale of

frozen lamb of the previous year as spring lamb. Purchasers in the meat markets should not allow themselves to be imposed upon, as the one article can be easily distinguished from the other.

The average prices of sheep products for some years have been \$2 to \$3 for early lamb, 2½ cents to 3½ cents live weight for sheep in the fall, and 8 cents to 10 cents for wool. The price of mutton has been about the same price as good beef, and if it pays the farmer to grow beef it will pay him to raise mutton at the same price. If the enterprising firm who are erecting abattoirs in Winnipeg make the export of chilled mutton to England a feature of their business a steady market at fair prices will probably be furnished for increased numbers of sheep raised in Manitoba and the Northwest Territories.

We do not think there is any fear of the industry dying out. The people on this side of the Atlantic are not great eaters of mutton. There is too little discrimination of the different qualities; widders, lambs, old ewes and bucks very often being all classed together. Matters, however, are improving somewhat in this respect, and when the public find that they can always get good mutton when they ask for it the taste for it and the demand will steadily increase. The practice of seeding down land to grass, which is becoming a feature in Manitoba farming, will tend to increase the number of sheep. It lengthens the grazing season a month at each end, and a much larger number of stock can be kept per acre. The reduced cost of fencing wire will also help this tendency.

It is hoped that the Legislature will not pass the bill, of which notice has been given, to reduce the wolf bounty. The present bounty of \$2 is fair and reasonable, and is doing much to keep down this pest.

A gratifying feature in the sheep industry is the establishment of so many flocks of pure-bred sheep in the Province, so that no difficulty need be experienced in procuring good rams of all the leading breeds at reasonable prices. WM. WALLACE.  
Winnipeg District, East.

## FARM.

### Local Object Lessons in Agriculture Under Government Supervision.

For the information of our readers we give below an outline of a comprehensive plan submitted on Friday, April 22nd, to the Parliamentary Committee on Agriculture, at Ottawa, by Prof. Jas. W. Robertson, Agricultural and Dairy Commissioner, and authorized by Hon. Sydney Fisher, Dominion Minister of Agriculture:

#### "ILLUSTRATION STATIONS" FOR FARMERS.

The most important direct aids to Agriculture, given by the Dominion Government, are:

- (1) The establishment and maintenance of Dominion Dairy Stations, whereby the making of butter in creameries during the winter has been introduced into all parts of Canada, and by means of which co-operative dairying has been established in districts where it was unknown;
- (2) The Cold Storage Service for the carriage of perishable food products;
- (3) The imparting of information on the needs and preferences of markets which can be supplied with Canadian products, and the making of Trial Shipments of the same;
- (4) The maintenance of Experimental Farms;
- (5) Encouragements to Agricultural Societies, chiefly in the Northwest Territories; and,
- (6) Protection of the live-stock interests by Veterinary Service and Quarantine.

During the last ten years, very marked progress has been made in improving the quality of manufactured farm products, such as butter and cheese, and in feeding live stock profitably. There has been much less improvement in the methods of cultivating crops, in the selection and general use of the most productive varieties of cereals, grasses and roots, and in maintaining the fertility of soils.

#### RESEARCH AND ILLUSTRATION.

Every experiment is capable of rendering a two-fold service. It may discover what was before unknown, and it may illustrate and demonstrate the application in a profitable way of principles and methods which are not new. It is seldom advantageous to combine in one experiment the objects of research and illustration. It is always a good plan to concentrate effort and attention on a few things, until some real progress has been made. The hurried multiplication of experiments, without definite comprehensive plans, may cause amazement, but they seldom yield practical service. The history of experiment stations maintained by the Governments in all lands shows a general tendency towards making them, or letting them become, "Show Places," having in consequence a very limited range of usefulness. Too much Barnumism renders no service to science or to farmers.

#### INFORMATION PRESENTED IN A TAKING WAY.

When any principle or method that may be applied to farm management has been discovered as a good one, the information about it should be given in such a way that it will be, as soon as possible, beneficial to those for whom it is intended. There is great danger of valuable information being buried in bulky printed reports beyond the hope of resurrection. For men who are mostly employed in working with material things, such as land, farm tools, animals and products, illustrations should be given (1) where they can see them, (2) in such a way that they can readily understand them, and (3) so that they will be attracted to learn and to put the lessons into practice.

The Dairying Service of the Department has been useful

in that way through the Dairy Illustration Stations. These have been object lessons which the farmers could readily see and copy from.

A similar system suited to illustrate—that is, to make clear—the relative productiveness of different varieties of grains, of roots and of fodder plants, would be readily accepted and acted upon by farmers.

The quality and quantity of crops which could be obtained on the same land, in the same season, from different methods of tillage, might be illustrated in such a way as to quickly cause nearly all the farmers who saw them to put the best methods into practice on their own farms.

#### LOCAL ORGANIZATIONS TO CO-OPERATE.

To accomplish that I would recommend that some local organization of farmers, such as a Farmers' Institute, an Agricultural Society or Farmers' Club, should provide an "Illustration Field" or "Illustration Station" to be used in the way and for the purposes indicated. In any county where one of these organizations was not disposed to do so, I would propose that the County Council, or the Township or Parish Council, should be assisted to provide a small "Illustration Station." No property need be purchased, and there would not be any necessity for engaging a local superintendent on salary. From ten to twenty acres of suitable soil should be arranged for. It should be fairly uniform in character, situated near a market town beside a public road, and where practicable, close to a schoolhouse.

The Farmers' Institute or other local organization might arrange with the farmer occupying the land to conduct the "Illustration Work" according to directions which would be furnished from the Dominion Department of Agriculture. The "Illustration Field" for a county need not be permanently in one locality. The illustrations might be given in one place for a year or two and then in some other locality after they had served their purpose in the first place.

#### THE GOVERNMENT SHOULD PROVIDE THE PLAN AND THE SEED.

The Dominion Department of Agriculture should provide the plan in general and in detail. For each locality it should aim at the accomplishment of something definite in introducing varieties of seeds, methods of cultivation and improvement in the fertility of soils. The work to be carried on at each "Illustration Station" or "Field" should be directly adapted to furnish information to the farmers on what would be useful to them in their district at once.

The plan should be simple and clear in order to make it as effective as possible in affecting the practice and products of the neighborhood. For instance, one-fourth of an acre each of four different varieties of oats might be grown side by side. The rule should be to grow not more than four varieties of any one kind of grain. One-eighth of an acre might be grown of each of four different varieties of carrots and of four different varieties of potatoes.

For illustration of different methods of culture one-quarter of an acre of some suitable variety of Indian corn for fodder might be sown broadcast; one quarter of an acre in rows two feet apart, with the seeding quite thick in each row; another fourth of an acre with the corn in rows three feet apart, and cultivated according to the best known methods; and a fourth one-quarter of an acre with the corn three feet apart, but left uncultivated. Such an illustration of methods of corn growing would result in a general adoption by the farmers of the best methods. Similar illustrations should be given of methods of cultivating other crops.

The Dominion Department of Agriculture should provide the seeds and compensate the occupier of the land, who would be Superintendent of the Illustrations, for the expense incurred in the extra labor of sowing and cultivating the comparatively small plots.

I estimate that the expense to the Government for the seeds and such compensation for labor would amount to from \$50 to \$100 per "Illustration Field," according to the size and work.

This would be a means of obtaining a large measure of volunteer service from a great number of leading farmers in spreading information in a thoroughly practical way throughout the localities in which they lived.

#### TRAVELLING INSPECTORS AND LECTURERS.

A practical farmer with a good knowledge of business methods, and ability to express himself clearly in writing and in public speaking, should be secured as travelling inspector and lecturer for each group of twenty or twenty-five "Illustration Stations." The information which they would gather at these Stations during the summer would furnish most useful material for meetings of farmers held to discuss agriculture during the winter months.

I estimate that if one hundred "Illustration Stations" were in existence in Canada at suitable centers, each would be visited during the year by from 500 to 1,000 farmers, who would examine the work carefully for the purpose of learning all that could be transferred into the management of their own farms.

#### THE KLONDYKE WOULD NOT BE IN IT.

I think by that means the quantity of crops could be increased at least twenty five per cent. from the same acreage, without extra expenses, within ten years. That would mean an annual increase of wealth for all time afterwards; and the educational value of the "Illustration Stations" to the farmers themselves and their families would go on growing in a manner that cannot be estimated in dollars and cents. The annual value of the crops from the farms in Canada is estimated variously at from 220 to 270 millions of dollars. In a few years the increased value of the farm crops traceable to these "Illustration Stations" would amount to so many millions a year that even the Klondyke would not be in it, by comparison, as a means of enriching the people of Canada.

#### ESTIMATE OF COSTS.

I estimate that the expenditure to be made by the Dominion Government for giving effect to this scheme would amount to from \$100 to \$200 for each station, including the illustration field, and the travelling inspectors and

lecturers. In the course of three years there might be an "Illustration Station" in each county.

For the encouragement of those who sought to excel in carrying on the work, the Government might arrange to award a gold medal to the superintendent in each group of stations who conducted the work in every respect in the best way. Silver and bronze medals might be given to the others in the order of merit.

Then a special Provincial Medal might be provided for the most successful superintendent in each province, and also one Grand Dominion Medal and Diploma, which would confer great honor on the one fortunate enough to win it. These would cost very little in proportion to the good they would do.

#### PIGS AND POULTRY TO BE INCLUDED.

After a few years, the plan might very well include methods for increasing the fertility of the soils by the growth of such crops as clovers, peas, beans, etc.

It would not be desirable to take up any illustration work with live stock in connection with these stations, except, perhaps, with pigs and poultry. With modifications to suit the nature of the work, the plan could be applied to the establishment and maintenance of "Illustration Stations" for these two branches of live stock; and very great benefits would result from illustrating the best methods of selecting breeds, and of rearing, housing and feeding them.

#### EDITORIAL COMMENT.

The scheme above outlined has certainly the merit of being in the line of progress, and is an extension of the principle adopted by the Dominion Government in the practical assistance given to winter butter dairying through dairy stations in the Northwest and Eastern Canada, and by the Ontario Government to experimental fruit stations, both of which have been useful in their way as object lessons or for investigations brought near to the home of the farmers, of which they can take cognizance in so far as they have proved successful and adapted to the conditions of the district. This is especially true of the manufacture of butter in connection with the co-operative creameries, and also applies, though with less force, to cheese-making, the advance in which dates back to earlier days, some twenty or more years ago, when commendable pioneer work was done by worthy men who placed this branch of dairying in Canada on a firm foundation, from which, in the hands of intelligent and enterprising dairymen, it has grown into a feature in the commercial world of which all Canadians are justly proud.

The probable cost of the contemplated scheme as estimated by Professor Robertson is not extravagant, and considering the paramount importance of the industry in a country so pre-eminently agricultural as is this Dominion, we do not apprehend that serious objection to the scheme will be offered on that score if reasonable assurance can be given that the cost will not largely exceed the estimate. To our mind \$100 would be inadequate compensation for the management of twenty acres in experimental plots as contemplated, as it would require almost the whole time of one man for six months at least to give to the various crops the different methods of cultivation at the proper time, together with the keeping of accurate account of the time spent upon each crop and the value of the labor, also the separate harvesting and threshing of each class of grain. Taking this view of the matter, we should expect the cost to largely overrun the modest estimate of Prof. Robertson. At the rate of one per county or electoral district probably 140 or 150 illustration fields would be required for the whole Dominion, and he puts the outside total cost at \$200 each per annum.

We have little faith in the feasibility of carrying on such work under the auspices of local organizations, such as a Farmers' Institute or an Agricultural Society, since, as a rule, it is agreed that what is everybody's business is nobody's business. If the results are to be of value the investigations must be conducted with scrupulous regard to accuracy, otherwise they might prove dangerously misleading. To secure the assistance of a competent man and efficient work the district inspector or some other authority would have to make the selection and appointment of the man who is to carry out the work, and the inspector should be held responsible for the proper carrying out of instructions. The difficulty in getting the right man in the right place to undertake the work would probably be one of the greatest that would present itself, but it should not be considered an insurmountable one until the plan has been tried and found wanting. The educational value of such Illustration Stations, if well manned and conducted, is, of course, the strong feature of the scheme, and that is a factor which cannot be computed, but which would probably be far-reaching and exceedingly useful; while on the other hand, if the appointments of the inspectors and the local managers

were made on any other principle than that of competency and fitness, the results might be such as to bring the whole scheme into contempt.

Professor Robertson's glowing estimate of the possible results are pleasant to contemplate, and we would gladly share his enthusiasm and wish that his highest hopes may be realized, but, judging by what we have seen, we cannot well get away from the reflection that the many millions are more readily figured on paper than realized in practice, and that the process of evolution in methods of farming, judging from the past, is not so rapid as to justify the prediction of such rosy results in so short a space of time as ten years, but we can afford to give him another ten and still have a good investment if his figures are not fixed at too high an elevation for even that period. The case of France has been quoted, where it is said they have no less than 4,000 of what are called "Example Plots" spread over the whole country, and which are said to have very largely increased the average wheat yield of that country during the past 25 years. It would be useful evidence to show how the direct value of the increases compares with the outlay for the French system.

In regard to his suggestion for the granting of medals in recognition of the highest standard of work performed, we would say that Prof. Robertson has overlooked the men to whom, in our opinion, this incentive should be held out, and they are the men who do the actual work of carrying out the experiments or demonstrations.

The above outline does not indicate what relation, if any, the new scheme will have to the Central and Branch Experimental Farms in the different Provinces, but we presume one plan might be for the latter to determine say four of the best for a large number of varieties of a given grain, which would then be grown at the Illustration Stations according to the most approved methods. These proposals will no doubt engage the most careful attention of the Agricultural Committee of the House, after which, in due course, recommendations will be made to Parliament for adoption at the present session. The opportunity would also seem favorable for considering the work of the Experimental Farms in relation to live-stock husbandry, a need of increasing which was indicated in a series of articles and letters published in this journal during the past season.

#### "The Water Witch."

To the Editor FARMER'S ADVOCATE:

I would like to give your readers who are interested, my experience in locating water with the "divining rod." A near neighbor of mine, a thoroughly straight and honest man, discovered that the rod "worked" with him, but could not understand why it should do so. I had several times tried for water, in one case going to a depth of 40 feet, but with no success. This neighbor came along one Saturday evening and located a well with a divining rod. I had no faith in the water with a divining rod, and then if the rod worked in the same place as he had at first indicated I would sink \$1,000 in the hole before I would quit. I blindfolded him and led him several times around the place, and as soon as he came over the spot previously indicated the rod turned downward. He told me that he did not think I had \$1,000. I said, "Not in cash, but I would risk every hoof I had around the place in that hole, as the stock was no use to me without water." As a further test of the rod, and thinking perhaps that electricity had something to do with it, I took one end of the willow in one hand and put my other hand in that of my friend, thus completing the circuit, and sure enough the willow bent down and I could not stop it. I then sunk a well on the spot, without any appearance of water until a depth of 65 feet was reached, when I struck a flow of water that for the last twelve years has stood within three feet of the surface. This same man has located a number of wells in this neighborhood, all with good results, some of them flowing wells. Whether I believe in the divining rod or not, I would not think of digging a well where the willow did not turn down in this man's hand.

W. M. CHAMPION.

Municipality of Woodlands, Man.

EDITOR.—There is nothing in the above letter to show that had the well been sunk to a depth of 65 feet anywhere else on the farm that water would not have been struck. Dr. G. M. Dawson, Director not have been struck. Dr. G. M. Dawson, Director Geographical Survey of Canada, says in a recent letter to this office: "The 'water witch,' or 'diviner,' has absolutely no scientific foundation, alvener, has absolutely no scientific foundation, alvener, though as in all cases of the kind, by a process of natural selection, a great deal of apparently spurious evidence is often built up in favor of a belief in it." And Mr. F. H. Newell, Chief Hydrographer United States Geographical Survey, in the Year Book, 1896, in speaking on the subject of locating wells, says: "It seems hardly worth stating in this connection that money expended in the employment of the so-called 'water witches,' or men who use the divining rod, is worse than futile, as it merely encourages fraud."

#### Observe the Arbor Day.

Let all observe the annual Arbor Day:  
Without excuse for want of time or age;  
Blend manly toil with cheerful, happy play,  
And in a noble work of trust engage.

The boy when grown to manhood's graver years,  
In contemplation sits beneath their shade,  
In vision's magic glass again appears  
Many a scene in seeming life arrayed.

Will see again his father plant the tree,  
When he with boyish hands heaped up the ground;  
Will hear his sister's loud and girlish glee,  
In memory still with joyous songs resound.

Ah, he's a benefactor of our race,  
Who lives not for himself alone, or pay,  
But with a kindly heart of trust and grace,  
Will plant some useful trees on Arbor Day.

—C. L. Lockman, in *Mechan's Monthly* for April.

#### Our Governments Should Encourage and Foster the Growth of Timber.

To the Editor FARMER'S ADVOCATE:

SIR,—The desirable acreage of woodland on a hundred-acre farm depends upon the situation and value of the arable lands. For instance, a farm bounded as mine is by steep hillsides, incapable of profitable tillage, should have these conserved for forestry purposes. A hundred-acre farm, all good, arable land, could do with less—the minimum acreage—say ten acres. I would make a difference of one-third in value between a farm with that proportion of woodland and one without it, dependent, of course, upon the quality and condition of the wood lot.

The apathy and indifference to the protection of our forests is so widespread that, in my opinion, it requires to be legislated upon. Woodland should be exempt from taxation. Something might be done if Government would assume the manufacture of woven wire fencing or some other adequate form of fence, furnish such fence at cost, and make it part of its duty to encourage and foster the growth of timber in our frontier townships.

Undoubtedly windbreaks, with due reference to situation, would be a benefit planted in such directions as not to obscure the sunlight and thus hinder vegetation. I would favor nut-bearing trees, such as hickory, interspersed with conifers. Especially should trees be planted in the milking yards and around the milk-stands. I think a well or spring (like an oasis in the desert) should have around it a clump of evergreens to indicate its presence.

In my opinion better results would be obtained were trees obtained from nurseries, of varieties not native to the country, but which have proved suitable. It should be the province of the experimental farms to furnish this information, and to issue a bulletin each Arbor Day having a bearing on this subject, and such Arbor Day should be earlier in the season, before the land becomes too dry. Our teachers and others could aid in the good work by raising from seed and otherwise such varieties in the school grounds and elsewhere.

Hastings Co., Ont. JOHN S. BOUTELLIER.

#### A General System of Windbreaks Favored.

To the Editor FARMER'S ADVOCATE:

SIR,—I heartily agree with you in your notes of alarm in regard to the wholesale destruction of our natural forest shelter. It is a well-known fact in the history of all countries that when forests disappear, fertility, for obvious reasons, is impaired, and our own Province has shown no exception to that general rule. I would consider that ten acres of forest on every 100 acres of land could by proper management be made the most useful and profitable portion on the farm, not only for the production of fuel and timber for time to come, but for a shelter for at least a portion of the cleared land adjoining. I have often heard farmers say: "What is the use of leaving a portion of the farm under bush. If this land were all cleared for crops we could raise more on the land occupied by the timber than would buy all the fuel and timber required on the farm." But in reasoning in this way they are forgetting the important fact, that by cutting away all our remaining timber we are allowing the drying winds a free course over our lands, that in most cases tend to decrease the fertility to an alarming extent, and reducing the value of, perhaps, the whole farm to an extent that few farmers seem to realize. In my opinion a farm entirely cleared of timber and surrounded by cleared land is much less valuable for all practical purposes than a farm with forest protection or proper windbreaks.

Our present groves cannot be protected if we allow stock to run amongst the growing timber. In most cases now we will have to plant at first what trees we require to make our groves self-protecting, as they have become so grown up with grass that young trees would not start readily from seed; but after we get the surface of the land well shaded and a good bed of leaves, young trees will then grow up from seed, and by cutting out the large timber as required we will always have a succession that will maintain our groves for an indefinite period.

I am in favor of a general system of windbreaks, not only for farm buildings and orchards, but for the whole farm. On a 100-acre farm I would consider that a good row of Norway spruce or Scotch pine along each side of the farm, and a parallel row through the center, and cross rows if required to break the prevailing winds, and more particularly along the roadsides, would pay well in increased crops, as a result of the prevention of drought

caused by the winds. Live stock are now prohibited from pasturing on the roadsides in most places, and no better place can be found for planting trees than on the space between the water-table and fence, and no more pleasing sight could be imagined than a nice row of green trees on each side of the highway. I would advise planting any tree, no matter what variety, as early in the spring as the condition of the land will permit. I would not plant closer than 20 feet apart. We don't want to shut out the wind altogether, we only want to break its force. It will pay us well to have the land thoroughly cultivated and well manured, and prepared for the trees the season before we intend to plant, and then keep the land cultivated around the trees for a number of years after planting. We can make a tree grow as much in one year by such treatment as it would grow in three or four years if neglected.

A nice clump of trees near the farm buildings would add greatly to the general appearance of the place, and might be a useful shelter for stock for both summer and winter. A great many farmers seem to realize the necessity of something being done in the way of re-foresting, but I am sorry to say that very little has been done along that line.

Where one can secure saplings of hard maple, basswood or elm they might be planted in groves, but I would prefer the evergreens alone for planting for windbreaks. I would not plant the swamp spruce on any condition. Before they become high enough for a good windbreak they begin to die away. Cedar will not grow high enough unless they are planted close together. In my opinion, the Norway spruce is the best tree for a windbreak. I would prefer keeping the land cultivated around the trees to either mulching or watering. In watering, especially on heavy soil, the land becomes tough, and when allowed to become dry gets very hard.

Perth Co., Ont.

D. DEMPSEY.

#### Root Growing.

BY S. HURLEY, DUNDAS CO., ONT.

It is my practice to plow all my ground in fall for garden stuff, roots, and grain. If the ground has been manured in the fall and plowed under, I do not plow it again in the spring. If not, I manure and plow under in spring all ground for mangels and cabbages, as it is, in my experience, useless to try and get a crop without manure. Perhaps the easiest way to manure the ground is to spread it broadcast and plow it under. Some think it a saving of manure to open furrows at the distance you want the rows apart, fill them with good manure, and then cover the manure with the plow; then roll and sow mangel seed in center of ridges. Two years ago I tried this plan and had a good crop. This plan takes too much time. While some claim that carrots require as rich ground as mangels, it is not so according to my experience. Carrots for feeding stock should have ground in good order, but don't prepare the ground as described for mangels. If the crop is for table use, don't have the ground too rich, else the crop will not be satisfactory; many will be too large and hollow.

In growing turnips I have nearly always sown on sod. If the ground is very rich and the season wet the turnips will be maggoty.

With the exception of sowing the mangels on ridges in 1896, as before described, I have always sown mangels, carrots and turnips on the level. Disk and harrow the ground, sow and then roll.

For some years I made my rows two feet apart, but it was difficult to get through with a horse cultivator while the plants were small, so for a number of years past I have all stuff to be cultivated by the horse cultivator two feet and a half or more apart. In growing any kind of root crop I would rather have them a little on the thin side in the rows than too thick. There will be as many bushels or tons unless too far apart. Turnips and mangels 12 inches, and the large white carrot 6 or 8, will be plenty close enough. The small kinds could be left closer. When sowing I do not try to put on so many pounds of seed to the acre, but just enough to give a good crop without thinning, as thinning means work. To this end I endeavor to watch the seed as it falls so as to have it thick enough, but not too thick. Three cultivations done at the right time will do fairly well; if I am not too much crowded I cultivate oftener. I like to get on the ground as soon as the plants can be seen sufficiently, as it means less work as well as a better crop. The first cultivation must be as shallow as possible, else the small plants will be covered by the ground which will roll over them; the second cultivation can be deeper. The turnip roots spread out so far between the rows that whatever cultivating is to be done must not be left too long, else the cultivator will break off many of the rootlets.

#### Clover the Best Green Fertilizer for Potatoes.

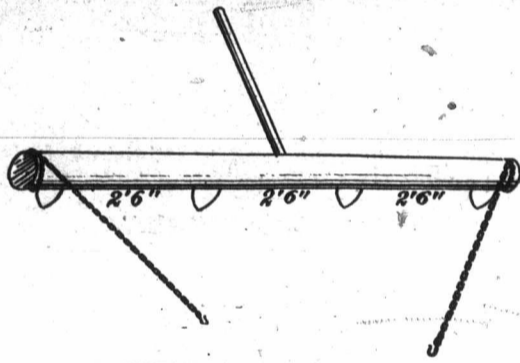
BY ELIAS B. KOLB, WATERLOO CO., ONT.

I prefer to grow potatoes after a crop of clover has been taken off and the second crop has been allowed to grow up in the fall to some height, then give the land a medium dressing of barnyard manure, say about seven to eight loads to the acre, plow it down from four to six inches deep, roll it and afterwards work it well on top with the disk harrow or cultivator, and keep on working it thus throughout the fall, so as to get the clover and

manure well rotted and the soil well-mixed. The following spring plow it up to the same depth that it had been plowed in the fall, and give it a good top dressing with the harrow when it is ready for planting. In case I have no clover to plow down, any sod will do, or even stubble that had been seeded down with clover, as clover has a tendency to make the soil mellow and loose, and thus prevent the scab and rough skin on the tubers. I consider clover to be the best green fertilizer.

The varieties I propose to plant this year are Crown Jewel and Irish Cobbler (possibly some new varieties), for early; and White Rose, Farmer's Favorite, and Rural New Yorker, for late. I prefer large potatoes for seed, which I place in thin layers on the threshing floor the latter part of April or beginning of May, to get them to drive good strong sprouts. For early planting I have boxes sheltered from the north and west winds, slightly inclining to the south, in which I place the seed potatoes, covering them with the double windows the same as the hotbed. This may be done fore part of April, but care should be taken not to place the potatoes on top of each other, and also on warm days to raise the glass or the sun may scorch the potatoes, but be sure to let it down at night. Leave them in this position until the leaves begin to form and roots have started, then cut, leaving from one to two sprouts to a piece, and plant them, leaving the sprouts above the ground. It is well to do this just after a rain, or else to water them after planting, which should be done not later than the first week in May. By treating early potatoes in this way I have had new potatoes in seven weeks.

For late potatoes I leave them on the threshing floor for about two or three weeks, until they have started good strong sprouts, when I cut them for planting (which I generally do from the 20th to 25th of May), cutting off the end of the potatoes that has the most eyes, and leaving only from one to two good, healthy eyes to a piece, and plant them as soon after cutting as possible. I always plant in hills, covering them only about one to two inches. The way I do is this: After the land has been prepared I take a marker (see figure), such as a corn marker, making the rows 2 feet 6 inches apart, marking the land plainly both ways; then planting is begun by dropping a piece at each place



POTATO LAND MARKER.

where the marks cross, covering it lightly with earth drawn on it with the foot. After planting is done I roll the ground.

When the leaves begin to force through the ground, go over with a very light harrow to kill the small weeds, if any, and to make the soil loose. As soon as the plants are large enough to allow the scuffler to go through I start to scuffle, and do that once a week if possible until they blossom. I prefer shallow cultivation, and my method of planting allows the land being worked both ways, thus dispensing with almost all the hand work. After they are in full bloom I hill them, and then leave them until they are harvested. I might state that I prefer working the potatoes after a rain, as soon as the earth is dry enough to allow cultivation. For destroying bugs I use Paris green and water, using a tablespoonful of Paris green to a large tin-pail full of water, and putting it on with a sprinkling can. This should be done as soon as the young bugs appear, and should be repeated in about a week or ten days after the first application, which generally suffices unless a rain washes it off, then they should have another dressing. As to spraying for blight, I would like to get information on that myself.

[NOTE.—We cannot but believe that such a strong solution of Paris green as is above recommended will seriously damage the potato foliage, and, therefore, injure the crop. One pound of Paris green to 150 gallons of water is the standard application for an acre of half-grown potatoes.—EDITOR.]

#### Potato Growing — Clover a Good Fertilizer.

BY J. B. STONE, NORTHUMBERLAND CO., ONT.

No doubt you are well aware of the difficulty in changing a man's system of doing work. There is a right way and there is also a wrong way to do everything, and when a man gets on the wrong line he is very slow to face about. I have a system for growing potatoes which, if followed, I have no hesitation in saying will almost insure a man a large crop. I prefer a good deep clay loam soil, or a rich sand loam; stiff clay is not good for potatoes. Barley, peas or clover are good crops to precede the potato crop. I prefer to have the land well cultivated in the fall; then early in the spring, as soon as the land is dry, manure, putting twenty loads per acre, and plow this under, cultivate it well, and

drag it down smooth. Then with the plow mark out the rows three feet apart and four inches deep, and drop the seed one piece in a place, one foot apart in the row, and cover with the hoe. As soon as the tops can be seen the whole length of the row, put on the drag and smooth down the rows. If the weeds come up very thick, I prefer going through first with the hoe, and then run the cultivator through them say five times during the summer, and you will be well paid for the six times if you try it.

To prepare the seed, I always cut the seed small potatoes once and the large ones so as to have two eyes in each piece, then roll the seed while wet in common land plaster or gypsum and plant at once, and after the potatoes are up about six inches high, sprinkle them with land plaster, three hundred pounds per acre. This is the best preventive against blight or rot I have ever tried. Paris green is the best bug destroyer. I have never failed to secure a first-class crop when handled in the above manner. For an early crop the seed should be in the ground as soon as dry enough to till comfortably. For a general crop I would say have them planted between the fifteenth and twentieth of May. Burpee's Extra Earlies are very nice for an early crop. We shall plant this year for our principal crop the Burbanks Seedling and Rural New Yorker No. 2. There is no better fertilizer than clover. Land which has been allowed to run down cannot be revived in any better or cheaper way than by plowing down clover.

#### My Way of Growing Potatoes.

To the Editor FARMER'S ADVOCATE:

Select a piece of oat stubble which has been sod the previous year. After harvest give it a good dressing of manure, plow it under and harrow the land thoroughly so that all weeds may have a chance to grow. Late in the fall plow it pretty deeply and leave it rough for the frost to pulverize, and you will find in the spring that the land will be loose and friable, and if there was any couch grass it will be pretty well killed. In spring harrow down smooth as soon as land is in good condition, so if there are any weeds they will start to grow. Then leave the land till about the 20th of May, when in ordinary seasons it will be time to plant. We then harrow the land over two or three times to kill all weeds that have started and roll it to make it smooth. This is important, as it will insure getting the potatoes in at an even depth. Select tubers that are nearest perfect in shape and medium to large in size. Those that have not been allowed to sprout or have not been exposed to light will have most vitality. We cut sets with either one or two eyes and do not find that it makes much difference which, but we cut pretty deeply into the potato. This we think important because the young plant has to depend on the set for its nourishment till it is ready to feed from the soil. We prefer having the seed cut a day or two before planting and left in a cool cellar. Care must be taken not to let them heat, as they are apt to if piled up high.

When ready to plant, take a wheel plow that will turn a wide furrow. Set your plow to go about four and a half inches deep. Open out a ridge so that your rows when planted in either furrow will be 28 to 30 inches apart. Plant in every second furrow, dropping the seeds 12 to 14 inches apart and plowing wide enough to have your rows the above distance between. Just before the potatoes come up give the land a thorough harrowing, and continue this at intervals of a day or two till the plants are up well in rows. After this stir frequently with the cultivator. We do not hill now; we used to, but have learned better. We find that the cultivator throws the clay up some toward the rows, which is no objection. We do not find it necessary to hoe by hand if horse cultivation has been well attended to.

Now for the bug; he is worth watching from the time the potatoes come up. If the beetles are plenty they sometimes destroy the young plants if not looked after. We have not been troubled this way, but if we were we would spray them with Paris green, not making it too strong in case it injures the young plants. We never found trouble with the bug till the first brood was hatched. The vines will then be a pretty good size, and we find it best to apply Paris green of the strength of about one pound to fifty gallons of water, put on in as fine a spray as possible, taking care to thoroughly wet each vine. It will take about two pounds of the green to dress an acre, and one dressing sometimes does for the season, but it is often necessary to go over them again in two weeks' time. We have never used any preventive for rot, but will have to, as rot has been very prevalent during the last few years. With the cultivation we have outlined we have no trouble in getting from 250 to 300 bushels to an acre in good seasons. The kind that constitutes our main crop is a long blue and white potato, known here as "McIntyres" or "Prince Alberts," and known in the Boston market as Chenangoes. They are a very hardy variety and have been grown here for 30 or 40 years, and still are as good as ever.

Queen's Co., P. E. I. W. S.

The farmer who thinks he can give up stock-growing is sure to find his mistake. The pastures must be utilized and the fertility of the farm maintained, and stock must be kept even if he sees no direct profit in it. The crops of grain, grass and fofage should all be fed on the farm where it is possible.

**A Convenient and Inexpensive Farmhouse.**

[FROM OUR MANITOBA AND WESTERN EDITION.]  
[TO THE EDITOR FARMER'S ADVOCATE.]

SIR,—I have been reading the ADVOCATE for some time and have got more valuable information out of it on farming and breeding than any other paper I ever read. I would like you to publish a plan and specifications for a good farmhouse, not too large nor too expensive; say about a \$1,000 house. Also give the best plan of heating with a furnace. I intend building a stone house this summer. Is it best to build the foundation on the sod or dig down to solid ground?  
T. C. MOFFAT.  
Strathclair Municipality, Man.

The above is but one of several requests recently received for plans of farmhouses, with cellars, etc. Instead of giving a specific answer to the above inquirer we have prepared a plan that we believe will be found suitable for many of our readers contemplating building. The plan given is for a house 22 feet by 30 feet, with a summer kitchen or woodshed 10 feet by 12 feet at the rear. A frame house on this plan, with stone cellar full size, and built perfectly plain, would cost about \$1,100. This does not include cost for veranda. Of course, the plan could be enlarged or changed to suit individual circumstances and as much ornamentation put on extra as desired. In this country, where heating is such a large item, it is foolishness to build a house larger than is absolutely necessary. A brief description of the plan may be helpful. The front door opens into a hall, from which open the parlor and the kitchen. The front stairway starts in the corner to the left of the entrance. About six easy steps round the bend leads up to the landing, with a straight stair from there to upper hall. A back stair from the kitchen leads up to the same half-way landing as the front stair. The cellar stair goes down from kitchen between the hall door and the back stairs. The kitchen is the largest room in the house, with a 6x6 pantry off one corner, nearest stove and sink. It may be used for dining-room in summer while the cooking stove is in the summer kitchen. The kitchen chimney is inside back wall, so that when outer shed is used for a summer kitchen the same chimney can be used. The room off the parlor could be used for dining-room in winter, and back parlor or bedroom in summer, and might be connected with the parlor by large folding doors. Upstairs there could be four bedrooms, a small sitting-room at head of stairs, which might open into balcony over the veranda, when that useful and ornamental addition was put on. A balcony is very serviceable for airing bedding, clothes, etc., and saves carrying them up and down stairs. At end of hall the plan shows a storeroom, or bathroom, if such a comfort can be provided. In winter, the kitchen stovepipe could be brought up through this room before extending the chimney, which is shown in the corner of room. In the cellar a galvanized iron cistern could be placed under the kitchen sink, where a small pitcher pump could be placed. With a furnace in the cellar it would be necessary to partition off a portion for storing vegetables and roots, and another for milk, butter, preserves, etc., as the furnace is liable to keep the cellar too warm, and necessarily gives rise to considerable dust. The furnace should be placed about the center of the building. For safety the furnace chimney should be carried down to the cellar floor and the connection made direct from the furnace, but this plan wastes a great deal of heat, and we could take the furnace pipe up through a corner of the front room and into the front bedroom, where it would enter the chimney. There are many good furnaces made, or a good thick box-stove for burning three-foot wood can be used for a furnace by enclosing it in a brick chamber, from which the hot air would be conveyed through tin pipes to various parts of the house. To reach the registers on the upper floor the tin pipes are made to fit in the wall between the studding. The air chamber of furnace must be supplied with fresh air (cold air); one pipe may be taken from outside and another from the floor of one downstairs room, entering at the bottom of the furnace air chamber, the hot air pipes emerging from the top of chamber. Of course there must be a proper system of check drafts in order to control every pipe. When a cellar is wanted and a furnace is to be used it is advisable to put the foundation down on the clay, especially so in the case of stone house, such as our correspondent purposes building.

Specifications called for in such a plan as above here illustrated would be as follows: For girders, 1 piece 6x6 inches by 16 feet, and 1 piece 6x6 inches by 14 feet; joists for two floors, 48 pieces 2x4 inches by 22 feet; ceiling and rafters, 72 pieces 2x4 inches by 18 feet; studding, 250 pieces 2x4 inches by 16 feet; 4,500 feet shiplap; 2,300 feet siding by 16 feet; 1,700 feet flooring; 1,000 feet common boards for frames and cornice; 2,300 feet siding extra if boarded on inside and 6 rolls of brown building paper; 12 rolls tar paper, for floor, roof, and outside wall, and a few cedar or oak posts in cellar to support the girders.

A few further explanations may be helpful. Imbed a piece of 2x4 inch on top of stone wall, upon which to rest the floor joists; put joists in place and then fill between joists with masonwork, flush with the top, tight up to floor. Lay shiplap floor, then a 2x4 inch, upon which to set the studs.

For the floor, one layer of shiplap, then tar paper and then flooring.

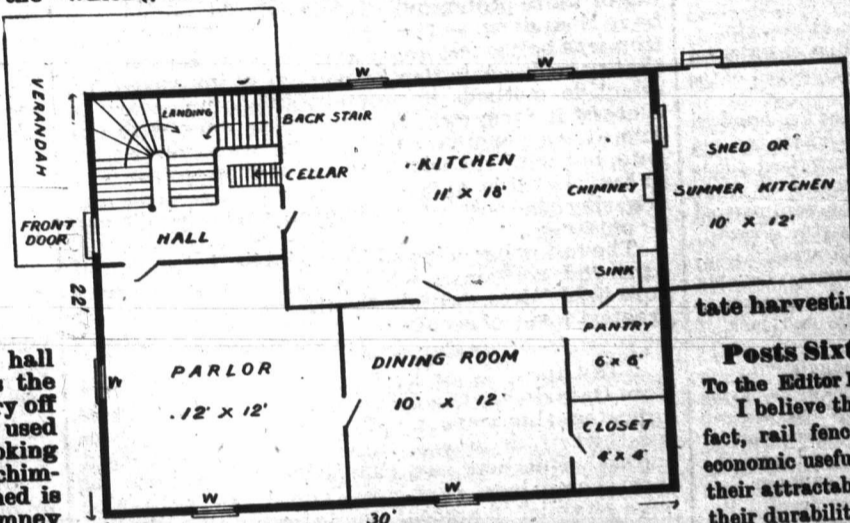
When sand and lime and labor are cheap, the outer walls may be back plastered; otherwise put shiplap on inside of studs, then brown building paper (tar paper used here stains the plaster); then stripped with 1x2 inch strips, and lath and plaster. Outside walls, shiplap, tar paper, and siding.

A seven-foot stone wall for such a house would require about 12 cords of stone (128 cubic feet to the cord), but a cord will only lay 100 feet in the wall. One yard of sand and four bushels of lime are necessary for each cord of stone. A mason should lay one cord of stone per day, with everything supplied to his hand. For a chimney it requires 40 bricks per foot to make an 8-inch flue.

**Harrowing and Rolling.**

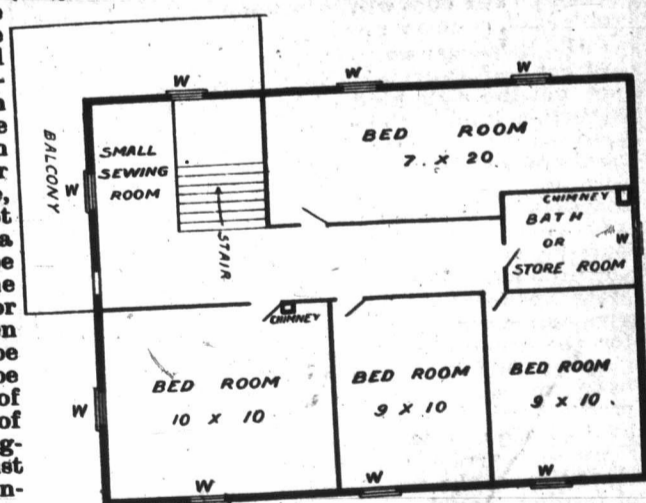
Whatever differences of opinion may be held regarding the benefits of deep or shallow plowing, there is general agreement among farmers as to the benefits to be derived from a free use of the harrow, whether deep or shallow. Nearly every crop is helped by a fine tilth making the plant food in the soil more readily available for the use of the young plants, thus giving them a good start in life, which goes a long way in insuring a satisfactory

seeding on such soil, which is at all times fickle and demands the most careful supervision to be utilized to best advantage. The essential conditions necessary for the successful germination and growth of seeds in the soil are heat, moisture, and air, but if as the effect of a heavy rain on a finely rolled surface a crust is formed when dried by wind and sunshine, the air is excluded, the seed is in a sealed condition, and germination or growth can make little, if any, progress, unless relief is given by breaking the crust by the use of the harrow or some similar implement, and in the light of experience, to avoid loss of time and growth, we would not hesitate to recommend in such case a vigorous use of the harrow where the seed has not sprouted, or even if the plants were two or three inches above the ground. The only conceivable objection to such heroic treatment that need be entertained is that in case clover seed has been sown with the grain crop it may prove fatal to a proportion of the plants, but it should be borne in mind that the conditions which would prevent the growth of the grain will in all probability prove fatal also to the smaller seed, and that the harrowing is likely to prove the lesser of two evils, if it does not indeed prove a blessing in disguise, which we believe in a majority of cases it will, if judiciously applied. It is not often that a whole field needs such treatment, but frequently there are clay knolls which may be greatly benefited in this way. It is sometimes good policy to defer rolling after spring seeding until the season has somewhat advanced and the crops have made considerable growth, the principal benefit in that case being the smoothing of the surface to facilitate harvesting operations.



GROUND FLOOR PLAN FOR CONVENIENT FARMHOUSE

The harrow may be used to good advantage in advance of the cultivator on clay soils when the surface has become dry and hard in the later days of spring seeding, levelling the land and leaving it in a condition to break up finer, requiring less after-work, and enabling the cultivator to stir the soil to a greater and more uniform depth. If the land is very dry and hard it will be found advantageous to load the harrow with a post or pole, wiring it to the bars of the harrow, which makes it run more steadily and do more effective work. The roller is the companion implement to the harrow, and in many cases should go both before and after it. In all cases where the soil breaks up lumpy or in flakes harrowing will be very much more effectual and harrowing will be saved by the use of the roller before the harrow. On all spring and summer plowing on clay or clay loam soils the roller should go first,



UPSTAIRS FOR CONVENIENT FARMHOUSE.

and be followed by the harrow. This is especially advisable on fresh turned sod, if dry enough, and on land being plowed for roots and corn, and it is a serious mistake to delay the rolling and harrowing of such until the land has become dry and hard, and will require twice or three times as much work to get into as fine tilth as if it had been done the same day or the next day after the plowing. The loss of moisture by the action of the sun and wind in the meantime is also often a serious matter, and may mean a heavy loss in the prospective crop. In our experience with clay and clay loam soils we have found the principal value, and that a very high one, of the roller in its use before harrowing and sowing rather than after.

In the case of light land the roller should follow the seeding as soon as circumstances will permit. The soil is thereby compressed, and its drought-resisting powers are more speedily brought into play so that the plant may get a good start. With stiff land, on the other hand, the case is quite different. It is seldom advisable to roll early after

**Posts Sixty Feet Apart and Set in Cement.**

To the Editor FARMER'S ADVOCATE:  
I believe the day is at hand when the old rail fences, in fact, rail fences of every description, have outlived their economic usefulness. We cannot uphold them on account of their attractability, nor yet their economy of space, nor even their durability. A severe storm may pass over and level the best staked fences to the ground during the busiest season. Straight post fences are also a great nuisance in the springtime, being heaved by the frost, or blown sideways while the ground is soft and spongy, and will require almost constant repairing. I really think the best method to pursue to beautify the farm, and as a matter of economy, would be to use the rails for firewood and put up good woven wire fences of any pattern desirable that will serve the intended purpose. The Page is a good fence for the general farmer, but do not say it is any better than several others manufactured somewhat after the same principle; with good, round, pe'e'd, first-growth cedar posts, 60 feet apart, all put in as you suggest with stone or gravel and cement. The holes other than the corner would not need to be over two feet square, which would take less cement or lime mortar to keep it firm and to prevent heaving. Braces are not necessary, as all the posts would be firm. The first foot above and below the surface of the soil, and also the top of the post, should be painted with hot coal tar to prevent decay. Seventy cents per rod would doubtless put up a good wire fence, with the best posts, set in stone or gravel and cement or common lime mortar, that would last at least half a dozen rail fences—would be more attractive—unfavorable to rubbish—greater economy of space, and in the end less expeditious.  
G. A. BRODIE,  
Ontario Co., Ont.

**Good Opinion of Hedge Fence.**

To the Editor FARMER'S ADVOCATE:  
SIR,—After hearing of so many accidents to my neighbors' horses, and having a narrow escape with one of my own, from barbed wire fencing, I was on the outlook for something better, and the best wire fence I have seen is a piece put up for me by the Toronto Picket Wire Fence Company last summer, at a cost of forty cents per rod for the wire of a six wire fence and putting it up, not including the posts nor putting them in. It consists of the best Bessemer steel wire, two strands twisted together, with cross sections put on after the wires are up, in such a way that they cannot slip nor come off, two feet apart, or any distance you please. The posts are twenty to thirty feet apart.

But the fence that is surely to supersede all others shortly is the hedge fence, as instead of getting poorer every year and in time rotting down, it is growing better and stronger the older it gets. I have about 200 rods planted of the honey locust that will be a fence in about four years from the time of planting. There are a number of pieces in Whitby Township that have been finished, and are strong and ornamental.  
JAMES A. BURNA,  
Ontario Co., Ont.

[NOTE.—When honey locust is planted in suitable soil, given the right attention at the right time, and happens with no misfortune, such as girdling by mice or rabbits, which we notice have done by much damage in some parts the past winter, a handsome and ever-improving fence can be obtained from it, but our own observation leads us to conclude that most farmers will, perhaps, through carelessness, fail in one or more of these essentials, thus increasing the somewhat heavy cost and delaying completion of the fence. For a hedge about the homestead we prefer evergreens.—EDITOR.]



## Gleanings from Ontario Institute Div. No. 6.

Work on this Division was conducted by Mr. James Tolton, Walkerton, Ont., and the writer. Mr. Tolton dealt with the management of beefing stock, planting and care of orchards, feeding and care of sheep, and allied topics; your correspondent's subjects were in connection with, and treating of, some phases of the dairying industry. Weather and roads both militated against large attendance during the series.

The chief products of the district covered are beef and fruit, both of which have an enviable reputation as to quality. During our travels, I did not see a single cheese factory, and but one creamery. The farmers in several districts were very anxious that cheese factories should be established. Verily, in our land, Cheese is King, *pro tem*. Several creameries operate in Grey and Simcoe; those we heard of were all worked on the cream-gathering plan. In this connection, I think there is the possibility of an innovation in a profitable direction. Would it not pay those farmers supplying cream to creameries to purchase hand or small power centrifugal separators for creaming their milk? Such machines can now be bought for very reasonable prices. Several important advantages accrue from such practices:—

1st, and most important, a decreased loss of butter-fat, meaning increased revenue.

2nd, warm sweet skim milk for feeding to calves, etc.

3rd, the handling of ice and large quantities of water for creamer cans is done away with; farm help is relieved of the washing of numbers of pans or cans.

Last year an Iowa creamery owner purchased five hundred small separators for the use of his patrons. There is room for argument just here, but I shall not be surprised to see this system introduced into Ontario before long.

**Mistakes in Sheep Breeding.**—Mr. Tolton summarized the most of them as: Keeping too few sheep (the greatest, in his opinion). Keeping too many on small areas. Confining sheep in warm, poorly ventilated basements. Leaving them exposed to rains and inclemency of weather generally. Mixing breeds, causing uncertainty of results and lack of uniformity.

**Sheep vs. Dogs.**—We were favored with many strong expressions of opinion on this subject. In most cases, sheep are taxed, dogs go free. The trouble is, that where a sheep bounty is in force, every sheep that dies "has been worried by dogs." To make sure, very often the owner leaves the carcass until it has been "worried." Many suppose that the wearing of bells by sheep renders them dog-proof. Mr. Smith, of Inglis Falls, had two ewes wearing bells killed by dogs. In Derby, a dog-tax is in force, levied once in four or five years, to form a reserve fund for compensation for killings, at the rate of two-thirds the value of animals destroyed.

**A Scientific Note.**—At one of our meetings an elderly gentleman of dignified appearance sought information re "clover culture." Since his theories differed slightly from up-to-date teachings, I chronicle them for the amusement of FARMER'S ADVOCATE readers. He wanted to know if his tenant was not ruining his farm by sowing too much clover. He contended "he was taking the ile out of it." Two years ago the then tenant was evicted for a similar offense. In this case the lessee is bound by solemn document to strictly confine his clover operations to a minimum acreage. Had the season been favorable, I should have tried to obtain some of the "ile" for analysis at Guelph. "Let there be light."

**Feeding Beef Steers for the British Market.**—The following are points from my colleague's long experience along this line: A convenient stable is essential. The right type of animal is preferably one sired by a pure-bred Durham.

**AGE.**—Two years past, coming three: at this age both growth and fattening proceed.

**SHAPE.**—Buy only those animals which conform reasonably well to a decided beef type, with most valuable parts with best development.

**TIME TO STABLE.**—Just as soon as early cold weather comes on; much loss is occasioned by leaving steers out until they become thin and rough-coated.

**DEHORNING.**—Mr. T. ties up all his steers, hence finds no necessity for this practice. It is a matter of preference and circumstance.

**EXERCISE.**—Looking forward to shipment, daily exercise is advisable.

**FEEDING.**—Most important, but dependent entirely upon individual circumstances.

**GROOMING.**—Necessary both for cleanliness and health of steers.

**VERMIN.**—Lice-infested cattle will not thrive: Kerosene emulsion or one of the dips quickly and cheaply destroys vermin.

**UNIFORMITY OF LOT.**—A Bruce County farmer feeds 20 to 25 head annually; he usually receives a bonus of 15 to 25 cents per cwt. on this score.

**Preservation of Soil Moisture.**—This is a live and important topic. Many farmers fail to comprehend that a judicious use of land roller and harrow will accomplish wonderful results in this direction. The great problem is how and when to use them. A mulch of fine surface soil powerfully checks evaporation of soil moisture. The ideal practice (not often observed) consists in thorough pulverization and fining of the soil, followed by use of roller, this succeeded by shallow surface cultivation to restore surface mulch. The new "weeder" have a mission in this direction.

**Black Knot.**—Many infallible remedies were given us, gratis, each having been tried by someone and found effective. Pres. Irwin, of North Simcoe, claimed that thorough cultivation of orchard would ward off its encroachments. Two persons advised boring a 3/4-inch hole in trunk of affected trees, putting in a spoonful of sulphur, then plug up the hole. Several plum-growers recommended cutting off the knot and painting the fresh cut surface with kerosene. Further, an Irishman has told me that the placing of two horse-shoes from the front feet of a brown mare fourteen hands in the limbs of the trees is a certain remedy. (?)

**San Jose Scale.**—The consensus of opinion of fruit-growers of the district was that the gravity of the situation demand-

ed a Dominion measure prohibiting the importation of foreign nursery stock.

**Cemented Silos.**—I heard of two silos treated in this way with satisfactory results. One, 12x12x20 feet, with studding 2x10 inches, had matched lumber outside, single thickness same inside; was lathed on internal lining and cemented with Shallow Lake cement. Another, built in same manner, has now been filled seven times; the cement lining is now in perfect condition. This is a point worthy of note by those interested in silos and their durability.

Wherever used, corn-harvesters were spoken of in highest terms of praise.

J. J. FERGUSON, B. S. A.

Leeds County, Ont.

## Maritime Notes.

In one of my letters a short time ago I spoke of the Provincial School of Agriculture at Truro. Since then I am sorry to say the school building has been destroyed by fire. I have not as yet heard what it is the Government's intention to do, but I hope that it will be rebuilt. It was the only institution in the Lower Provinces where instruction in agricultural subjects could be obtained. It was doing a good work in a quiet way, but its efficiency could have been greatly increased by the appointing of more professors. This, no doubt, would soon have been done, as the necessity of such an institution was being felt more and more with each year that passed. A better knowledge of improved and scientific methods is now absolutely necessary to successful farming. It is not now only with our immediate neighbors with whom we have to compete, but with the whole world, and prices are now so low that it is only by increasing the yield and lowering the cost of production that a profit can be obtained.

The following, clipped from the St. John Sun of April 2nd, contains a whole sermon upon the use of pure-bred sires, which should convince even the greatest lover of scrubs:

## GREAT BEEF CATTLE.

"The finest lot of beef cattle ever brought here from Ontario are the forty-two pure-bred Durhams imported this week by Kane & McGrath. There are thirty-four steers, three years old, and eight heifers. Butchers say this is the handsomest lot ever shown here, even by Kane & McGrath, who have established a great reputation in this line.

"The list includes one steer the equal of which has certainly never been seen here. This is the pure-bred Shorthorn steer Bruce, which has ten first prizes and two sweepstakes to its credit. It took first prize as a calf at South Huron Fair in 1895; first at the Western Fair at London and the Provincial Fair at Guelph in 1896; also the sweepstakes at Guelph Fat Stock Show; first prize at Toronto Industrial Exhibition, and the Provincial Fat Stock Show at Brantford in 1897, taking the grand sweepstakes as best animal at the latter, beating the first prize winner at the American Fat Stock Show at Chicago, specially imported for that fair. The animal is pure white, and a beauty, weighing 1,990 pounds.

"As everybody in the trade knows, Kane & McGrath have a modern refrigerator of large dimensions in the market building, Germain street, where large quantities of fresh meat can be kept in the best condition.

"The carcasses of the famous steer Bruce and seven other picked ones will be displayed at S. Z. Dickson's stall, country market, on Tuesday."

Did these men go to Ontario because they could not get beef at home? No, but because they could not get the right kind of beef. Plenty of beef of a certain kind is to be had at home, but a really choice article, such as can only be got from a well-bred and well-fed animal, is hard to find. How can farmers hope to succeed when they allow their best markets to be taken from them in this manner; and what can they do to retain them? By using pure-bred sires of the breeds particularly adapted to the production of beef, and by a better and cheaper system of feeding. The use of pure-bred sires will give animals with a frame and disposition suitable for the economical production of beef of the best quality, and a better system of feeding will enable us to compete with outsiders and also increase our profits. Col. McCrae, during his Institute talks last winter, told us that Ontario beef was now fed upon straw and turnips, and grain was only added for a short time at the finishing period. Such a system of feeding should suit us "down to the ground." We can grow turnips to perfection, only we must grow them in much larger quantities than we do now, and while we have not very much straw, we have what is better—plenty of hay. Even supposing that it should cost us somewhat more to produce a pound of beef than the Ontario farmer, we should be able to compete with him, as we would be saved the expense of a long railway haul.

[NOTE.—We are surprised to learn that a well-informed Ontario stock-breeder should leave his N. S. hearers with the impression that Ontario beef cattle are fed in such a manner as above indicated. True, many stockers go through their second winter on little more than good straw and roots, but no feeder attempts to confine steers during their fattening winter on such poor food. Where good ensilage is not used hay and grain are invariably fed for at least three months.—EDITOR FARMER'S ADVOCATE.]

The New Brunswick Government at its last session decided to import seed to sell to the farmers of the Province. I cannot see the necessity of such an action on the part of the Government, or the benefits that will be derived from it. Good seeds

can be purchased from merchants and seedsmen in different parts of the Province; or if a greater variety is needed to select from, the large seed houses of Upper Canada can supply them. If a person cannot get seed close at home, and does not know where to look for it, it shows that he does not read and is not posted in his business. The agricultural papers are full of advertisements of seeds and seedsmen. While it is the duty of the Government to render help when it is needed, it is poor policy to do that which the farmers can do for themselves. Unnecessary help always does more harm than good. In this case it injures the local seed merchant, and helps to create a spirit of dependence which tends to pauperize the farmer. It is like giving charity to a person who does not really need it—the more you give the more he wants and the more he depends upon receiving it.

If the Government did not act wisely as regards the seed grain, they certainly did right when they decided to hold another series of Institute meetings. The interest taken in the meetings held last winter showed that the farmers recognized their value and appreciated it. While winter is certainly the most convenient time to hold such meetings, I think that at that time much of the good they might do is lost. In a great many districts it is the custom of the young men to work in the lumber woods during the winter, and therefore they miss these meetings. As it is upon the young people that the future of farming depends, a special effort should be made to reach them. AGRICOLA.

## Co-operative Milling.

To the Editor FARMER'S ADVOCATE:

I notice in your issue of 15th of March an article on co-operative pork-packing, which reminds me of a scheme I have had in mind for some time, and which I would like to see discussed in your paper, viz., co-operative milling. We all know the very great success that has attended co-operative cheese and butter making, and I cannot see why flour-making could not be made equally successful.

Under the present system, we sell our wheat to middlemen, who make a profit by selling to millers, who again make a profit by grinding and selling flour, etc. We pay freight on the whole wheat (60 pounds per bushel, instead of 40 pounds of flour per bushel) from our nearest railway station to mill, and then either do without the bran and shorts or pay another freight (on 18 pounds per bushel of wheat) to get it back from the mill to feed on farm, where it is needed.

Now, suppose we had a co-operative mill at the station, to which each patron agrees to deliver his wheat, say 2,000 bushels, more or less. One hundred and fifty such farmers could keep a 200-barrel mill running 300 days. The flour could be ground at so much per bushel, and sold in much the same way that cheese and butter are sold, and payment to patrons on receipt of returns, or a portion of value could be drawn against consignments and paid to patrons.

Now, by this plan we could take our bran and shorts home from the mill and use it in connection with cut straw to feed cattle, and thereby use a lot more straw than we do, or feed it to hogs. Two thousand bushels of wheat means eighteen tons of bran and shorts, which would add greatly to our feed; and this is only what a small farmer is selling off his farm; the farmer selling 10,000 bushels sells 90 tons of good feed that he does not know what he gets for, and needs at home.

Now, this large quantity of feed, if fed to beef cattle by the patrons of a mill, would mean that if they chose they might ship cattle in train loads, or sell to large dealers who would ship in train loads, and thereby increase price. L. H. MORTON.

Winchester Municipality, Man.

Co-operative dairying in this Province has unfortunately not yet proved the unqualified success the writer of the above seems to imagine. The directors placed in charge of such organizations frequently show lack of business experience. The business has to be learned, and very often the patrons are not willing to stand by them, perhaps at a temporary loss to themselves, until they have mastered all the details of the business. In the milling business there would appear to be far greater intricacies; the question of power has a most important bearing, and much depends on the uniformity of the quality of products. This in many instances can not be secured from the wheat of any one district year after year. As in most other lines of manufacture, the cost of production is lessened as the capacity of production is increased; the small mill cannot produce flour nor market it as cheaply as the large one, and therefore has to fight against heavy odds for existence. In seasons of great abundance of coarse grains, such as we have seen in the past, small mills would find great difficulty in disposing of their by-products. It would certainly greatly assist in keeping up the fertility of our soil if all the bran from the wheat produced on each farm were fed to live stock and the manure made by that stock returned to the soil. We believe that the management of a good, well-stocked farm affords scope for all the ability and intellect of most men, and few have the ability or time necessary to undertake such additional work as co-operative milling. However, we shall be pleased to hear any practical suggestions from others.

DAIRY.

Relation of Butter-fat to Merchantable Butter.

Many patrons of creameries are unable to distinguish between butter-fat and butter. A very intelligent man said to me one day, "Why don't you speak of *butter* and leave *butter-fat* out of the question, and then we farmers would understand what you are talking about?" I said in reply that *butter-fat* is a known quantity or substance, whereas *butter* is an unknown quantity. When you purchase a pound of *butter* you know not what you are paying for. You may be buying grease, with a good deal of water and salt mixed with it. The accurate man wishes to have some known quantity on which to base his conclusions, hence he speaks of *butter-fat*. Let anyone who wishes to know what *butter-fat* is examine the clear layer of yellow, oily matter in the neck of a Babcock test-bottle, and he will obtain information which cannot be given in words. *Butter* is *butter-fat* having a certain amount of water, curd, and salt mixed with it—usually about 16 per cent. *Butter-fat* is the chief constituent of *butter*, and is more or less oily in nature.

FACTORS INFLUENCING THE OVERRUN OF BUTTER.

It is evident that if 16 pounds of other matters be mixed with 84 pounds of *butter-fat* in the manufacture of *butter*, the buttermaker should be able to make more merchantable *butter* than the test shows of fat in the milk. If it were possible to obtain, in the form of *butter*, all the fat which was originally in the whole milk, and further, if 84 per cent. fat represents good, merchantable *butter*, then the overrun of *butter* would be 19 per cent. [NOTE.—To make this point clearer: Assuming 84 pounds *butter-fat* to start with, there is added 16 pounds of other matters to make 100 pounds of *butter*. Worked out by the arithmetical rule of proportion (84:100::16) this shows an in-simple proportion (84:100::16) this shows an increase of 19 per cent. on the 100 pounds *butter-fat*, which is a small fraction over 19 per cent., as Prof. Dean states.—EDITOR FARMER'S ADVOCATE.] In practice, however, it is not possible to extract all the fat in the process of separation and churning. The main factors which influence the overrun are:

1. THE CHARACTER OF THE MILK SENT TO THE CREAMERY.

The sooner the milk is separated after being drawn from the cow, the more complete is the separation and the less the loss of fat in the skim milk. The better the milk is cared for by aerating and cooling, the less is the loss in separating, and large-sized fat globules in the milk, and a number of fresh milkers in the herd, tend to facilitate creaming. Another factor which influences the overrun is the per cent. of fat in the whole milk. As an ordinary separator will skim 5 per cent. milk as clean as 3 per cent. milk, and will take about the same volume of cream from each, unless adjusted, it is clear that to make 100 pounds of *butter* from 3 per cent. milk would require a larger weight of whole milk, consequently there would be a larger weight of skim milk, which means that a greater percentage of the fat originally in the whole milk is lost in the skim milk. The most important points in this connection are the sending of sweet milk to the creamery as soon as possible after it is milked, and having as many fresh cows as possible.

2. THE SKILL AND HONESTY OF THE BUTTERMILK MAKER.

Each patron having done his best to deliver the finest quality of milk, it then becomes the duty of the operator to carefully and accurately weigh, sample, and test each patron's milk. After the milk has been poured into the weigh-can, stir it with an ounce of milk for a composite sample. A mixture of potassium bichromate (7 ounces), with corrosive sublimate (1 ounce), is the best preservative. For a "two weeks" sample use of the mixture what will lie on a 5-cent piece, and double this amount for monthly samples. When making these readings, each patron should have full credit for all the fat contained in the milk. The practice of reading a little lower or a little higher than the actual test is not just, and should not be done. A maker can easily make an overrun of 18 to 25 per cent. by scant weighing and low reading of the tests.

The next point is the separation of the cream. Heat the milk to 85 degrees to 95 degrees in summer, and 110 degrees to 160 degrees in winter. The separator should be at full speed all the time, and should be fed regularly at not over its rated capacity. If speed and feed are irregular, the result is poor skimming. The thinner the cream the less loss of fat in skim milk, but the thicker the cream the less labor in handling and the more exhaustive the churning. Cream containing 25 to 35 per cent. *butter-fat* gives good results. Every maker ought to test the skim milk each day to see that no great losses of fat occur at this point. A separator should not leave over one-tenth of a per cent. of fat in the skim milk. Aim to get the fat in the skim milk to .05 when tested in the double-necked bottles. To obtain exhaustive churning, i. e., a churning which leaves little fat in the buttermilk (.05), have the cream rich in *butter-fat*; have it properly ripened and at such a temperature that 40 to 60 minutes are required for churning. Test the buttermilk every day.

3. THE AMOUNT OF MOISTURE, CURD AND SALT INCORPORATED IN THE BUTTER.

The percentage of moisture retained in the merchantable *butter* depends upon the size of the granules, the temperature of the water, the amount of draining and working which the *butter* receives, and the length of time and temperature at which the *butter* is held, and whether the packages are water and air tight or not. Good *butter* should not contain over 12 per cent. of water. Curdy matters should be as small as possible. The percentage of salt depends upon the tastes of consumers. *Preservatives of any kind other than salt should not be put in *butter*.*

4. MECHANICAL LOSSES.

The last factors which influence the overrun are (1) mechanical losses of milk, cream and *butter* (estimated at 3 per cent., though I consider this too high), due to spilled milk, cream remaining in cans and vats, and particles of *butter* clinging to churn, ladles, etc., and (2) the extra amount of *butter* (1 pound in 56 pounds) which must be put in tubs or boxes for export in order to make them hold out weight. In the case of prints for local markets from one-quarter to one-half ounce must be added to each pound print in order to have them full weight when they reach the consumer.

All these things influence the relation of *butter-fat* to merchantable *butter*, hence it is difficult to lay down any rule as to what the increase should be. By supposing a case we can arrive at a conclusion as to what may be expected in good work at a creamery. If 1,000 pounds of 4 per cent. milk were delivered, from which 15 per cent. of cream was taken, and further assuming that the loss of fat in skim milk and buttermilk is one-tenth of a per cent. in each case, the question stands thus:

1,000 lbs. milk, 4 per cent. fat, = 40 lbs. fat.  
850 " skim milk, .1 per cent. fat, = 85 lbs. fat.  
150 " buttermilk, .1 per cent. fat, = 15 lbs. fat.  
Total fat lost = 100 lbs.  
39 lbs. fat will make 46.40 lbs. *butter*, containing 84 per cent. fat.  
46.40 lbs. *butter* is an increase of 6.40 lbs. over the original fat in the milk, which is an increase of 16 per cent.

It will be noticed in the foregoing that no allowance is made for mechanical and shipping losses, and that I have assumed 150 pounds for buttermilk, whereas the correct weight would be 150 pounds cream, less the weight of *butter-fat*, water, and curdy matter absorbed by the *butter*.

AN EXAMPLE CASE WORKED OUT.

W. J. TREFRY, Oxford Co., Ont.—"Will you kindly tell me through the FARMER'S ADVOCATE what I should receive for 7,926 lbs. milk, testing 4 per cent. *butter-fat*? The *butter* sold at 18 cents per lb., and the maker charges 2 cents for making *butter*. We have a separator and separate our own milk. There are others that take your paper that would also like to see this answered."

In order to answer this question it will be necessary to know what the overrun was, and whether the manufacturer or the patron received this increase of *butter* over fat, and whether manufacturer's charges are based on *butter* or fat. Assuming that the overrun was 16 per cent. and that the patron receives the benefit of the overrun, and that the maker's charges are based on *butter*, the answer would be:

7,926 lbs. milk, 4 per cent. fat, = 317.04 lbs. fat.  
317.04 lbs. fat (16 per cent. increase) = 367.77 lbs. *butter*.  
367.77 lbs. *butter*, at 18 cents (net value), = \$66.20.

which is the amount the patron should receive for the milk delivered, after deducting 2 cents per lb. of *butter* for manufacturing.

I may add that in case the creamery management receives the overrun, which is customary in some creameries, then the above is not correct. In the question given by "Subscriber, Huron Co., Ont.," and answered by Mr. Sleightholm in the ADVOCATE of 15th of April, "Subscriber" neglected to state that the creamery management received the overrun, if I mistake not, in which case there is little difference between charging 3 cents per pound of *butter-fat* or 4 cents per pound for manufacturing the *butter*. Another point: The higher the price at which the *butter* sells and the greater the overrun, the higher the price charged for manufacturing where the basis is 3 cents a pound for fat and the overrun. Usually this is not understood by the patrons. H. H. DEAN.

O. A. C. Dairy School.

Creamery Work in the Northwest Territories.

BY G. MARKEE, SUPERINTENDENT GOVERNMENT CREAMERIES, CALGARY, ALBERTA.

Notwithstanding the discouragement and uncertainty in the minds of the majority of farmers who had patronized the creameries established and operated prior to their being taken over by the Dominion Department of Agriculture, the operation of the Northwest creameries last season, under Government control, has been satisfactory to the patrons in most districts.

The prices were not as good as expected, owing largely to the peculiar condition of the markets in Great Britain during a part of last year, as fully explained by Professor Robertson in his "circular," a copy of which has been sent to and should be carefully studied by each patron.

However, a good reputation has been gained for Canadian creamery *butter* on the best markets, and we may look for a great extension of our dairy industry. While we may hope for better prices during the season now at hand, we should rather endeavor to devise means of producing *butter* more cheaply than heretofore, which is, after all, more satisfactory and less disappointing. As we have to enter into a keen competition with other countries,

we must not overlook the fact that there is no such thing as a "corner" on any of the leading markets, the market prices are governed by so many conditions over which the individual has little or no control, save in the matter of quality and supply.

The best prices are realized by those who are able to supply the markets for 52 weeks of each year with a fine quality of products. This is a well-known fact which requires no further argument.

Our aim should be, then, wherever practicable, to produce cheaply a uniformly fine quality of *butter* all the year round, in order to make the dairying industry as profitable as possible.

CHEAPER PRODUCTION OF MILK AND BUTTER.

In dealing with this question I fully recognize that it is a very comprehensive one, and that a great many factors should be considered individually, such as prolonging the milking season, proper care and feeding of the dairy stock, etc., in endeavoring to solve a problem which has not, in a great many cases, met with the necessary attention from those who are directly interested, namely, the dairy farmers.

Outside of the initial place of production, the farm, great strides have been made during the last few years towards reducing the cost of production, such as: (1) The invention and improvement of the Centrifugal Cream Separator, which now enables the dairymen to recover 97 to 98 per cent. of the total quantity of *butter-fat* in the milk, as against the "good old way" of raising the cream by gravity in the deep-set pails or in the shallow pans, only recovering from 50 to 90 per cent. of the total *butter-fat*, according to the local conditions under which the work is done. In defence of the latter gravity system we often meet with the statement that the cream separator "robs the calves" of the *butter-fat* which would otherwise be left in the skimmed milk. Quite true. Yet it is generally conceded that *butter-fat* is not absolutely essential to the growth and development of the young animals. We can buy and add to the separator skimmed milk such food as oil-cake, meal, flax-seed, etc., which will answer the same purpose as the ten times more valuable *butter-fat*, when used in the right way.

(2) The manufacture of *butter* in creameries is left in the hands of one or two skilled operators to make a uniformly fine quality of *butter* throughout the season or year as the case may be. In the primitive way by the individual milk producer, the result is that the quality of *butter* made by each would vary from time to time owing, generally, to lack of proper facilities, pressure of other work, and a number of other causes.

(3) The introduction of the Babcock Tester, which enables the careful operator to do better work with the separator and churn, by testing the skimmed milk and buttermilk, and making the best use of the facilities and conditions affecting the work which he has at his command.

So much for reducing cost of manufacture at the creameries. Now, what has been done or is being done towards cheapening the cost of producing milk on the farm? Let each one answer for himself. Also assuming that the dairy farmers of the West are following up dairying as a business, i. e., for profit, how many of them know the productive capacity of each individual cow in their herds, even approximately, and how much it costs to produce a pound of *butter* from each cow? This is a question which should be considered by every successful dairyman.

The facilities which the creameries in the various districts and the Babcock Tester afford the farmers towards solving this problem for themselves should not be underestimated, and this is the phase of the "cheaper production of milk and *butter*" to which I wish to refer.

Though we have no accurate statistics showing the average yield of *butter* per cow each season in the West, I venture to say that it would not be much more than 100 pounds at present, which is not enough, it is quite possible to increase this quantity a 100 per cent. through a course of good care, judicious feeding, selection and breeding. This process may be comparatively slow, but it is sure. Not long ago I visited a section in Western Canada where dairying is carried on throughout the whole year: the average output at a certain creamery there was about 150 lbs. of *butter* per cow, while the yield from one of the best herds averaged 250 lbs. per cow. The following table, which I had occasion to compile at the time, shows the variations of yield of the different herds. Out of 41 patrons who supplied milk or cream,

9 received from \$15 to \$20 per cow for 12 months.	
18	" " \$20 to \$25 " " "
7	" " \$25 to \$30 " " "
5	" " \$30 to \$35 " " "
1	" " \$41 " " "
1	" " \$43.50 " " "

These are practical figures which speak for themselves. The intelligent use of the scales and tester would work wonders in some of these herds!

How can we ascertain the dairy value of the individual cows? By careful milking, regular, systematic weighing and testing of the milk from the individual cows and carefully kept records of the results. Each item is absolutely essential to obtaining correct information on this important question.

Milking should be done as nearly as possible at the same hour morning and evening; at any rate, there should be a uniform interval between the morning and evening milking, from one day to another. It goes without saying that the milking should be thorough and carefully done in order to

get correct samples for testing, bearing in mind that the first portion of the milk when drawn may test as low as 2% of butter-fat, while the latter part may go as high as 7% to 8% of butter-fat; therefore by thorough milking we not only obtain milk of a richer quality but also of a larger quantity, as the secretion of milk is stimulated by the persistent work of the milker.

**Weighing.**—The milk from each cow, under test, should be weighed, not measured, as soon as it has been drawn morning and evening, at least once a week and on a certain day of each week. The correct weight in pounds and ounces gives more definite information than the very comprehensive terms sometimes used, as "A patent pail full twice a day," "A big pail half full at each milking," etc. The weights should be recorded on a slate, blackboard or sheet of paper used for that purpose.

**Sampling of Milk.**—The samples should be kept in tightly-corked bottles or jars, labelled with the name or number of each cow under test, plainly written; also, "Morning Milk" or "Evening Milk" as the case may be. A small closed cupboard nailed to the wall in the stable or milking shed would be the right thing for holding the sample bottles or jars. As soon as the milk from each cow has been weighed a sample taken with a small tin dipper is put into each respective bottle. A small pinch of powdered "bichromate of potash" is required to preserve the samples from souring until the test is made.

**The Testing of the samples** can be done by any one who is familiar with the working of the Babcock Tester; the local creameries and cheese factories can do a great deal towards encouraging this work by testing the samples for their patrons and others who take it up. The buttermakers and cheesemakers will, no doubt, be only too glad to give any information and assistance in their power to assist a movement which, if carried out, cannot fail to do a great deal of good.

**A careful record** should be kept of the yield and test of milk from each cow throughout the season; in this way only will it be possible to study the individuality of each cow. An occasional test or two shows the quality of milk given at that time only, and it is of very little practical value.

**The Scales and Tester** should go together hand in hand throughout the season, and the results will point out, among other things, the cows which can be kept for profit as well as those which are a constant source of loss to their keeper.

The matter of selection for breeding purposes will also be rendered comparatively easy; in fact, a thorough knowledge of individuality will give the thoughtful, observing dairyman a large scope for improving his herd from time to time until each animal becomes a source of profit to him. As an eminent writer says: "The interest and pleasure of building up a herd from a few well-selected specimens is very great, and if the breeder will form an ideal picture in his mind's eye of a perfect animal and follow it up with patience in spite of disappointment and inevitable drawbacks, though he will not be likely to attain perfection, he will, in due time, be certain to possess a valuable herd profitable to himself."

Once the dairyman begins to keep an account with the individual cows in his herd, he will also appreciate the lesson which is to be learned, that even the ideal dairy cow cannot give satisfactory returns unless she receives that care and attention which has enabled so many cows to produce really startling records.

## GARDEN AND ORCHARD

### Reply to Prof. Craig, re Spraying of Fruit Trees.

To the Editor FARMER'S ADVOCATE:

In your issue of April 1st appeared a letter from Prof. Craig, of Cornell University, "directing attention to some inaccuracies in the latter part" of my article on the spraying of fruit trees. As the first part of his letter has no direct bearing on anything I wrote it is unnecessary for me to comment upon it, though it would appear to imply a doubtful compliment to the FARMER'S ADVOCATE, which will no doubt be duly appreciated, so I will come at once to those alleged "inaccuracies." He says I made a serious mistake in recommending Bordeaux mixture as strong as 10 lbs. copper sulphate or bluestone to 50 gallons water, with Paris green at the rate of one pound to 240 gallons Bordeaux fluid, and holds my article up to ridicule by stating, "There is hardly any doubt that such a mixture would take every leaf off plum and peach trees." Of course, this "serious mistake" must be on my side. It would, I suppose, be a thing impossible for such a renowned and learned man as he to make a mistake; but let us see. Did I recommend Bordeaux mixture as strong as the above? In answer I will quote the formula I gave, which is as follows: "Dissolve bluestone in water at the rate of one pound to five gallons of water. In another vessel slake fresh lime, and add enough water to make a solution of one pound lime to every five gallons water; when both are cool pour the lime milk slowly into the bluestone solution, and give a good stirring." Well, when these two solutions are mixed there will be ten gallons of water containing one pound bluestone and one pound lime, and if I remember rightly, when I learned the multiplication table (and I do not think it has changed since, it took only five cents to make fifty;

and five ones made five, therefore there would be only five pounds each of bluestone and lime to fifty gallons water, and not ten pounds bluestone, as Prof. Craig stated; and I cannot believe that if properly mixed there will be any harm done to the foliage of plum and peach trees by such a solution, if applied before or after the hottest part of the day if it be a very warm one. As far as plum trees are concerned, I have applied a much stronger mixture than this one without any apparent injury; besides, I have a better authority even than Prof. Craig; for the above formula is that recommended as the most satisfactory by Prof. B. T. Galloway (Chief of Division of Vegetable Physiology and Pathology of United States Department of Agriculture), with the exception that there is a very little more lime in this than in Prof. Galloway's, but that can do no injury, and if arsenical poisons be applied with the Bordeaux mixture it will be a benefit by keeping the poison from scalding the leaves. The formula for applying Paris green with the Bordeaux mixture at the rate of one pound Paris green to 240 gallons is one given by Prof. C. L. Marlatt (Entomologist U. S. Department of Agriculture), probably one of the highest if not the highest authority on insecticides in America. With all deference to Prof. Craig, allow me to express the hope that in future, before charging others with "inaccuracies," he be entirely sure that his own calculations are free from mistakes, and to this end I commend to his perusal Matthew 7: 3-5.

Prince Edward Island.

E. EDWARDS.

### Spraying Fruit Trees.

BY G. C. GASTON.

The question, Will it pay to spray our fruit trees? is one that is of vital importance to fruit-growers and farmers, and everyone, in fact, that undertakes to grow fruit even on a small scale. This matter is past the theoretical and experimental stage now, and its benefits—nay, the necessity of it—is now a well-established fact. The Ontario Department of Agriculture has, with commendable enterprise, sent out a competent man through the country every year for several years to give object lessons in the method of spraying trees. These experiments and lessons have cost considerable money, but in every case the value and importance of the subject has been clearly demonstrated. Prof. Craig, formerly of the Ottawa station, has also done much to demonstrate the importance of spraying, and yet comparatively few, outside of the principal fruit districts, will take advantage of the information thus given them gratis.

Weeds, insects and fungus diseases are the three principal obstacles in nearly all lines of agriculture, and especially horticulture, and "eternal vigilance is the price of success" with regard to all three. Constant and careful cultivation is the only way of dealing with the first, while the second and third, with which I propose especially to deal, require a knowledge of "how to spray," "when," and "what materials to use." There are few insects that injure our fruits that cannot be dealt with by means of the spray pump. Then in spraying our trees we deal with insects and fungus diseases at the same time. And now let me give a short, concise description of the *modus operandi* of spraying, in the hope that it may induce some to adopt it that have not done so before, many being under the impression that it is a costly, troublesome operation, and of doubtful utility when done, which is a very erroneous idea. The materials required are a good pump, bluestone, Paris green, lime, water, good judgment, perseverance, and common sense. Never fool away time with a poor pump, get the best made. For ordinary orchards one good pump would do three or four people; let them own it jointly to save expense, but get a first-class pump and use no other. If the orchard has been badly affected with the fungus last year it would be well to spray first on the bare trees before the leaves come out, using two pounds bluestone dissolved in 40 gallons water. Adjust the nozzle to throw a very fine spray, and be sure that all the surface of both trunk and limbs is thoroughly wetted with the mixture. If there is no hot, moist weather wait till the blossoms have fallen and then spray with the full Bordeaux mixture and Paris green: 4 pounds bluestone, 4 pounds lime, 4 ounces Paris green, all dissolved in 40 gallons water. This formula is strong enough, and is as strong as the foliage of most fruit trees will stand. Pay no attention to anyone prescribing any stronger mixture, as it will injure the foliage. Repeat the operation with the same mixture every ten days, until the trees have been done three or four times. If frequent rains occur repeat oftener.

Here let me condense the whole matter. Bluestone can be got wholesale in 100-pound lots for 4½ or 5-cents per pound. For every acre of orchard of bearing age put 4 pounds of bluestone in a sack. Put as many gallons of water in the barrel as there are pounds of bluestone in the sack. Hang the sack in the water till all dissolved. Then when you come to spray, put four gallons of this in each barrel, which equals 4 pounds. Allow a little for evaporation if it stands many days. For the first spraying on the bare trees put only 2 gallons of the solution in each barrel. For making the full Bordeaux mixture put in 4 gallons solution and 4 ounces Paris green. I would not weigh the lime, but have some fresh slaked in a separate vessel. Thin it with water till it is like milk. Fill the barrel three-quarters full of water, then add the

lime, using the cyanide test. This is simple. Get from a druggist 5 cents' worth of ferrocyanide of potassium; dissolve in a pint of water. Drop a few drops of this into your mixture after stirring it well. If it gives a purple color on striking the mixture add more lime, till you see no color from the cyanide when dropped slowly into the mixture; then add still a little more lime to make sure. Then fill up your 40-gallon barrel with water, and your mixture is ready, and is perfectly safe to use on any kind of fruit trees, provided you have a good pump, with a proper agitator attached to it. The pump should always be attached to a 40-gallon barrel. The barrel should be in a horizontal position. It is the proper way. Strain the lime solution through coarse sacking, so it will not clog your nozzle.

Make the bluestone and lime solutions in separate barrels a few days before you need it. Have it near a well or clean pond, and it takes but a few minutes to make up your barrel of mixture every trip. An orchard of bearing age will take about a barrel of mixture to the acre. An active man with a boy to pump and drive the horse will go over a great number of trees in a day; and if the spray pump is a good one, and the man has good sense and judgment, and uses it, the work will be thoroughly effective as well as rapid, and comparatively inexpensive. Spray all kinds of fruit with Bordeaux. Currants, for the currant worm, soon as leaves are fully opened out; it beats hellebore all out. Spray gooseberries for the same thing and mildew as well soon as leaves are out. Spray raspberries and blackberries for the anthracnose two or three times during the season. Strawberries for leaf rust. Young growing fruit trees not of bearing age will be more vigorous and healthy if sprayed two or three times every summer. The most effective preventive of black knot in cherries and plums would be to have the surface of the bark covered with Bordeaux mixture.

Always remember that spraying with this mixture is a preventive rather than a cure, and get it on early. The Paris green kills a large percentage of the codling moths and all leaf-eating insects. The bluestone, if applied in time, prevents the fungus scab from getting a foothold on the leaves and fruit, and the lime prevents the chemicals from injuring the foliage.

## ENTOMOLOGY.

### San Jose Scale.

A Californian entomologist writes to an Eastern American publication that an unnecessary fear, a sort of panic, has overcome the East in regard to this pest. In California the San José scale is now regarded as a "harmless little cuss." It was introduced into California and made itself at home before it was recognized. Much was done to overcome its ravages, with more or less success, but at last nature provided a remedy in a little parasite (*Amphelinus fuscipennis*), which soon overtook the intruder, and to-day, says the Californian, "we laugh at the San José scale and its threats, for we have a friend that is working night and day, and we know that our orchards are safe. We did not destroy our orchards, cut down our trees, or do any of the other foolish things that are being urged on some of the Eastern orchardists."

At a recent meeting of the Western New York Horticultural Society, Prof. M. V. Slingerland, entomologist of Cornell University, read a paper on the San José scale. He thought the danger from the insect had been overestimated. One reason why it has been so damaging was because it had several years to spread before it was discovered. Many other insects would be as bad if so long neglected. We have no reason to believe that it can be entirely exterminated, unless by burning the trees. It is so very minute that it can hide in very small crevices. He believes fruit-growers can control it as easily as they can cankerworm and like enemies. In nurseries he would burn infested stock. In winter, on sunny days, when kerosene would quickly evaporate, he would spray with pure kerosene, and would try whale-oil soap in winter, fairly coating the trees. He has not much confidence in a law for suppressing scale.

Again, we have the authority of one John Simpson, of San José, California, who tells how the scale was introduced into California from Chili, by James Lick, the noted Californian philanthropist. Mr. Lick, after becoming wealthy, sent to all parts of the world for fruit trees. He obtained a number of trees from Chili, where the scale previously existed, and the next year (1867) the scale appeared on his own ranch, so that it took about thirty years for it to reach Ontario. In fifteen years after its first appearance on James Lick's ranch it was to be found in every county in California.

The fruit-growers tried every means they could think of for the purpose of getting rid of it. The chief methods were spraying and washing, by which means they checked it, but were unable to exterminate it. The following remedies are recommended by the State Board of Horticulture for the pernicious or San José scale. The first given is for winter use in the rainy season. The ingredients are 40 pounds of unslacked lime, 20 pounds of sulphur, 15 pounds of stock salt, and 60 gallons of water. The directions given by the State Board are as follows: "Place 10 pounds of lime and 20 pounds of sulphur in a boiler with 20 gallons of water, and boil over a bank fire for not less than an hour and

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a half, or until the sulphur is thoroughly dissolved. When this takes place the mixture will be of an amber color. Next place in a cask 30 pounds of unslacked lime, pouring over it enough hot water to thoroughly slack it, and while it is boiling add the 15 pounds of salt. When this is dissolved add it to the lime and sulphur in the boiler and cook for half an hour longer, when the necessary quantity of water to make the 60 gallons should be added."

The second remedy recommended for winter use in California, but may do for summer use in Ontario, is known as the resin wash, the ingredients being resin 30 pounds, caustic soda (70 per cent.) 9 pounds, and fish oil 4½ pints. The directions given are as follows: "Place the resin, caustic soda and fish oil in a large boiler, pouring over them about 20 gallons of water, and cook thoroughly over a brisk fire for at least three hours. Then add hot water, a little at a time, and stir well till you have not less than fifty gallons of hot solution. Place this in the spray tank, and add a few gallons of cold water. Never add cold water when cooking."

The foregoing washes are recommended by the State Board of Horticulture for the San José scale, and, since the fruit-growers of that State have been fighting the scale for the last thirty years, their opinion ought to be of some value. The fruit-growers do not, however, depend mainly upon washing now, as the scale was attacked about ten years ago by a natural enemy, which the microscope showed to be a small internal parasite. This tiny insect lays an egg in the scale, and from the egg a worm is hatched, which removes the scale entirely by eating it, and then makes its escape as a perfect insect. These parasites increase much more rapidly than the scales in numbers, and are clearing the orchards of them. Other parasites, some of which have been imported from Australia, are also preying upon the scales. Among these are ladybirds, or "ladybugs," as they are popularly called. It would be a good thing for Ontario if some of the parasites mentioned were imported, as they do the work themselves, and entail no labor and expense on the part of fruit-growers.

Mr. Simpson remarks that San José is the Spanish name for St. Joseph, and should be pronounced "San Ho-zay" with the accent on the second syllable of the second word.

We will add that while we publish these opinions as to the pest, we would not be understood as encouraging indifference to it or a lack of vigilance in preventing its appearance and spread in our orchards, knowing that in regard to this as well as other evils, prevention is far preferable to a cure, and for this reason we counsel the strictest care, in view of personal as well as public interests, in the selection and ordering of trees, to prevent the introduction of the pest.

#### Tent Caterpillar

(*Clisiocampa americana*).

WM. GRAHAM, Renfrew Co., Ont.:—"I enclose you a twig cut from one of my apple trees bearing a cluster of insect eggs. I do not know what sort they are. Will you please give some information concerning it in an early issue of the FARMER'S ADVOCATE?"

The egg cluster sent us is of the too common tent caterpillar (*Clisiocampa americana*). It inhabits almost all parts of the United States and Canada. The moth is of a pale, dull reddish color, crossed by two oblique lines. When fully expanded the wings of the female will measure an inch and a half across; the male is smaller. The moths are usually abundant during the first two weeks of July.

The eggs are deposited during that month upon the smaller twigs of our fruit trees, commonly apple, in clusters containing from 200 to 300 eggs. The eggs are firmly cemented together, and coated with a tough varnish, presenting the appearance shown in the accompanying figure. The young caterpillars are fully matured in the egg before winter comes, and they remain in this enclosure in a torpid state throughout the cold weather, hatching during the early warm days of spring. They usually appear during the end of April or beginning of May. They feed at first on the gummy material with which the egg-masses are covered, and later on the tender, bursting leaf buds. These larvae are the tent-makers, and soon begin to construct for themselves the tents or webs across the nearest fork of the twig upon which they were hatched. In five or six weeks the tent or web has grown to large size, and the caterpillars have become full-grown, measuring about an inch and three-quarters in length. They are voracious feeders, and soon strip the adjacent limbs of leaves if not destroyed. The simplest and most effective remedy is to spray the trees with Paris green, 1 lb.; lime, 1 lb., and 200 gallons of water, just before the buds open, two weeks later, and again when the caterpillars appear, if they have not been exterminated by the Paris green. The Paris green is just as effective if applied with Bordeaux mixture—copper sulphate, 4 pounds; lime, 4 pounds; and water, 40 gallons, which will also destroy apple scab and bitter rot. Three ounces of Paris green to 40 gallons of Bordeaux mixture is of proper strength. The worms can also be destroyed by crushing the nests with the gloved hand early in the morning or late in the evening while the worms are in.]

In addition to the enormous supply of home-laid eggs Great Britain imports nearly \$15,000,000 worth each year.

#### Injury by the San Jose Scale.

With regard to the actual injury caused by the San José scale in America there is no lack of evidence. It is true that the pest is not regarded with any unusual degree of dread in California at the present time. Fruit-growing in that country has, however, become a more specialized industry than in the East; scale insects generally are more abundant, and no one thinks of engaging in fruit-growing as a business without making a study of insect pests. The municipal machinery for the suppression of injurious insects has been much perfected in California, and finally the dry climate in that State admits of the use of insecticides cheaper and more effective than may be used in the East. In Virginia the insect has caused the destruction of several orchards. The same may be said of New Jersey. I do not know that any trees have been actually killed in Ontario by the scale, but a considerable number have been so debilitated as will render them entirely unprofitable. Trees even under the highest cultivation and on the strongest soils will become gnarled and stunted owing to the presence of the parasites, and though they may not die immediately, the fact remains that as far as profit is concerned the tree is useless and might as well be dead.

As a result of personal experience and observation, I may say that if I found my own orchard infested with San José scale I would not think that a sufficient reason for destroying it, but I should understand at the same time that the most stringent measures against the spread of the scale, and looking towards its destruction, would have to be instituted and prosecuted vigorously. I do not say that I would offer the same advice to my neighbor, for the reason that very few men realize what "stringent measures" mean. If I knew my man, and could count on him to do as he was advised, and to do it thoroughly, I would not, except in bad cases, advise the destruction of the orchard. In nine cases out of ten, when dealing with the average farmer in the case of San José scale, I fear that this would be dangerous advice. It is wiser, therefore, to err on the safer side.

The scale has undoubtedly come to Canada to stay; it will close some men out of fruit-growing, and prevent others from engaging in the industry, but on the whole it will have a beneficial effect on the fruit interests of the country. The slovenly fruit-grower will perish, while the thrifty and intelligent man will live; in other words, the "fittest" will survive.

JOHN CRAIG.

Ithaca, N. Y., March 27, 1898.

### POULTRY.

#### Notable Discovery in the Treatment of Poultry Disease.

##### ROUP OR CANKER—CAUSE AND TREATMENT.

By H. A. Stevenson, M.D.C., member of Active Staff of General Hospital, London, Ont.; Demonstrator of Pathology, Med. Dept., Western University, London, Ont.

Having been rearing chickens, and latterly, since 1891, raising pheasants in company with Dr. Niven, my attention has often been drawn to certain of the birds which seemed to have "caught cold," afterwards their wings drooped, and they invariably died, and anything that we could do to the young birds seemed to do them very little good. In rear- ing young pheasants, some of the young birds, after they had reached a certain age, would in the morning have a droopy wing and soon die, and then others would soon become affected in the same way, die off rapidly, and the loss would be considerable, and nothing would seem to do them any good. On examining their mouths a small whitish patch could be seen under the tongue, and by looking carefully similar small pin points of patches could be seen on the roof of the mouth. These patches are pathognomonic of roup.

I recently, in company with Dr. Niven, visited a poultry yard where the owner had only two birds left out of a flock of fifteen, and five out of another flock of eighteen. The owner thought that the birds had died from cold, but on picking up one of the remaining sick birds this membrane was present under and along the sides of the tongue and on the roof of the mouth. Of this the owner was ignorant.

The first symptoms of roup are not manifest for several days after the bird has been infected by the germ which causes disease. On examining the mouth of the chicken which has been infected, a few minute patches not larger than a pin's point may be seen, and the temperature, if taken per rectum, generally shows a rise of half to one degree, and sometimes the temperature may be as high as 107 degrees, the hen going around apparently well and feeding well all this time. In a few days it gets mopey and the eyes may swell, and shaking its head, it gives a sound like "pit." In some cases it may appear to affect the eye only, the lids become cedematous, and the eye is closed and may even be destroyed, as in a case of last month Dr. Niven had to remove the eye of an infected bird, the eye having been destroyed by the growth of the membrane, but after removal of the bird recovered. In others the membrane creeps down the trachea, up into the nose, and from there it may affect the eye.

In young chicks, roup is the cause of death in about 80% of chicks that die. In reading almost any poultry journal the reader is struck with the great number of roup specifics advertised, and if they

will all cure, as they are claimed to do, and presuming that they are all different, at least all that I have tried are, and none of them are of any account, what a very variable disease roup is; but it is not. It is a disease that presents the same clinical picture in nearly all of the cases. The symptoms in the main are the same, though some may have the foul-smelling discharge and others may be without it. Even poultrymen differ as to what roup is, and in asking poultrymen to bring me chickens affected with roup, some brought in those without the offensive foul-smelling discharge as roup; while others brought those with the offensive discharge as canker; and some said they had some cases of roup which had become canker, because the offensive discharge had appeared. Some birds affected with roup have a very disagreeable odor, but the odor has nothing to do with the disease, for the germ that causes this odor will produce the same odor when placed in blood serum tubes. This odor soon penetrates a whole incubator. This germ has nothing to do with the recovery of the chicken, but it is generally found in most acute cases, and the birds recover more quickly under treatment, probably because this discharge draws attention to their condition sooner.

**Temperature.**—As to temperature, I think 105 degrees is the normal temperature for a fowl. Chickens affected with roup have a temperature of 107 degrees generally, but the temperature may run anywhere between 105 to 108 degrees.

**Sequelae Paralysis.**—In quite a few cases paralysis results. Many chickens which have recovered from roup seem to retain the symptoms of a snuffling from the nose, as it did when affected with roup; but this is not due to the disease being not cured, but to a paralysis of the palate muscles. This effect will pass off in time.

**Leg Weakness in Fowls.**—This is another form of paralysis which sometimes occurs. In 1892 I had a Black Minorca cock that was troubled with what is called "leg weakness," and finally became so paralyzed that he could not stand, and died from starvation. The post-mortem showed a neuritis of the nerves of the legs. Since then one other case has occurred with me which is described below. I have seen leg weakness in other coops from the same cause. I believe that nearly all cases of leg weakness is due to roup where it is not due to an injury.

**Contagion.**—As to infection from one fowl to another, it is a very communicable disease by the drinking dishes and feeding troughs, even after the birds have been apparently cured, as is shown in one experiment where I allowed one cock (mentioned above) to go without treatment for a time. The bird recovered with treatment, but developed leg weakness. I then put him in with two rabbits, and fed them all on grain from a small dish, so that their heads would rub together. One rabbit developed the membrane in the eye, and died without treatment; the other developed the membrane in the nose and throat, and died. Cultures showed the same bacillus of roup, the post-mortem showed the blood and organs sterile; no coccidia in either rabbit.

**Immunity to Roup or Canker.**—To determine if the treatment by the serum given below would confer immunity I put one cock infected with roup and one well hen together in a bag for about four hours, and then immunized the hen by injecting about 175 units; the hen escaped the disease. Then another cock (healthy) from another yard was put in the bag with the infected one and not immunized, and he developed the disease, then he was injected with the serum, 200 units, and made a good recovery.

**Marketing of Birds** which have been infected should be prohibited for three months after they have recovered, as they may easily spread the disease up to about this time. Birds suffering with roup should be removed from the rest of the flock and put in a coop by themselves where none of the rest of the birds can get near them, and separate drinking dishes and feeding pans used. After handling an infected bird the hands should be thoroughly washed with soap and water. I believe roup and canker to be the same disease, and I believe roup to be the same as diphtheria in man.

**Bacteriology.**—I believe roup in chickens to be similar to diphtheria in man, and roup to be caused by a specific germ which appears to me to be identical with bacillus of Klebs Loeffler. There is always present in all cases of roup or canker this same germ. There are also, as is to be expected, several other varieties of germs present. Streptococci do not seem to be a very common associate, several forms of other cocci (staph), and several forms of rod-shaped bacilli are present.

**Treatment.**—No external treatment is of very much service. Some recommend brushing off the membrane and touching the part with nitrate of silver, but we have tried this in several dozen cases, with very slight recovery, and a very tedious recovery at the best, in young pheasants. I would advise not to brush off the membrane, but to leave it to come off of itself. Burn any pieces of membrane that comes off.

**Serum or Internal Treatment.**—The only treatment is by internal methods through the blood by hypodermic injections of diphtheria antitoxine serum (Mulford's). This is the only treatment that is of any service. Enough serum for six hens can be purchased at any drug store for \$1.25, and a hypodermic syringe for \$1.00. This serum is made by growing the germ of diphtheria in beef tea and then filtering out the germs and using the filtrate

which contains only the toxins, then injecting this in small quantities at first, into a horse, then gradually increasing the doses until the horse can stand enormous doses. The horse is then bled and the clear serum that collects at the top of the coagulated blood is injected into the animal suffering with diphtheria or roup. If the serum is used early enough the animal will recover. This treatment of hypodermic injections we have carried out since the serum first came out, and with excellent results. Antitoxine is non-poisonous and too much given is better than too little. I give 150 to 225 units for a bird of about four to five pounds; for immunizing I give fifty to one hundred units; a ten pound bird about 250 units. Generally one injection is all that is required; if necessary, 100 units may be given in two days afterwards, but this is seldom needed. Since January 1st I have given about 150 injections, and since using the serum I have not lost one bird from roup, every bird recovering, though some would have a slight touch of paralysis for a time. The longer the bird is left without treatment the more chance there is of the bird dying or of paralysis following. The bird will recover if the serum is used in time. Two weeks ago I gave two birds an injection: one had a temperature of 108 degrees, the other 107 degrees. In three days after the injection one of them, the cock (107 degrees), was crowing, and they both made a good recovery. The owner thought they were going to die and intended to kill them the same day that I got them. He was afraid they would infect his other birds. The serum that I have been using and the one that I would recommend is that put up by H. K. Mulford & Co., of Philadelphia, called Diphtheria Antitoxin Serum.

The method of injecting the serum is simple; any hypodermic syringe will do, but the syringe that Mulford sells is the best on the market, because there is very little chance of it getting out of order, and also on account of the small piece of rubber tubing that connects the needle with the barrel, so that if the bird wiggles around the needle will not be broken. For an ordinary syringe give ten to seventeen minims (or drops) of the serum if the serum contains 200 units per cubic centimeter.

**Mode of Injecting.**—1st. Boil the syringe for three minutes in water before using it, and do not touch the needle afterwards, either with the hands or anything else, as it would be then infected and must be boiled again, otherwise it may produce an abscess, something that has not happened with me in a single case.

2nd. Fill the syringe to the desired amount with the antitoxine (too much is better than too little), then see that all the air is out of the needle by elevating the point of the needle and pressing home the plunger till the serum escapes from the point of the needle.

3rd. Select any part where the skin is loose: under the wing is best, or on the side between the ribs and the hip. Pinch up the skin between the fingers and introduce the needle well under the skin to nearly its full extent (it is not necessary to go into the muscle, the serum will be absorbed fast enough from the subcutaneous tissue), then introduce the serum slowly by pushing home the plunger. It is not necessary to wash the part where the injection is made with an antiseptic solution before or after injecting, but withdraw the needle rapidly. After using syringe wash it and the needle out with water before putting them away, as the serum will clog up the needle when it is again boiled.

My reason for writing this article at this time is that this and next month will be the hatching months, and roup will play sad havoc with some flocks, unless the poultry breeder is prepared for it in time. Any medical man will, I am sure, give the first injection, and he will be able to procure the serum from any druggist. Before closing I have to thank Dr. J. S. Niven, President Canadian Kennel Club, for poultry and pheasants supplied for the first experiments. The Doctor is using the serum when needed among his chickens with good results, and will answer any inquiry (if stamp is sent) made as to the serum treatment. Mr. McNeil, the well-known poultry-raiser, has been using the serum with good results.

[NOTE.—Dr. Stevenson has kindly authorized us to state that he will inject fowls infected with roup free of charge, if they are brought to his laboratory at 391 Dundas St., London.—EDITOR FARMER'S ADVOCATE.]

#### Canadian Eggs Wanted in Great Britain.

Last year the FARMER'S ADVOCATE gave an account of the establishment of an egg-buying business in Canada (at London, Ont.) by Thos. Robinson, Sons & Co., a noted firm of Hartlepool, Eng., under the management of Mr. Benj. Higgins, who informs us that the British demand for Canadian eggs is simply unlimited, and will be constantly increasing. The first season they shipped 50,000 dozen, and the second, 350,000 dozen, and are now unable to get anything like the quantity wanted. Canadian eggs are asked for, and sell for the very best prices, taking the place of the Irish eggs which with the French eggs have long held first place. A yellow egg of good size is preferred. There is also an immense opening for dressed fowls in cold storage. Poultry-keeping and egg-production are bound to advance in Canada.

### 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.]

#### Legal.

##### Removal of Straw after Sale of Farm.

"Upon the purchase by me of a farm the vendor agreed to leave all straw and manure on the place. When the time came for the vendor to move out and give up possession to me, there remained some clover straw and chaff, which the vendor claimed the right to take away. Can he legally do so?"

[We understand this clover to have been threshed, and the article referred to is what is left (namely, the straw and chaff after removing the seed), and if so, the vendor has no right to take it away. If, however, what you refer to is unthreshed clover hay, then as the vendor is not by the agreement bound to leave the hay, he would have the right to take it away.]

##### Husband and Wife Disagreement.

"Husband and wife have lived together on a farm, the property of the former, for many years. They have disagreed and quarrelled, and the husband desires to sell the farm to their son who is not of the full age of twenty-one years, but the wife objects to release her claims. Has the husband the right to sell to the son, and what are the wife's rights?"

[As the title in the property is held by the husband, he, of course, has the legal right to sell all his interest in the property to the son or to any one else. An effective deed of conveyance can be made to the son although a minor, but the son himself cannot make an effective conveyance or mortgage thereof to any one until he is twenty-one years of age. The wife may refuse to join in the deed or release her claim, but she has only a prospective claim for dower which only arises upon the death of the husband, and should the husband survive her the dower claim never arises. Of course, aside altogether from the question of parties' rights in the land, the husband is bound to suitably provide for and maintain his wife, unless the wife by her own acts places herself outside of, and loses, this protection provided by law.]

##### Trees Along Boundary Lines.

"The line fence between two farms is an old-fashioned worm fence. Has each owner the right to cut down trees on his own side standing close in to the corners, which trees would if the fence was made a straight one stand on the center line?"

[Yes. It may, however, be borne in mind that the Revised Statute of Ontario, chapter 243, provides that neighboring owners may by mutual consent plant trees along the boundary lines, which trees are by that Statute made the common property of both parties.]

##### Sale of Sow.

"X bought from Y a sow represented to be in pig nine weeks, but the sow proved not to be in pig. Can X recover damages, and how?"

[If Y at or before the purchase by X expressly warranted the sow to be in pig, then X can recover damages, but if Y expressed his belief only that the sow was in pig, and had reasonable ground for his belief and was not guilty of fraud or misrepresentation, then X has no remedy at law. The damages would be recoverable by an action for damages for breach of warranty or for fraud, and the action could be brought in any Division Court or County Court.]

##### Sale of Diseased Bull.

"I bought a bull which proved to be diseased with whites, and the bull was the cause of destroying a great many of my cows. Is the person from whom I bought the bull liable for the damages sustained?"

[No. You could not recover such damages at law; unless, at all events, there was some express warranty that the bull was not affected with the disease, or that there was some fraudulent misrepresentation as to that fact.]

#### Veterinary.

##### Otitis Suretitas (Deaf Horse).

W. M. L., Victoria, P. E. Island:—"I have a horse deaf from the report of a gun discharged close to him in a box stall. He cannot hear noises of any kind, and stands with his ears spread wide apart. Can I do anything for him—he looks so stupid, and is he likely to recover his hearing?"

[Inflammation of the internal ear causing deafness. It is rare that this disease is met with in the horse from concussion of the tympanum, but not at all uncommon in the human subject; in fact, it may be remarked that most handlers of dog who frequent dog shows after a few years become deaf. If rupture of the membrane tympani is complete, by closing the nostrils tightly and causing forcibly the expiration of the breath, a small quantity of air may be seen to issue from the ears. I would say that in this case the accumulation of wax has been forcibly pressed into the auditory canal and closed the orifice. Foment with warm soapy water, syringing a small quantity very slowly into the internal ear, and warm the following lotion by placing the bottle in hot water: Glycerine, 2

ounces; Goulard's extract, 1 ounce; tinted oil, 1 dram; distilled water, 5 ounces. A teaspoonful to be placed in each ear, warm, every day.

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

##### Goitre in Sheep.

J. H. W., Norfolk Co., Ont.—"As I am anxious to have the disease called 'goitre' thoroughly sifted out, I am going to give my experience and ask for answers. I have two valuable registered Shropshire ewes that have two lumps each in their throats. Have only had them about five months, and did not notice it until I sheared them. They are shearlings. One of them had a fine pair of lambs, and on examination found two lumps about the size of large hickory nuts in their respective throats. They never got on their feet, but died inside of fifteen minutes. The other ewe is due to lamb about middle of May. I do not live in a limestone section, and the ewes have had fresh water before them all winter. I mention the fresh water, as some of our best farmers seem to think that the ewes eating snow will cause it. (1) Do you think these ewes were affected with it when I got them, or have they got it since? (2) How long does it take the disease to develop two lumps as large as goose eggs? (3) Is there any danger of the ewes dying from it even if they were fattened. (4) Is it hereditary? Can anything be done for them so the lambs will come sound, or would you advise me not to breed them again? (5) Can anything be done for the ewe that has not lambed yet so as to save her lambs? (6) Will the remedy you offered in April 1st issue be hurtful to a ewe with lamb, namely, iodine and its salts, or, rather, potassium iodide, in ten grain doses daily for two or three weeks? (7) Will eating snow cause it?"

[Answer No. 6 and 7.—No.

The cause of this complaint is not clearly understood. One of our staff who had experience similar to that of J. H. W., some years ago, is satisfied that it is not hereditary, and would not sacrifice a good ewe so affected if her general health was good, but would avoid breeding from a ram having the same affection. Of late years the ewes were kept at an off farm in winter and fed no roots and given no water, but plenty of room to exercise. They had only dry feed—clover hay, pea straw and a little oats and bran—and ate snow at will. With this treatment a case of goitre was never seen, and lambs came strong and healthy. Yet some breeders feed turnips freely and give free access to water and have no trouble with goitre. It is rarely that mature sheep die of it, but we have known cases where the lumps grew as large as goose eggs in yearlings and caused death. We have found early lambs less liable to it, which we attribute to the greater amount of exercise the ewes get in the fall and shorter confinement before lambing. Will others give opinions?]

##### Ailing Mare.

H., Regina:—"A few days ago on the road my mare acted as if she had a fit of some kind. She threw up her head and started around in a circle; acted as if she had a headache or as if she was afraid someone was going to hit her on the head; acted as if she was blind; her lips were drawn back and mouth open; trembled all the time. She is in good health, but not fat. What can I do for her?"

[You failed to mention how long the symptoms continued or if you had at any time before noticed the mare in the same or similar condition. I am disposed to believe that the trouble arose from faulty digestion, producing reflex action on the brain, and would advise you to give the mare (if not pregnant) a dose of purgative medicine, consisting of Barbadoes aloes, one ounce; calomel, one dram; ground ginger, two drams; soap sufficient to form one ball. Before giving this dose keep the animal on an exclusive bran-mash diet for twenty hours. When the physic has ceased to operate give morning and evening for a week nux vomica, one dram; bicarbonate of soda, two drams; nitrate of potassium, one dram.

W. A. DUNBAR, V. S., Winnipeg.]

##### Lost a Hoof.

S. T., Oak Nook, Man.:—"Would you let me know through your valuable paper what is best to do for a horse that has lost his hoof? It came off at the first joint."

[If your horse's hoof really "came off at the first joint" I would consider the animal to be valueless, and would advise you to put an end to his existence. Did the animal meet with an accident?]

W. A. DUNBAR, V. S.]

##### Hereditary Ringbone.

SUBSCRIBER, Algoma District, Ont.:—"A colt foaled about the last of July began to show ringbone on both hind feet. It is now quite lame. What was the cause and what treatment would you prescribe? Its mother has ringbone, but was not worked, and they were well cared for."

[The cause of colt's ringbone is purely hereditary—another proof of the folly of breeding from an unsound mare. Firing and blistering has always been the most successful treatment. A new but highly recommended treatment is as follows: Clip the hair off close and apply the following twice a day for a week, then wash off with hot water, and after three days repeat, and so on for a month, giving perfect rest. Hyd. chlo. cor. (a violent poison), one dram; dissolved in soft water, sixteen ounces. This will usually remove the lameness and leave no ugly blemish. Some cases, however, will not yield to any known treatment.]

**Ophthalmia.**

H. A. SMITH, Penn., U. S. A.:—"We have a very fine mare at work. One of her eyes is not right. It starts at the lower corner and works up. Then there comes a blue ring around the ball, with a scum over all. We used sweet oil and honey once which took it off, but it has come back the second time. What do you think is wrong with the eye, and what shall we use?"

[The mare has ophthalmia. Feed a lighter diet; give no corn. Good hay, oats and bran, with an occasional bran mash, is the proper diet for her. Apply the following lotion to the eye twice daily until all inflammation and discharge has disappeared: Sulphate of zinc, ten grains; fluid extract belladonna, one dram; distilled water, four ounces. Allow a little to go into the eye when applying. Give one of the following powders in the feed every night: Pulv. nitrate of potash, 1½ ounces; bicarbonate of soda, two ounces; hyposulphite of soda, six ounces. Divide into twelve powders. It is important that the stable be kept in a good sanitary condition.]

**Pigs Paralyzed.**

J. F., Wellington Co., Ont.:—"My pure-bred Berkshire sow farrowed seven pure-bred pigs about four weeks ago. The pigs laid quietly most of the time, but seemed all right until about three weeks old, when two of them died. On examining the rest they seemed stiff in the legs, and when picked up and let go again were unable to move at first, then would get up and stagger blindly around for a few minutes before they recovered. I turned the other five out in the daytime, but they are still the same when touched and do not offer to eat. Please state cause and remedy. Sow has been fed on a ration of corn and oat meal, bran and roots?"

[It is the old story—the lack of exercise. The pigs appear to be doing well, get fat—too fat—and full of blood, circulation is impeded, the lungs fail to get proper expansion, and generally when the trouble is noticed it is too late to hope for a cure. To prevent, stir the pigs up and make them take exercise by brushing them around the pen with a broom if there is no other way, but, better, get them out on the ground on fine days for an hour or two, both sow and pigs. Sow may have been feed too strong and heating food.]

**Miscellaneous.****Rearing Calves Without Milk.**

J. C. M., Durham Co., Ont.:—"Please prescribe the best feed for calves, giving the nature and quantity of feed, where the milk from the dairy is taken to a cheese factory, and 'whey' is fed instead of skimmed milk, and oblige?"

[The question of raising calves without milk is becoming of increasing interest, especially in cheese factory districts, where, in many cases, the attempt to raise them on whey results in disappointment. Not only are the calves rendered pot-bellied and unthrifty during their first six months, but by thus becoming stunted, their mature form, as cows or steers, is permanently impaired. A calf or any other young animal cannot, like a matured animal, digest carbohydrates into glucose, so that nature substitutes a substance called lactose in the milk, and upon this the young animal is nourished. In the sprouting of grain a fermentation is produced which converts carbohydrates into glucose, which accounts for the sticky, sweet taste of grown wheat. In malting barley we thus secure a liquid product like molasses. These are practical and scientific facts, which are easily taken advantage of in substituting some other food for milk in feeding young calves. A convenient plan of operation is to put oats to soak for forty-eight hours, and then draw off the water and allow them to sprout. They should then be placed in a shallow pile in a warm place and turned carefully once or twice a day until they are all well sprouted. They should then be dried quickly in a moderate heat. The oats will now contain the easily digested nutriment the calf needs. Next take some oil meal gruel, and after cooking add one-half as much of the oats by weight as the oil meal used, and allow to stand in a warm place eight or ten hours, and then boil to thoroughly extract all nutriment. Thin with sweet whey to the consistency of milk, and it is ready to feed. Ten pounds of oil meal and five of oats will make 100 pounds of this artificial milk. This liquid is sweet, and has much the same consistency as skim milk and practically of similar composition. If it is desired to fatten a calf, ten pounds of malted flax seed could well be substituted for the oil meal, which would render the food much the same as new milk. Hay tea has also been recommended as a substitute for milk. The soluble nutritive constituents of early cut, well-cured hay are extracted by boiling, and contain all the food elements required to grow the animal. This should be boiled down and fed along with quarter of a pound of flax seed and quarter of a pound of wheat middlings, boiled and thinned with whey and hay tea.]

**Cement Cistern.**

SUBSCRIBER, Perth Co., Ont.:—"I would like to know how a cement cistern would answer under a kitchen free from frost. Would it do to dig a large square hole and build a six-inch wall of cement all around, and in the bottom hard clay soil, or what would be the better way to make a permanent cistern? What would be the proportions of cement for such a work?"

[A cistern underneath a kitchen would answer

well as far as the cistern itself is concerned, and it would also be very convenient, but it would tend to keep the kitchen damp and be very inconvenient to clean out when that became necessary once a year, or at least once in two years. A clay floor would not be advisable, since it would remain soft and muddy, which would keep the water dirty, especially when it became low in the cistern. Not only that, but the annual cleaning could not be satisfactorily done. We would advise a circular cement cistern, with cement floor and top, except the manhole. Full instructions for building same can be obtained in circular sent out by Isaac Usher, Queenston, Ont., and John Battle, Thorold, Ont., whose cement advertisement appears in this issue, which will be mailed to you free on application.]

**Sowing Salt on Wheat Land.**

C. A. LOCKE, Elgin Co., Ont.:—"1. When is the best time to sow salt on fall wheat? If in spring, which month? 2. How many pounds per acre should I sow? 3. Would sowing the salt this spring have a tendency to affect the new seeding?"

[1. In the fall, immediately after the wheat is sown and before it is above ground. 2. About 200 pounds. 3. Yes.]

**Plowing Under Rye as a Preparation for Rape.**

J. F., Peel Co., Ont.:—"I have a field of rye. I want to clean the field and improve its fertility. How would it do to plow the rye under and grow a crop of rape on it to be fed off with lambs in the fall?"

[If the rye is plowed under before it gets woody, just when beginning to show where the heads are, it will make a very good preparation for rape. Use a drag chain on the plow so as to put the green crop well under the furrow and follow closely with the roller; then harrow and roll again, so as to get the ground as compact as possible above the green stuff. Harrow after each shower before sowing the rape to conserve moisture and check weeds. Sow about middle of June, in drills about two feet apart, about one and a half pounds of seed to the acre, and cultivate between rows. We have sown rape with the grain drill with grass seeder attachment, stopping all but two or three openings, and turning the rubber tubes to convey seed to the necessary holes. If the rye is found to be rotted sufficiently, the land may be ridged with double-mouldboard plow; or, if weeds are not likely to be troublesome, a fair crop may be obtained by sowing broadcast, which could be done with grain drill having grass seed attachment, but best results are obtained by cultivating in drills.]

**Date of Sale of Duchesses.**

R. F. McC., Toronto:—"Can you give the date that Senator Cochrane sold two Shorthorn cattle of the Duchess family on the old Toronto exhibition grounds—one for \$18,000 and one for \$22,000?"

[The files of the FARMER'S ADVOCATE show that on June 16, 1875, Hon. M. H. Cochrane sold by auction at Toronto, Airdrie Duchess 5th, to Avery & Murphy, Port Huron, Mich., for \$18,000, and 5th Duke of Hillhurst, to Cockrill & Gibson, Tennessee, for \$8,300. These were the highest prices reported as made at that sale, and we find no record of a Shorthorn being sold at Toronto for \$22,000.]

**Raising Calves Without Milk.**

READER, Wellington Co., Ont.:—"Would some of your readers give me the best plan to raise calves after they are a month old without milk till fall (I mean a cheap kind of feed)—how often in a day, and how much at a time, as I am going to send my milk to the factory, and have had no experience in raising calves without milk?"

[It is surprising with how little milk a calf may be well raised by judicious management. The calf may be taught to eat oats and bran and clover hay before it is a month old, by putting some whole oats in its mouth at first, and then keeping oats and bran in a box within its reach. The milk ration may be gradually reduced by adding warm water till it is finally withdrawn, and a little oatmeal gruel or boiled flax seed substituted, continuing to feed it warm, three times a day in small quantity, say two quarts at first and twice a day later on, increasing to four quarts. By the time the calf is two months old it will have learned to eat so well that it may do with water alone for drink, but the chill should be taken off it, and a little coarse ground oil-cake added to the meal ration. By feeding thus and keeping them in a clean box stall or shed, darkened during the hot weather when flies are numerous, good calves may be successfully raised. When the weather gets cool in the fall and fly time is past, it is well to accustom them to go out to pasture, and a piece of rape will be good forage for them.]

**Time to Cut Clover.**

SUBSCRIBER, York Co., Ont.:—"When should clover be cut in order to get good weather for curing, and also to get a good crop of seed in the fall? I have noticed that the weather is generally showery about June 20th. Should it be cut before then?"

[Taking one year with another, we believe the weather is more generally showery during the last week of June than the weeks previous or just following. Last year, however, in some sections of Ontario many who finished haying in June saved the crop in good condition, while very much hay was spoiled during the early part of July by rain. It will thus be seen how impractical it is to lay

down rules upon this subject at this season. Our plan would be to start the mower as soon after the clover opened nicely in head as the weather would warrant. We would not think of cutting clover before it is in bloom for fear of later rains. If the season continues as favorable to growth as it now promises, clover cutting will commence earlier than usual. Many think it wise to pasture clover intended for seed up till June 15th.]

**Blind Gobbler.**

T. M. CATON, Lennox Co., Ont.:—"I would like to ask you about a bronze gobbler. He was all sound at night, and about noon the next day he was blind. It is about five days since he lost his sight. He appears perfectly well every other way and his eyes are bright and not at all changed in any way, not even swollen. Can you tell me what to do for him, and can you tell me the cause of blindness?"

[The above case is certainly a strange and exceptional one, so much so, indeed, that we cannot decide either the cause of the blindness nor a remedy. Will some reader who can explain the cause prescribe a treatment and state the probable result.]

**Brome Grass in Ontario.**

C. H. M., Oxford Co., Ont.:—"Will you kindly inform me through your next issue whether awnless Brome grass has ever been tried or experimented with in this section of country, and if it has, with what results?"

[We are not aware that awnless Brome grass (*Bromus inermis*) has been grown in any considerable quantities as yet in Ontario, but at the Ontario Experimental Farm it has been grown in plots for three years side by side with twenty other sorts, standing ninth in the test for average weight of green crop for three years. In 1897 the crop was moderately uniform. It reached an average height of 21 inches in the three years. In 1897 it yielded at the rate of 4.80 tons of green crop per acre, and averaged 3.45 tons for the three years.]

**Brewer's Grains Not Good for Calves.**

To the Editor FARMER'S ADVOCATE:

SIR,—I notice in your issue of 1st inst. a correspondent asks for ration for calves in which a large proportion of brewer's grains could be used. I have had considerable experience with brewer's grains before I came to Canada. I used brewer's grains for many years in good old Scotland. I never, however, gave grains to calves; in fact, never to any of my animals under a year old. I mostly fed to milk cows which were getting large meal ration for milk at same time, and for that purpose I know of nothing better. I have a dislike, however, to brewer's grains and sour silage for young cattle in any shape or form. In my opinion it makes a soft and flabby animal when mature and not one I should like to breed from for putting early on the market. Could your correspondent not try hay tea. It is made from an infusion of good sweet meadow hay. I met not long ago an old lady born in Scotland who has reared calves in Canada on above-mentioned tea. T. M. BELL.  
Perth Co., Ont.

**MARKETS.****FARM GOSSIP.****Oxford County, Ont.**

Never did we get the seeding done under more favorable circumstances. The land in splendid condition, worked up nicer than it has done for years, being unusually mellow; weather cool and very easy on young horses. The greater part of the oats and barley in our district were in before the heavy rains of the 19th and 20th; little or no spring wheat being sown. The rains have been very opportune for the meadows and fall wheat and newly sown grain; clover wintered well. Fall wheat, although doing well, cannot be a crop like last year on account of the uneven start it got in the dry weather last fall. Farmers are now preparing for peas and carrots and mangolds; the roots will be sown as soon as possible, but the peas won't be committed to the ground until the beginning of May. Lambs are generally doing well. There seems to be a fair crop of little pigs doing well. Cheese factories have mostly started the season's operations. Several farmers are sending their milk to the skimming stations or butter factories. Live hogs got down to \$4.40, but have again commenced to rise and buyers are now paying \$4.50 and the prospects are still upward. Quite a number of the early calves have been vealed. There are not many lots of fattening cattle in this immediate neighborhood; a few lots of export will be held till May. Potatoes have kept well and are selling at about 75 cents per bag. D. L.

**Brandon (Man.) District.**

Seeding operations became general on April 18th. Quite a number of farmers made a start the previous week, but most of the spring work done prior to the 18th consisted in harrowing and plowing. Land is now in good shape and weather favorable.

Hay is very scarce and brings \$15 to \$18, and many farmers have had to buy.

Horses have been imported and sold to a greater extent than any time since the 80's, at prices in the neighborhood of \$300 per team. Farm horses not so well wintered as in past years, and chiefly corn-fed.

Cattle.—Few have been stall-fed by farmers owing to scarcity of feed, and prices paid last fall for stockers. Notwithstanding the numbers of stockers shipped south last fall, vastly more have gone out this spring, and at better prices.

Everything offering is being taken at about \$16 for yearlings, \$21 for two-year-olds, others according to age and size.

Hogs not so plentiful as past years, and looks as though there would be a scarcity, with 4c. live weight.

Coarse grain and mill stuffs scarce and dear: Oats, 45c. to 50c.; barley, 50c.; bran, \$18 per ton; shorts, \$14; crushed corn, \$18 per ton.

Wheat—Practically none delivering and nothing to come worth naming. Street price quoted 85c. Large quantities used for seed.

Dairy butter scarce and brings 25c. Eggs not plentiful, 18c.

Farm Hands.—The demand is well supplied; wages, \$20 per month for seven or eight months.

Farm operations are being conducted with more care and thoroughness.

Farm lands are in demand and handsome prices being realized. Three-quarters of a section, 480 acres, with moderate buildings and improvements, sold recently for \$9,000.

Kent County, Ont.

After three weeks of dry weather with frosty nights, wheat looked extremely bad—in fact, some of it has been reseeded to spring crop—but the past week's rains have revived it, and the meadows are making rapid growth.

Sherbrooke County, Que.

The spring has opened earlier than for many years. Meadows show little or no winter-killing, and hay and pastures promise well.

Toronto Markets.

The capacity of the cattle market was again taxed to its utmost extent. Cattle, 1,500; calves, 150; sheep, 250; about 2,000 hogs.

Export Cattle.—The bulk of the export cattle advanced 10c. per cwt.—\$4 to \$4.35 per cwt. was the ruling figure.

Butchers' Cattle.—Choice, picked lots of butchers' cattle sold for \$3.75 to \$4 per cwt.

Feeders.—Demand good, prices firmer and unchanged, selling at \$3.50 to \$3.75 per cwt.

Stocks.—A good number of buyers from Buffalo. Four carloads forwarded. Prices ruled \$3.60 to \$3.70 per cwt.

Bulls.—Export bulls in demand and wanted; not many on sale. Picked lots, heavy, sold at \$3.60 to \$3.75.

Calves.—Market dull, an oversupply caused a slump. About 50 sold at prices ranging from \$2 to \$3 per head.

Sheep.—Supply about equal to demand. Ewes sold at \$3.25 to \$3.75. Bucks, \$3 to \$3.25.

Milk Cows.—A fair enquiry for good dairy cows. Prices range from \$25 to \$45 per head.

Hogs.—The quality of the hogs delivered to this market is greatly improving, over 6,000 last week. Prices ruled firm and demand good for all sorts.

Dressed Beef.—The abattoir proved a blessing to the farmers and drovers last Friday. On account of the bad weather and an oversupply of fat cattle, the trade was slow.

slaughtered, and will be shipped to Montreal for the opening of navigation. Dressed beef is quoted at \$7 to \$7.50 for hind quarters, and from \$4 to \$5 per cwt. for fore quarters.

Dressed Hogs.—Large supply swamped the market and made prices easier for to-day; \$6 per cwt. for lightweights, and \$5.50 to \$5.70 for heavy.

Canada's Famous Bacon.—The following paragraph is taken from an article on "Bacon Curing" in The Journal of the Royal Agricultural Society of England, just received at the Department of Agriculture: "It is safe to say that the coming rival of all other countries in the production of bacon is Canada."

Grain Market.—The Toronto grain market is somewhat unsettled. Prices have advanced or generally firmer.

Hay.—In consequence of the weather, prices were easier; 12 loads selling at \$7.50 to \$8.50 per ton.

Cheese.—Market much firmer, stocks light, export demand more active. A carload went from this market at 8c. for export.

Butter.—A good supply on offer; prices easier. Farmer's rolls 15c. to 20c. per lb.; creamery, 21c. to 22c. per lb.

Eggs.—The supply is fair and there is a good demand here. The market is steady at 10c. for new laid.

Potatoes.—Are dull, prices easier; 60c. to 65c. per bag. April 26th, 1898.

Chatty Stock Letter from Chicago.

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

Table with columns: CATTLE, Extreme Prices, Two weeks ago, 1897, 1898. Rows include 1500 lbs. wt., 1850 @ 1900, 1900 @ 1950, etc.

The cattle market has lately been very dull, with the meat trade reported the poorest in a long time.

The American Distilling Co. marketed 993-lb. distillery cattle at \$1.50.

The Standard Cattle Co. marketed 1,346 lb. branded heifers at \$1.80 and 1,800-lb. fed Westerns at \$4.70.

The Spanish-American war ought to help Canadian business amazingly, so there is no great loss without some small gain.

Opinions vary as to the effect the war will have upon the live stock and meat trade.

L. F. Swift says there is no good reason why live stock prices and provisions should advance; in fact, with exports of live cattle and provisions decreasing, as they will be, after a few war-scare orders are filled, he is of the opinion that there will be a reaction in values, with prospects of more liberal receipts of live stock than the demand will absorb.

The meeting of the Montana Stock Growers' Association, the suggestion of the National Live Stock Exchange, that the branding of cattle be so modified as to do the least possible injury to the hide, was partly concurred in.

At the Sotham sale of Herefords, 25 bulls brought \$9,180, averaging \$367.20; 25 cows and heifers brought \$7,900, averaging \$316; 50 head brought \$17,080, general average \$342.

News that the French Government has placed a duty of \$10 per head upon American horses, and decided to impose a lengthy quarantine period, was very unwelcome at Chicago.

The decline in foreign demand, combined with the war situation, has had a deleterious effect on the operations of export dealers, and an increased movement is not anticipated very soon.

Last week Chicago forwarded: To London: by Bert Baldwin, 20 head; Albert Hawks, 22 head; J. Dainty, 40 head; W. H. Lee, 6 head; D. Lounstein, 20 head; To Liverpool: by M. H. Tichenor & Co., 20 head; Miller & Co., 40 head; To Glasgow: by A. Machattie, 20 head; To Paris: by P. Oliff, 20 head; To Antwerp: by A. Dufour & Co., 170 head; S. Cozzens, 20 head; Remi Dejonckheere, 20 head.

The local horse trade has been fairly good lately. Eastern farm chunks were particularly active at from \$55 to \$80, and

1,300 lb. Boston chunks met with an active inquiry at \$65 to \$100. A large number of medium to good drivers were negotiated in the auction at \$65 to \$150.

The war has caused a big demand for mules, and a consequent advance in prices. Spain was early in the field, and bought heavily of Missouri mules.

Several cavalrymen have been trying to get up recruits from among the fine horsemen at the stock yards.

Mrs. Catlin, of Augusta, Ill., sold a handsome black saddle mare here for \$375. She was of elegant conformation and performed at all the educated saddle gait.

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Montreal Markets.

Export Cattle.—About the first buying that has taken place for export at this market took place last Thursday, when Mr. Ironside, of Gordon & Ironside, put in an appearance on the "hill."

Butchers' Cattle.—On the same market butchers bought freely at prices ranging from \$3.80 to \$4 per cwt. for very good stuff.

Calves.—On Thursday last fully 2,000 calves were brought in, and the market accordingly was very flat.

Hides and Skins.—Beef hides are coming down some; the best that was paid last week being 84c. for No. 1, with the bulk nearer 8c., tanners paying 3c. to 1c. advance on these figures.

Horse Market.

This market is practically in a state of "boom" at present, choice horses having advanced fully twenty per cent. since our last report, and with very few offerings, almost all the stables around town being well cleaned out.

British Markets.—Today's cables (April 25) were like a bolt from a clear sky—it was the unexpected that happened.

Toronto Horse Market.—An American agent was at Grand's Repository last week and entered into a contract to take 1,000 horses in the event of war.

Sale of the O. A. C. Beef Cattle.

The fat cattle at the Ontario Agricultural College Farm, at Guelph, 21 head, were sold last week to A. P. Scott, of Brampton, for export, at \$4.65 per 100 lbs.

Toronto Horse Market.—An American agent was at Grand's Repository last week and entered into a contract to take 1,000 horses in the event of war.

MISCELLANEOUS.

The Winnipeg Industrial Exhibition. The Winnipeg Industrial Exhibition, to be held this year from July 11th to 16th, promises to make a record.

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A greeting to you, children dear,  
At last my face you see.  
Come, draw your chairs up very near,  
And have a chat with me.

Where did I "get the bonnet?" Eh!  
That's rather rude, you know.  
Don't make remarks, or I'll not stay.  
You'd cry if I should go.

My dears, you're welcome to your joke.  
The fact is—don't you tell—  
But in the attic hung this "poke"—  
I'm sure it suits me well.

Oh, don't you love the attic, chicks?  
It's great fun, is it not?  
In grandma's hoops to play wild tricks,  
And rick out such a lot!  
Of queer old hats and skirts and waists,  
And "dress up" when we can!  
The old folks have such stupid tastes,  
I'd never be a man!

Did some small boy say, very low,  
"You never got the chance!"  
Oh, well, perhaps it may be so.  
The boys all love to prance  
And strut about and put on airs  
And on the girls look down.  
Don't mind them, girls, let's go upstairs  
And try on every gown.

—Cousin Dorothy.

The Sick Fairy.

(Continued from page 191.)

The Countess, or as we may as well call her, the fairy Orysanthemum, was sitting in her pleasant drawing-room entertaining the mayor's wife, who had come to pay her a morning call. The neighbors afforded our fairy no little amusement, for although she had often come to Mortal-land to practice her magic, she had never stayed long enough with human beings to know much of their manners and customs, which were refreshingly new to her.

"Pray, Countess, are you aware that this house is haunted?" Mrs. Jones was saying.

"I have heard it said," replied the Countess, indifferently; "but what does it matter? Ghosts are poor flimsy things who never interfere with anybody."

"Ah, Countess, if we all had your nerves of iron! It is my duty to tell you that I don't think you will be able to keep your servants much longer, in consequence of the strange sights which haunt them. The whole neighborhood knows of the strange creature that prowls about at night taking the shape of your respectable butler, Mr. Parakeet. Mrs. Ricketts, the housekeeper, imagined it to be himself in his green and scarlet livery, and with his large, projecting nose; but on approaching it the creature displayed two great flapping wings, and flew off, to her horror. Others of your household have met dragons crawling about with bodies striped like those long waistcoats that some of your pages wear."

"You amaze and distress me very much," said the Countess, looking really concerned.

"But I have not told you half all," went on Mrs. Jones. "As if it were not enough to have all kinds of flying creatures wandering about at night, very extraordinary things happen in the day. The cook has found her saucepan overturned if she has left it a minute, and woe to the housemaid who leaves a corner unswept. She is sure to find 'slut' written there in letters of phosphorus next time she passes."

"Then I am indebted to the ghosts," observed the Countess, who could not restrain a smile, "for the greater attention to their duties shown lately by the servants engaged in the neighborhood; but believe me, Mrs. Jones, this shall all be put a stop to. I'll have no ghosts in my house, and I am accustomed to be obeyed."

"Oh, no doubt, Countess," said her humble and admiring friend, "any mortal would obey but a sign of your finger, but with ghosts, alas! I fear me that even you are powerless."

The accusation of being unable to deal with such poor things as ghosts seemed such an affront to the fairy as caused her to flush with anger, but, remembering her assumed character, she drew herself up with all the dignity of a haughty old mortal lady, and said,

"Mrs. Jones, the ghosts shall be exorcised. You need not doubt my word, for I repeat that I am accustomed to be obeyed."

Mrs. Jones' back was scarcely turned before the old lady rang the bell and summoned into her presence the butler, lady's-maid, and all the pages—the servants, in short, that she had brought with her from Fairyland.

"What did I enjoin upon you before I left home?" she asked, sternly. "Did I or did I not tell you to abjure all magic arts, and behave exactly like the human beings we have come to live amongst?"

"You did ma'am, and we endeavor to obey, but we are always forgetting," they replied in chorus.

"One can't always be creeping along as if one hadn't got wings," muttered Mr. Parakeet, echoed by Peacock and Firefly.

"And we can't always be standing up on our hind legs," said Creepy and Crawley, "it's so fatiguing."

It was at this moment that a ring at the front-door bell summoned Mr. Parakeet to his post, and the fairy, having dismissed the servants with a severe rebuke, awaited her next visitor.

It was no other than Charley Morton, who, hearing how kind the Countess had been to his sisters, was bent upon trying his own luck with her; but his reception was not equally gracious.

"Well, what do you want, child?" asked the Countess, sharply, as Charley came in bowing, with his hat in his hand, for he had very good manners when he liked.

"Please, noble lady—

"Never mind about all that."

"I think you know my sisters?"

"Yes; and nothing good of you, Charles Morton. I wonder you are not ashamed to come into my presence, reminding me as you do of my—

—humph—I mean, after your conduct to your brother."

"It wasn't my fault that he disappeared, ma'am."

"It wasn't your fault that he cried, I suppose? You never ate any strawberries when you had been told not? You never sneered at the poor child? I wish you were in his place, with all my heart, and I've a good mind—"

The enraged fairy seized the poker in temporary forgetfulness that it was not a wand, but remembered in time and put it down.

"Oh, don't hit me, ma'am!" cried Charley, "I'm very sorry I behaved so badly, I am indeed, and I came to ask you to help me to find Ernest."

"You must go home then and look in the kitchen garden for a turnip-top which has not yet flowered, and that turnip-top must be watered with your tears."

"But, oh! ma'am," said Charley, in perplexity, "how can I cry over a turnip? Do you want to make a laughing-stock of me?"

"Well, and if I do, what then?" retorted the fairy. "Don't you think you deserve to be one? Go home and do as I tell you, or, mark my words, you will rue it."

"And if I do, ma'am, will you help me find my little brother?"

"Yes," replied the Countess; "that's a promise, and I think you hardly know what a very powerful old lady I am."

(To be continued.)

The Great Canadian Puzzle.

What's this! Oh, no, it cannot be!  
And yet it is, a Gold Watch Free!  
A Silver Watch! and, best of all,  
A Prize which none can say is small.  
My friends, don't throw this chance away,  
But Fifty Dollars earn to-day.  
Perhaps you think the task too great,  
Why, then, remember, only eight  
Correct replies, for you will win  
The right to wear a handsome Pin.  
A New Subscriber first secure,  
Then search the map to make quite sure  
Of every city, town and bay  
In this great land, and send away  
The lists at once, you need not wait—  
The end of May will be too late.  
Don't call this "work" and say you need  
Your time for putting in the seed.  
It is not work, it's only play,  
And need not break into your day.  
When evening comes, and work is done,  
You'll find the children think it's fun  
To fill the missing letters in.  
Why should not each obtain a Pin,  
If each a New Subscriber get!  
Don't miss this chance, or vain regret,  
Will fill your heart, when, all too soon,  
The Winners' names appear in June.  
See to it, then, that yours is there,  
And let each household send a pair  
Of lists, with New Subscribers' names—  
This Puzzle's worth a dozen games.  
The FARMER'S ADVOCATE, you'll see,  
Will treat all lists impartially.  
There is no risk of loss to you,  
And possibly you may win two  
Good handsome Prizes for your pains.  
You only need to use your brains.  
Don't let them rust for want of use.  
Come, get your pencils out, induce  
Both young and old to try their hand  
In studying their Native Land.

A few Notes from a Sermon to Children on Thankfulness.

Comparing the conditions of life where there is home comforts and fresh air, to the misery witnessed in some of the great cities of the world; 8,000 boys and girls in London, England, sleep outdoors every night in the year. To give an idea of the number of children attending Public school in that great city, if they were to join hands they would make a line reaching 300 miles.

50,000 families have only one room each, and most of them in miserably lighted and scantily furnished dens of filth and sin. If you wanted to walk on every street in London, you would need to travel over ten miles a day for nine years.

Most of the suffering is brought on by liquor, and it is painful to look upon half-starved women and children who carry bruises and cuts inflicted by brutal men.

Many organizations are seeking to lessen this misery, by opening homes for the children, where they teach them of the Saviour who came to take away the sin and bear the sorrow of all mankind.

If we ever feel inclined to murmur, let us remember how much God has given us by placing us in such a glorious country, and giving us comfortable homes and loving parents.

Glen Oak P. O.

J. W. MACKENZIE.

THE QUIET HOUR.

Fra Ildefonso's Guest.

Fra Ildefonso one spring evening stood  
Without the convent gate, and felt it good  
To watch the shadows steal with subtle grace  
Across the pavement of the market-place.  
The great cathedral's shadow lay before  
The good man's eyes, and made upon the floor  
A silhouette of nave and roof and spire,  
Which, as the sun sank lower, mounted higher,  
Until there stole to Ildefonso's side  
The shadow of the cross.

"And thus," he cried,  
"Thy cross, O Lord, o'ershadows everything,  
And the wide world is covered by Thy wing!  
Praise to Thy name!"

Then, while the light still burned  
Upon the far-off hills, the good man turned  
Within the gates, and in his lodge sat down,  
Hearing meanwhile the murmur of the town,  
That like the hum of insects in the shade,  
Came from the streets where happy children played,  
And made fit concord with the silent prayer  
Which Ildefonso formed as he sat there.  
For 'twas the good man's habit every day  
Within his porter's lodge to wile away  
The evening hours in meditation deep.  
Upon his Lord, that happily he might keep  
Less worthy thoughts from out his secret mind.  
Upon this night he thought:

"One thing I find,  
And only one in all I know of Him  
Whose light fills all the world and ne'er grows dim,  
Which I should like to alter, and 'tis this:  
That I might have the unutterable bliss  
Of seeing Him! Oh, that I had been  
Some humble Jew or lowly Nazarene  
In those old days when Eastern land He trod,  
Amongst those who in His person saw not God!  
Am I so wrong in longing for a sight  
Of Him whose face I see by Faith's great light?  
Ah, Lord, I trust to see Thee in that day  
When earth and time shall both have passed away,  
And Thou Thyself shalt make Thy children blest,  
Because Thy glory shall be manifest.  
And yet I long all day to see Thy face,  
And think full oft how this poor humble place  
Would be transformed in to a court of heaven  
If Thy dear presence to it once were given.  
Well, thanks to Thee, one comfort still is mine,  
I know Thee near in Sacrament divine!  
And if aught troubles me or brings me low,  
To seek Thy feet I have not far to go;  
And howe'er sad I am, my sadness flies  
When I behold Thy presence with Faith's eyes.  
I will go now, and at Thy altar pray,  
And speak with Thee."

But as he turned away  
There came a ringing at the convent bell;  
And Ildefonso said: "I know full well  
That this is one who rings from want and need  
And seeks a night's repose; because, indeed,  
'Tis only beggars ring so modestly."  
Then, opening wide the door that he might see  
Who rang the bell, the good man saw outside  
A beggar, gaunt, and starved, and hollow-eyed,  
Who looked as though the world had used him ill  
For many days, and tossed him at its will  
About its byways.

Ildefonso said:  
"Come in, good man; for these is board and bed,  
Thou seem'st as one whose need is great, and we  
Who serve the Master, have a place for thee."  
Therewith he brought the weary man a chair,  
And made swift haste to place the convent fare  
Before him on the table, all the while  
Thinking unto himself with happy smile  
How good a thing it is to serve God's poor,  
And how God's glory is increased the more  
By little acts of tender love which flow  
From out the heart.

And, while he pondered so  
The stranger rose, and blessed and brake the bread;  
And suddenly around his tall, worn head  
A halo came, and all the place grew bright  
With radiance that was not of earthly light!  
Fra Ildefonso, falling on his knees,  
Heard a voice say: "In doing it to these  
Ye do it unto Me. Thou wishest well  
To see Me on this earth; but when the bell  
Tells thee some beggar stands outside the door,  
Know it is I, in person of My poor."  
Fra Ildefonso raised again his reverent head  
And lo, the Lord had blessed him and was fled.

I. S. FLETCHER.

Above all things, be kindly; kindness is a grace very near to the likeness of God, and one which disarms men above all else; gentle, charitable thoughts of others gradually stamp the countenance and help to win hearts.

Sympathy, love and unselfishness give happiness. It matters not what our physical condition, what our material surroundings. With these as our ingredients we shall extract the glorious elixir of life.

Do not be afraid of spoiling anyone with kindness. It can't be done. Instead of spoiling, it beautifies the character, cheers the heart, and helps to raise the burden from shoulders which, though brave, sometimes grow very, very tired. Let not a little adversity frighten you away, for under the most frigid exterior there is always to be found a tender chord which can be touched by kindness and which responds in beautiful harmonies to those little acts of courtesy that are as sunshine to a struggling plant.

Love is given us to help us onward nearer to God. The most blessed is that which draws us nearest to Him. The essence of true love is not its tenderness, but its strength, power of endurance, its purity, its self-renunciation. Never forget, a selfish heart desires love for itself—a Christian heart delights to love, without return.

He Whose loving care never fails His own is near. He holds all things in His power. He is at hand, watchful and ready to guide, to cheer, to help, to guard, to avenge. The time draws nigh when He shall make all know how close He has always been to every one, and shall set all wrongs right.

"The Village Bride."

BY GREUZE.

"The Village Bride" was executed just thirty years before the outbreak of the French Revolution. Greuze, the painter, was held in highest esteem by that band of intellectual leaders of the movement whose influence was the most active and operative of the various causes that brought on that great cataclysm of history. Greuze was par excellence the painter of the French middle class. His merit is due to him for his efforts after a more natural style than the false and sickly sentiment of the sham pastorals that were prevalent at this time. But attractive as his works are, they give rise to the impression that he was not free from the influence of his contemporaries in their pursuit of mere prettiness. In depth of sincerity and directness of intention he cannot compare with Millet, Dupre, or Frere, and the school of French artists of which they are the best representatives, whose earnest and faithful studies of French country life have done more than any other school to retain for the art of their native land a leading place in Europe. The picture before us is, however, sufficiently pleasing. The venerable father, evidently a leading proprietor of the village, is bestowing the pride of his home, with her small "dot," on the ingenuous youth whose amiable expression promises well for her future. The youth's father, a country professional man, who has been conducting the negotiations for the union, according to French custom, is regarding the conclusion with serious and friendly interest. The feelings of the bride's family, if somewhat idealized, are rendered with much expression, and the general air of purity and simplicity pervading the scene may be received as a not unfaithful reproduction of the best element of French country life, which had little in common with the brilliant dissoluteness of the cities.

This picture of Greuze's has an interest outside of the high art value which it undoubtedly possesses. It originated from the spirit of the time in which it was produced, a spirit which concentrated the attention of the French nation on the incidents of rural life in a mood and to a degree which has no precedent. During the reign of "Le Grande Monarque" the agriculturists of France suffered the cruellest oppression, the burden of taxation. The increasing absence of the nobility from their estates, wasting their revenues in the capital; the ravages of the civil broils of the Fronde and those arising from religious troubles, drove the much-enduring farming class to frequent wild and futile risings. A tenth of the people are said to have been beggars, and more than half the remaining population making nothing above a bare subsistence.

The period when this picture was produced, the second half of the eighteenth century, saw a complete change. The protection and encouragement of the agricultural interests of the country engaged the chief attention of the sovereign, the literary class and the nobility. In spite of serious drawbacks, the period between 1750 and 1789 witnessed the dawn of the brightest time that had ever shone on French husbandry. The rural population shared in the stir of new ideas that were leavening the cities; on them and their pursuits were concentrated the attention, sentiments, and hopes of the nation. The great literary geniuses of the age, Voltaire and Rousseau, preached the gospel of a return to nature, with exaggerated sentiment indeed, yet with ardour and sincerity, while the disastrous commercial speculations of Law turned men's thoughts to the land as the true source of the wealth of the state, and to the agriculturist as the only productive laborer.

The first agricultural paper in France was started in 1751, and a host of writers on the subject sprang up; agricultural societies were founded all over the

country, and a central society was instituted in 1761, the date of Greuze's picture, antedating the Royal Agricultural Society of England by nearly 80 years, about the same time the first model farm was started near Compiègne.

The great movement in favor of agriculture culminated under the unhappy Louis XVI. He placed himself at its head, and was followed by the great landholders. New crops were introduced from England and Germany, statistical information was diligently collected, men of science were encouraged to start original investigations into the principles of farming and stock-raising, tracts and treatises on husbandry were circulated at the expense of the Government, forest laws were improved, and efforts made to ameliorate the pernicious system of taxation that weighed on the land. In great part, however, the Government were unable to carry out to any effective extent its admirable projects of reform. The treasury was empty, the fatal incubus of a long series of mistakes, abuses and maladministration had to be borne, and as in mockery of deferred repentance these tardy efforts only seemed to accelerate revolution.

The peasantry were aroused to a rankling sense of the unjust restriction and oppression to which for ages they had been subject; apathetic endurance gave place to fierce resolution to sweep away the burdens that lay on them and on the land, and to a passionate longing to secure for themselves a possession which they were being educated to be-

UNCLE TOM'S DEPARTMENT.

MY DEAR NEPHEWS AND NIECES,—

"May is here," saucily chirps the glossy-coated blackbird. "May is here," whistles our old friend the robin, whose new coat of brown and red is so brilliant as to almost conceal his identity with the rusty-looking fellow who left us last autumn. "May is here," cheerily carol the smaller song birds, as they warble their joy-freighted matin song. "May is here," pipe the frogs in tones varying from deepest bass to clear soprano from every marsh, pool and stream. All things possessing voice seem to join the great chorus, and repeat the selfsame strain.

In woodland too and meadow we find fresh tokens of the presence of the year's fairest daughter. The regal Easter lilies had scarcely left us when the hardy hepaticas and anemones bravely faced the changing moods of April, but the tiny violet folded her bright green drapery closely about her and took another nap. One day, however, she felt her couch grow warmer, and rousing herself from a pleasant dream she murmured: "Surely nothing but May kisses could make me feel so happy! I must away to the Earth-land to see if my loved Queen has really come." So out she crept from Mother Earth's great bosom, and finding that her old guardians, the Forest Trees, were fast preparing to shade her with leaves, she hastened to bid her sleeping comrades arise. "Haste ye, haste ye, friends Trillium and Phlox;

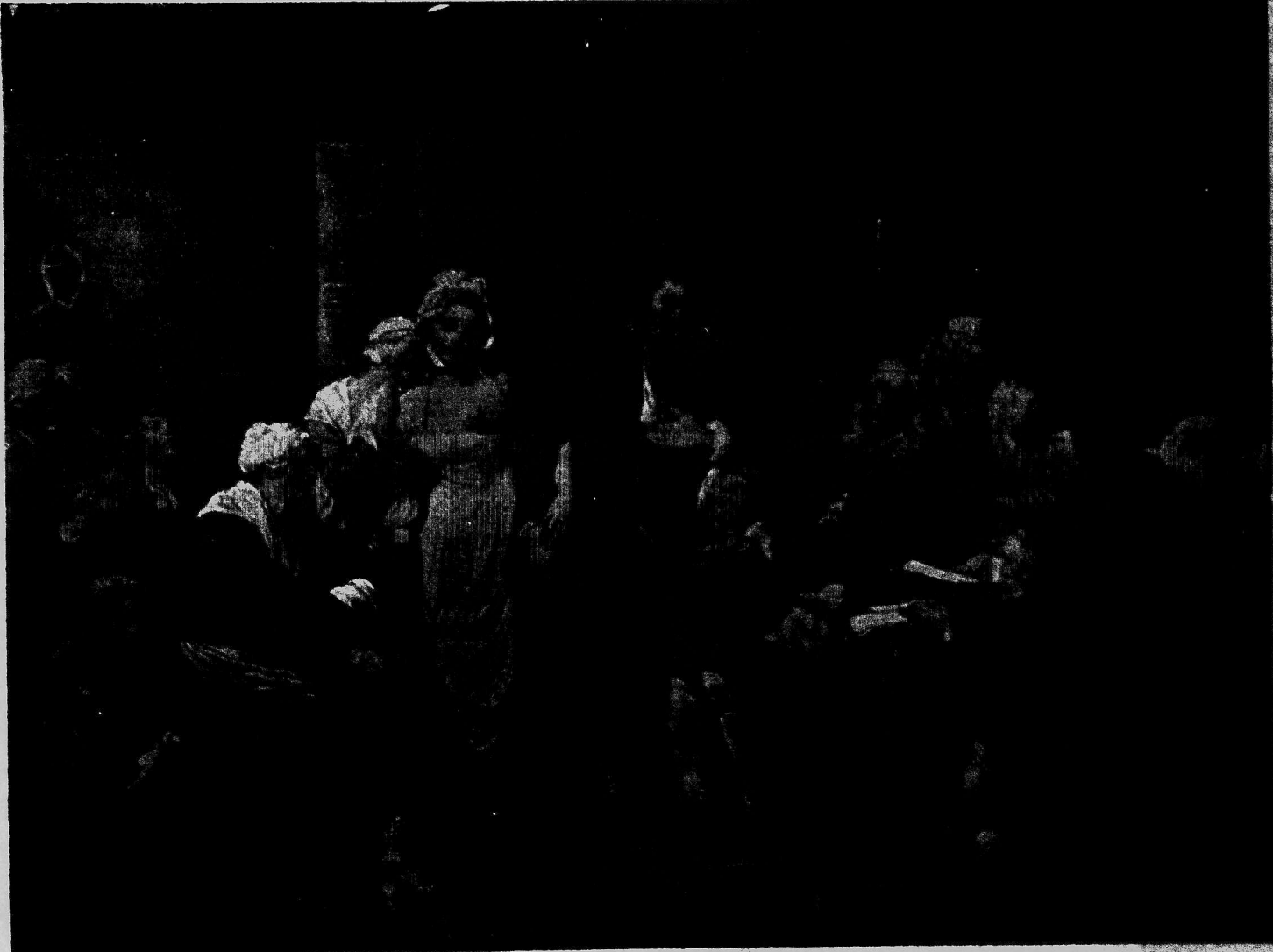
waken up old Dutchman's Breaches; come, come, my name-makes Dogtooth, send up your spotted leaves; and ye, oh graceful ferns, unfold your cloacuried fronds. Come all, and with me rejoice, for May, sweet May, is here!"

At the cheery voice of the violet all the slumbering flowers bestirred themselves. The trillium pushed up her firm stalk, and seeing May had really come, crowned herself with a snowy coronet in honor of so royal a guest. The lavender petals of the gentle phlox willingly expanded in the glow of spring sunshine, and prodigally wafted the incense of their perfume afar on the balmy air. The tiny white hearts of the dianthus peeped up demurely beside the gandy-colored knight of the golden bell. The ferns uncoiled their wealth of feathery beauty, even

the frail maidenhair's threadlike stems finding strength enough to force their way through the protecting mould, forming a dainty background for all the rest. Out in the swamps and along the creeks blissing masses of the showy marsh marigold gladden the eyes, while in the gardens the gay gowns of tulip and crocus almost make the pale narcissus regret its lack of color. Some well-tilled fields already show tiny lines of green, while here and there we see some sturdy son of toil guiding his patient team; the earth turns over at the touch of the polished plowshare, forming a willing couch for the grain that will soon find a resting-place therein. Country life is particularly pleasant at this season, and, like Schumann's "Happy Farmer," we almost unwittingly sing:

"O what can with our flowery plains compare  
In all their matchless beauty so sweet and rare!"

The approach of May reminds me that the time for solving the "Great Canadian Puzzle" will soon pass, as all papers must be in the ADVOCATE office by the 20th of May. I should like to have a peep at those already in to see how many familiar names are there, but really they are so guarded so closely that even your venerable Uncle has not seen a single one, and does not know if any correct answer has been received. The questions do not seem very hard, since even an old chap like me can make out most of them, so I expect your fresh young minds will do very much better. So come, my boys and girls, I'll forgive you for once, if you be less gener-



"THE VILLAGE BRIDE."

lieve to be theirs by natural right.

These facts will enable us better to understand the idealistic spirit that inspired Greuze in his treatment of the rural life of his time.

Notice.—The Great Canadian Puzzle.

We hope our readers will bear in mind that the Prize Competition positively closes on May 20th.

No one need be deterred from sending because their list is not perfect, as lists will not be examined until after 20th May. It is quite impossible to know whether any perfect list is yet sent or will be.

This competition should be largely patronized. The enviable reputation enjoyed by the FARMER'S ADVOCATE leaves no doubt as to the absolutely fair dealing with which all competitors will be treated.

Do not forget, also, that even eight rightly-guessed words, with a new subscription, entitles to a handsome and useful gift.

Also remember, that there can be no favoritism (even supposing such a thing possible with an honest paper), as the competition is to be decided by outsiders.

We urge on competitors to send their lists at once, as the puzzle will not appear again.

The names of the prize-winners will be published on June 1st.



CHAMPION CLYDESDALE STALLION



"McQUEEN"

We have a number of first-class mares and fillies of this breed in foal to the above stallion.

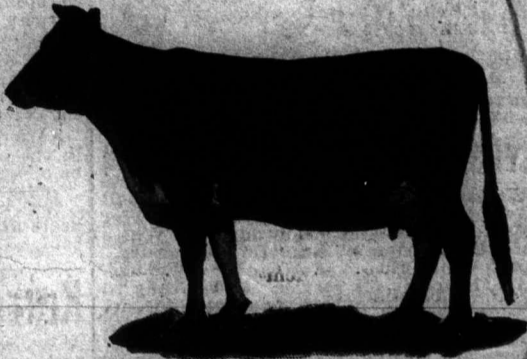
We also have for sale a number of other choice stallions—Clydesdale, Standard-bred, Thoroughbred.

GRAHAM BROS.

Claremont, Ontario. 25 miles east of Toronto, on C. P. R.

DENTONIA PARK FARM HIGH-CLASS REGISTERED JERSEYS.

The following offered for sale to make room for additional imported stock soon to arrive: ST. LAMBERT OF HIGHFIELD No. 49094, a handsome bull, in fine condition...



W. M. PATTON, Supt., Coleman P. O., Ontario. Farm located near East Toronto.

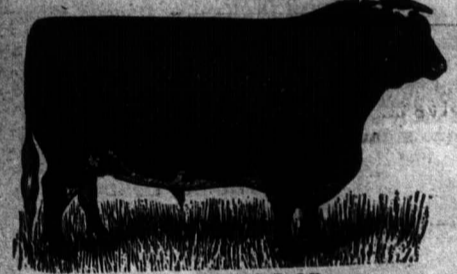
Isaleigh Grange Stock Farm, DANVILLE, QUEBEC.

Ayrshire and Guernsey Cattle, Imp. Yorkshire Swine and Shropshire Sheep.



J. N. GREENSHIELDS, Prop. T. D. McCALLUM, Mgr.

Arthur Johnston, 8 Shorthorn Bulls



Sired by Indian Statesman, and from such families as Mars's Lily, by Warden, and other good ones. All in fine form.

W. G. PETTIT & SON, Freeman P. O., Ont. Burlington Station.

OAK PARK STOCK FARM'S SHORTHORN HERD

Your choice from 50 head, including cows and heifers having the most approved pedigrees. Half a dozen young bulls equally well bred.

CAPT. D. MILLOY, Paris, Brant Co., Ont.

Shorthorns & Leicesters

Nominee, sweepstakes bull at Toronto, 1897, bred by us. We also won first prize on pen Leicesters bred and owned by exhibitor.

E. GAUNT & SONS, St. Helens, Ont. Lucknow Station, G. T. R., 3 miles.

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.

E. GARGILL & SON, Station on the farm, Cargill Sta. & P.O., Ont.

SHORTHORN BULL 16 months, by Toffhill

in poultry, we offer eggs for hatching from B. P. Rocks, Silver and Golden Wyandottes, at \$1 per doz. Bronze turkey eggs, 25c each, or \$3 per 13.

JAS. LENTON, "Park Farm," OSHTAWA, ONT.

BREEDERS' DIRECTORY.

Cards up to six line space inserted under this heading, one issue a month, \$5 per line per annum; every issue, \$5 per line. Payable in advance.

JOSEPH YULL & SONS, Carleton Place, Ont., breeder of Ayrshire Cattle, Shropshire Sheep, and Berkshire Swine. Young stock for sale.

J. P. PHIN, THE GRANGE, BREIDENBACH, ONT. Breeding and Importing SHROPSHIRE SHEEP a specialty.

R. J. McNEILL, Ormstown, Que., breeder of registered Berkshires. Young stock always for sale at reasonable prices.

5 FASHIONABLY-BRED YOUNG SHORTHORN BULLS 5

Also cows and heifers representing the leading popular families. A few good Roadster horses. Farm six miles from Hamilton.

SHORE BROS., WHITE OAK, ONT.

Have 4 very useful SHORTHORN BULLS FOR SALE. Prices very moderate. Write for particulars.

GOSSIP.

Hugh Hunter, Burke's Falls, Ont., has purchased the yearling Ayrshire bull Glenroy, recently advertised in the ADVOCATE by George Hill, Delaware, Ont., and is to be congratulated on securing so good a bull and one of such excellent breeding...

Buttonwood Farm, the home of Messrs. S. Weeks & Son, at Mount Dennis, Ont., is situated some seven miles from the Toronto market, on the line of the West Toronto Junction and Weston Street Railway.

The firm are making a specialty in the poultry business, and at present are carrying pens of B. P. Rocks, Black Minorcas, and are importing Grey Dorkings, and attention is given only to the most fashionable strain in each breed.

The programme of the Canadian Horse Show has not reached us at the hour of going to press, but Secretary Wade writes us that all the heavy horses, both Clydesdales and Shires, will be shown on Wednesday, May 4th, and most of them in the afternoon...

SHORTHORN BULLS AND HEIFERS

TWO young bulls, including Strathmore, a very promising son of Abbotsford—19146—, from Moss Rose of Strathmore (by imp. Vice Consul), one of the best cows of the popular Strathmore tribe, and a number of choice heifers of Cruickshank breeding.

H. SMITH, Hay, Ont. Exeter, G. T. R., 1 mile.

DON JERSEY HERD

NOW OFFERS 3 Yearling Bulls

Fit for service (2 golden-fawn and 1 squirrel-grey), and 1 six months (golden-fawn), by Cecilia Rice's son. He has 75 per cent. of pure blood of Merry Maiden, champion sweepstakes cow of all three tests combined at the World's Fair, Chicago.

DAVID DUNCAN, Farm 9 miles from Toronto market. DON P. O., ONT.

GLEN ROUGE JERSEYS.

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

MEADOW BROOK JERSEYS.

Am offering a 10 mos. and a 20 mos. bull. Also a few choice females, rich in St. Lambert blood.

EDGAR SILCOX, Shelden P. O., Elgin Co.

MILLER & SIBLEY'S Jerseys

SPECIAL OFFERING OF 15 LOW-PRICED JERSEY COWS.

They are not

our world-beaters, but there are several excellent ones in the lot. Famous families are represented, such as St. Lambert, Oomastee, St. Heller, Signal, etc.

MILLER & SIBLEY, FRANKLIN, Vantage Co., Pa.

Gamble on a Certainty

I OFFER A YEARLING JERSEY BULL

that I will sell conditionally that he wins a prize in any showing in Canada. Also offer two others that are very choice.

Clydesdales.

I will sell, or trade for Shorthorns, imported Grade mares, prize winners in some of the biggest and hottest rings ever known on this Continent.

RICHARD GIBSON, Delaware, Ont.

ONE FIRST PRIZE BULL

A. J. C. O. Sire King of Highfield, winner of 1st prize over all Canada; dam, St. Lambert's Kathleen, made 21 lbs. 3/4 oz. of butter in 7 days; dam of King of Highfield, Signal Rose May (25 lbs. 4 oz. of butter in 7 days, and 1st prize over all Canada 4 times); also dam of Unoma May (26 lbs. 4 oz. of butter in 7 days, and 64 lbs. of milk a day).

J. H. SMITH & SON, Highfield, Ont.

BUTTONWOOD JERSEY HERD

OFFERS six richly bred young bulls from show-ring winning dams, and such sires as King of Highfield and Violet's Leo, both sweepstakes bulls. Settings from B. P. Rocks, Black Minorcas, and Grey Dorkings. Correspondence solicited.

S. WICKS & SON, 1-12-08 MOUNT DENNIS, ONT. Farm 7 miles from Toronto market.

A FINE YOUNG BULL....

FOR SALE! A. J. C. O.; age 14 mos.; solid squirrel-gray black points. Dam Lady Gordon of Bellevue; sire St. Lambert of Arcot, whose sire was 100 Per Cent. The latter was full brother in blood to Stoke Pogis 3rd, the sire of Mary Ann of St. Lambert. Dam of St. L. of Arcot, St. Lambert's Dinah, 18 lbs. 6 oz. butter in 7 days, by the celebrated sire, Canada's John Bull, the sweepstakes Jersey of Canada, 1885-86. Price right. Write for particulars to—

H. ERNEST WILLIAMS, "Sunnyloa Farm," KNOWLTON, P. Q.

BRAMPTON JERSEY HERD

Offering high-class A. J. C. O. cows and heifers in calf, and heifer calves; 2 choice young bulls. High-grade cows in calf; and Berkshires.

S. E. BULL & SON, Brampton

3 JERSEY BULLS 3 FIT FOR SERVICE.

Will exchange Massena's Son 17008 for Jersey or Ayrshire heifer or Oxford Down ewe. A few females for sale. Eggs from B. P. Rocks, White Wyandottes, and Black Minorcas, \$1 for 13 eggs. Young stock in season. Will sell Massena's Son very cheap.

W. W. EVERITT, box 552, Chatham, Ont.

Maple Hill Holstein-Friesians SPECIAL OFFERING.

A grand pair of calves, viz: Sir Peter's...

"Gem Holstein Herd." STOCK FOR SALE!

We only keep and breed registered Holstein-Friesians...

HOLSTEINS FOR SALE

In 1897, fifteen highly-bred bulls for sale...

Holstein Yearling Bull for Sale

Just imported, tubercula tested, and a good one...

FOR SALE AYRSHIRE BULLS

One to four years old. For particulars address...

GLENGARRY STOCK FARM

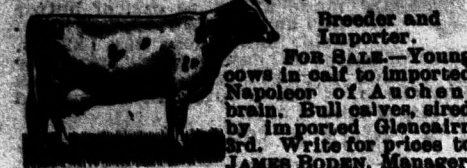
JOHN A. McDONALD, Jr., Williamsburg, Ontario.

HIGH-CLASS AYRSHIRES.

My aged bull, Sir Donald, is now for sale...

Choice AYRSHIRES

R. REFORM, Breeder and Importer.



FAIRVIEW STOCK FARM.

Ayrshire Cattle and Berkshire Pigs.

Traveller of Parkhill at the head of herd...

WM. WYLIE, BREEDER OF HIGH-CLASS AYRSHIRES.

Breeder of high-class Ayrshires. Young stock always for sale...

AYRSHIRES AND RED TAMWORTH SWINE.

Still a few choice young bulls for sale...

MARK YOU your live stock of whatever kind...

ALUMINUM EAR MARKERS

Can't pull out, rust out or tear out. Name, address and contents...

GOSSIP.

We call attention to advertisement of eggs for hatching...

F. W. Taylor, Wellman's Corners, having sold all his bulls...

Those who want Jersey bulls or Clydesdale mares...

Campbell & Martinson, Northwood, Ontario, write...

At the home of Mr. H. J. Davis, Woodstock, Ont., we found his herds...

We found this home of some 30 registered Yorkshires...

Among the Berkshires we saw a good type of a boar...

The tick is a very hard animal to kill, being covered with a bony shell...

Positively kills the ticks, eggs and all; is easy to use...

167 King St. E., Toronto, Can.

MENTION FARMER'S ADVOCATE.

AYRSHIRE BULLS

We offer for sale the fine bull, Baron Neidpath...

THOS. BALLANTYNE & SON, "Neidpath Stock Farm."

Maple Cliff, Dairy and Stock Farm.

Ayrshire cattle, Berkshire & Tamworth pigs.

R. REID & CO., HINTONBURG, ONT.

AYRSHIRES AND YORKSHIRES!

We have some extra fine light-colored bull calves...

ALEX. HUME & CO., Burnbrae P.O., Ont.

EXCELSIOR STOCK AND DAIRY FARM

Guernsey Cattle, Duroc-Jersey and Chester White Swine.

We have for sale a few lengthy, deep-sided, strong-boned D.-J. boars...

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This is the Dairy breed for ordinary farmers. Large, vigorous and hardy...

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FOR SALE! 2 or 3 Heifers One and Two Years Old.

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KILL THE TICKS AND RELIEVE YOUR SHEEP.

The tick is a very hard animal to kill, being covered with a bony shell...

MILLER'S TICK DESTROYER

Positively kills the ticks, eggs and all; is easy to use...

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Sheep Men

KILL THE TICKS AND RELIEVE YOUR SHEEP.

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KNOWN THE WORLD OVER AS THE FARMER'S SHEEP

LEAN, JUICY FLESH, best and heaviest fleeces of all DOWN SHEEP...

N. B.—The best GENERAL PURPOSE SHEEP in existence...

FAT LAMBS.—For breeding fat lambs the Shropshire ram is unrivalled...

THE SHROPSHIRE will thrive and do well where any other sheep can exist...

A list of Shropshire sheep breeders entered in the last volume of the flock book...

ALFRED MANSELL & CO., Secretaries of the Shropshire Breeders' Assn., SHREWSBURY, ENGLAND.

KENT OR ROMNEY MARSH SHEEP

ANNUAL RAM SALE. The annual sale of Kent or Romney Marsh Rams...

Ashford, Kent, England, FRIDAY, OCTOBER 7th, 1898.

Catalogues and full information from W. W. Chapman, Secretary Kent or Romney Marsh Sheep Breeders' Association.

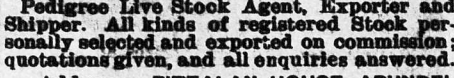
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Secretary of the National Sheep Breeders' Association.

Pedigree Live Stock Agent, Exporter and Shipper.

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To Farmers, Stock Dealers and Wool Growers: FOR SHEEP, CATTLE AND HORSES.

Leicestershire Tick and Vermix Destroyer

It effectually destroys Ticks, Lice, Worms or Grub...

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Breeder of high-class SHROPSHIRE SHEEP

the blood of which was obtained from the noted flocks of both England and Canada.

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Animals of all ages and both sexes for sale at all times. Price reasonable.

SHEEP BREEDERS' ASSOCIATIONS.

American Shropshire Registry Association, the largest live stock organization in the world.

Hon. John Dryden, President, Toronto, Canada. Address correspondence to MORTIMER LEVY, RRING, Sec., Lafayette, Indiana. 3-1-7-0

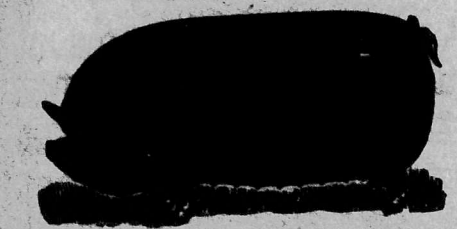


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Offering young boars fit for service, and sows ready to breed; also young stock, both sexes, descended from Crossman importation.

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ENGLISH BERKSHIRES



Come to headquarters for pigs of either sex if you want Berkshires that will make you money. Orders taken for spring pigs.

Write for J. G. SNELL, Prices. SNELGROVE, ONT.

English Berkshires.

Herd headed by three first-prize boars. Large size, strong bone, fine quality, and a choice lot of breeding sows.

LARGE ENGLISH BERKSHIRES. Imported Knight of Riverside, Bright Star, and Canada's Glory at head of herd.

J. F. MCKAY, PARKHILL, ONT. Poland-China Swine. I have a few nice sows and boars fit for service; also two aged boars.

Oxford Herd of Winning Poland-Chinas. Having won the herd prizes at Toronto, London, Ottawa, and Brantford Fat Stock Show, we feel justified in stating that we are in a position to offer you what you may ask for from gilt-edge prize-winning stock.

POLAND-CHINA BOARS. Fit for service, and a few six months sows. Also booking orders for spring pigs, by the imported sire, Corwin Ranger, and Orme.

Springridge Poland-Chinas. Now offering the 2-year-old sire, Black-smoore, and a few of his young females, and booking orders for young stock from the royally-bred GOLDBUG, lately added to the herd.

The CANADIAN CORWIN HERD OF POLAND-CHINAS. Are in shape to dispose of breeding stock of all ages and both sexes. Also offering a Jersey heifer calf from Snell stock.

POLAND-CHINA BOARS. Also a pair of six months sows, with pedigrees running to imported sires. Booking orders for spring stock from showing dams and imported sires.

Woodland HERD OF Tamworths. are in good form this season, and offering young stock of superior quality and breeding of both sexes.

Consumption Cured.

An old physician, retired from practice, having had placed in his hands by an East India missionary the formula of a simple vegetable remedy for the speedy and permanent cure of Consumption, Bronchitis, Catarrh, Asthma, and all throat and lung affections, also a positive and radical cure for Nervous Debility and all Nervous Complaints, after having tested its wonderful curative powers in thousands of cases, has felt it his duty to make it known to his suffering fellows.

TAMWORTHS OF HIGHEST QUALITY! The market demands bacon hogs. The Tamworth is the ideal type for packers, and most profitable to the farmer.

TAMWORTHS. From imported stock. One yearling boar; one boar and half a dozen sows, four months old, by Algeron 573.

P. R. Hoover & Sons, GREEN RIVER, ONT. BREEDERS OF CHOICE TAMWORTHS. Young boars and sows ready for breeding purposes at prices which should sell them.

Holsteins, Tamworths, Barred Rocks. Am offering two young bulls and a few females. My remaining Tamworth boars and young sows are ideals of the breed.

HERMANVILLE IMP. YORKSHIRES. Tamworths (red), Duroc-Jersey Pigs, AND NONE BETTER. SPRING FIGS. One to two months old, crated and expressed anywhere after May 1st, \$4 to \$5.

OAK LODGE HERD OF YORKSHIRES. Highest quality of bacon hogs, profitable to the feeder, and correct type for the packers.

YORKSHIRE BOARS AND SOWS. THREE TO FIVE MONTHS OLD. Sows in pig to show boars, and young pigs 6 to 8 weeks old, of early farrow.

VICTORIAS. I have now two Imp. Victoria sows in pig; they are in pig by Chief, the boar that won 3rd premium at Wisconsin State Show and 2nd at St. Louis State Show.

GOSSIP.

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

LAURIE BROS.' TAMWORTHS AND POULTRY.

Some four miles from the Drumbo station is the farms of the Messrs. Laurie Bros., whose Tamworths are winning their deserved repute in different parts of the province. In 1893 Lady Crampton 250, by Crampton Duke 1893 Lady Crampton 145 (Imp.), was purchased from Mr. Andrew Dunn, and was on the farm four years, rearing two litters each year.

The firm are also enthusiastic poultry admirers, and have on hand some fine specimens of the different breeds which they favor. The Plymouth Rocks were first obtained from Mr. Colwell, Paris, two years ago, the cockerel being of E. B. Thompson strain.

NOTICES.

The Metallic Roofing Co., Toronto, have just completed their contract for putting a metallic ceiling in the retail grocery store of McKie & Co., of that city.

FARM LANDS.

In another column of this issue will be found an advertisement inserted by Messrs. Oler, Hammond & Nanton, of Winnipeg, Manitoba, regarding land for sale along the lines of the Calgary and Edmonton, and the Qu'Appelle, Long Lake and Saskatchewan railways.

Regarding land in Northern Alberta, these gentlemen spoke very highly of the Olds District, about fifty miles north of Calgary, as a very suitable one for mixed farming and ranching on a small scale.

THE DEPARTMENT OF AGRICULTURE OF ONTARIO ARE USING THE

Spramotor

again this year to demonstrate to the farmers the advisability of SPRAYING. Six new features have been patented this year, and the machine is sold at the same price as last.

CERTIFICATE OF OFFICIAL AWARD. This is to certify that at the contest of spraying apparatus, held at Guelph, on April 2nd and 3rd, 1896, under the auspices of the Board of Control of the Fruit and Horticultural Stations of Ontario, in which there were eleven contestants, the SPRAMOTOR made by the Spramotor Co., of London, Ont., was awarded FIRST PLACE.

Send 3-cent stamp for 76-page copyrighted edition of catalogue and treatise on the diseases affecting fruit-trees, vegetables, etc., and their remedies. SPRAMOTOR COY., LONDON, ONT.

How to Make Dollars out of Wind!

THE CHATHAM FANNING MILL. THE M. CAMPBELL FANNING MILL CO., OF CHATHAM, ONT. HEADQUARTERS FOR DUROC-JERSEY SWINE.

Our herd secured nine of the first prizes out of the eleven offered at Toronto Exhibition, and a similar portion at London and Ottawa. We are justified in saying we have the best herd in Canada. First-class stock of all breeds at all times. Address—VAPE SILL, RIDGECROFT, ONT.

MERTON LODGE. Herd of Chester and Tamworths are in full bloom, and are offering choice stock of both breeds and sexes. Also booking orders for coming spring stock. H. GEORGE & SON, ORAMPTON P. O., ONT.

THE AVON HERD of Chesters. Are in fine form. Orders are now being booked for April litters from notable strains. Henry Herron, Avon P. O., Ont.

Chester White Hogs AND White Holland Turkeys. W. E. WRIGHT, - GLANWORTH, ONTARIO. JAMES CHRISTIE, WINCHESTER, ONT. Breeder of Chester White pigs, the foundation of which was selected with the greatest care and from only the most noted breeders in Canada.

**GLENHURST POULTRY YARD.**  
EGGS FOR SALE.

White Wyandotte, White Plymouth Rock, Cornish Indian Game, Black Minorca, Houdan, Black Langshan, White Langshan, Barred Plymouth Rock, Silver Laced Wyandotte, \$1.50 for 15, or \$2.50 for 30. Packed in patent boxes. Will replace at half price any not fertile. Also poultry supplies. Will exchange any of above for first-class Tamworth pigs or Light Brahma pullets, say strain. Dorset and Shropshire sheep, Tamworth pigs, Shetland ponies, Jersey cattle, all ages (registered). Prices right. **STRATFORD BROS.**  
Brantford, Ont.

**EGGS FOR HATCHING**

Barred Plymouth Rocks.

Pen of 22, bred direct from imp. stock, and headed by a choice imported cock; all well barred, and large, robust, healthy birds. Price, \$1 for 15; or \$2 for 3 settings.

**W. C. SHEARER, Bright, Ont.**

**FIRST PRIZE WINNERS**

Our 1898 Mammoth Poultry Guide of 100 pages mailed FREE. Something entirely new, tells all about poultry, how to be a winner, how to MAKE BIG MONEY. Contains beautiful illustrations of fowls in their natural colors. Sent 15 cts. for **JOHN BAUCHER, Jr.** postage. Box 206, KILBOURN, ILL.

**Dark Brahmas**

Prize-winners at Ont. Poultry Show and other exhibitions. Egg \$1.50 per 15. Stock for sale. Will sell pen Buff Leghorns (6) for \$7; pen R. O. White Leghorns (5) for \$10; pen Black Cochins (5) for \$8; pen White Cochins (4) for \$8. Eggs from thrifty farm-bred Barred and White P. Rocks, \$1.50 per 15. Address: **A. J. GEORGE,**  
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**Eggs! Eggs!!**

FOR HATCHING  
From S. G. Dorkings, B. Minorca, S. C. Brown Leghorns, B. P. Rocks, W. Wyandottes, considering quality, at low prices. Write—  
**T. & H. SHORE, White Oak, Ont.**

**Barred Plymouth Rocks & Pekin Ducks**

(EXCLUSIVELY).  
Stock and eggs for sale from imported and best Canadian strains. Farm-bred and very vigorous. Eggs, \$1 per 15.  
**MISS P. J. COLDWELL,**  
Constance, Huron Co., Ont.

**ANNUAL SALE OF POULTRY.**

Fifty Barred Rock Hens, bred to produce brown eggs. Price to suit the farmers. Also a few S. C. Leghorn Cockerels. Eggs from B. P. Rocks, Silver Wyandottes and S. C. Leghorns, \$1.00 per 15. Pekin Ducks, \$1.00 per 11.  
**W. R. GRAHAM, Bayside, Ont.**

**Eggs for Hatching**

From my prize-winners. Blue Andalusians, \$2 per 15; Black Javas, Black Hamburg, Houdans, Silver-Grey Dorkings, Brown and Black Leghorns, \$1.50 per 15; Pekin Ducks, \$2 per 11. Also young stock for sale.  
**W. R. KNIGHT, Bowmanville, Ont.**

**EGGS**

From prize-winning fowls: S. L. Wyandottes, S. G. Dorkings, Black Minorca, Silver Hamburgs. Also Berkshire pigs.  
**GEORGE THOMPSON,**  
Bright, Ont.

**Poultry.**

L. and D. Brahmas, B. and W. Rocks, S. and W. Wyandottes, Black Minorca, Indian Game and Red Caps. Young stock and eggs from above breeds. Eggs, \$1.25 for 15; \$2 for 25. Satisfaction guaranteed. **JACOB B. SNIDER, German Mills.**

**ROSE BANK POULTRY YARD.**

Red Cap, Blue Andalusian, R. O. W. Leghorn, Golden Poland, Black Langshan, White Wyandotte, L. Brahma, S. G. Dorking, Houdan, price, \$1 per 15 eggs. **F. N. HAIG, Hoard's Stn., Ont.**

**EGGS! EGGS!!**

From W. Wyandottes, Kettlewell hens, headed by a Massie cockerel. \$1.50 per 15.  
**JAS. BOLAND, Duncrief, Ont.**

**EGGS FOR HATCHING**

from three splendid pens of Black Langshans. Send post card for circular. **JOHN F. HILL, WELLAND, ONT.**

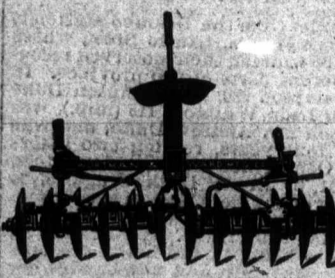
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Best hatching machine built. Awarded silver and bronze medals. For circular, address—**T. A. WILLIAMS, 514 Dundas St., Toronto, Ont.**

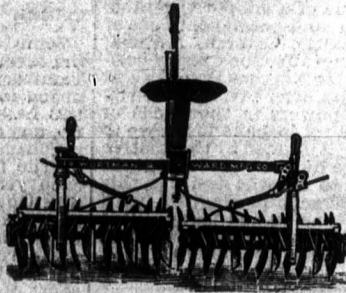
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CUTS BY ALL PROCESSES  
LIVE STOCK A SPECIALTY.

**EDMUND WELD,**  
Barrister, Solicitor, Notary Public, Etc.  
Moneys loaned on real estate, at lowest rates. Investments procured. Collections made. Address, 87 Dundas Street, London, Ont.  
Send 15c. for Poultry Annual and Almanac for 1898 to C. C. Shoemaker, Freeport, Ill., U. S. A.

**ROLLER BEARING DISK HARROW.**



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**THE DAISY BARREL CHURN**

WITH ROLLER BEARING STAND.



is the favorite, and takes the lead everywhere. There are MORE SOLD than ALL OTHER KINDS. An improved vent supplied when required. The old style clumsy stand is not to be compared with our ROLLER BEARING, neat, common sense new one.

Buy the "Daisy"

or you will miss it. Manufactured by **Headquarters, LONDON, ONT.**  
Eastern Branch, MONTREAL, QUE.

The celebrated and only spade. The best implement for pulverizing hard land known. Look at it and you will be interested. Use it and you will be convinced. These are the only Harrows having coil pressure springs controlled by levers in easy reach of the driver. Strong enough to make the Harrow rigid if required.

**The Wortman & Ward Mfg. Co., Limited,**

**ROOF'S FOR THE KLONDIKE**  
  
Prize-winners at Ont. Poultry Show and other exhibitions.

Roofs must be chosen with care and judgment in any country, and especially so in Canada.

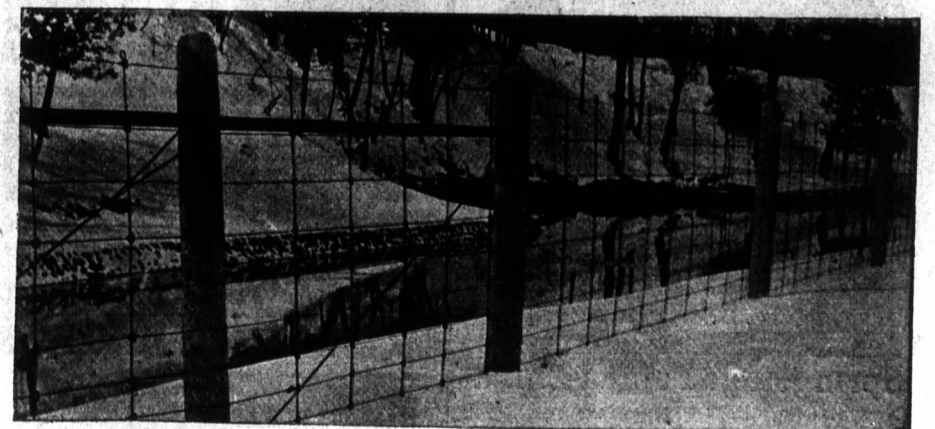
All our products are constructed for use in Canada, and ample provision is allowed for contraction and expansion, and we guarantee them to be water, wind, and storm proof.

Up-to-date information, and fully illustrated catalogues of Steel Roofings, Sidings and Ceilings sent free for the asking.

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Why bother with a cheap, makeshift fence, when you can get a thoroughly reliable fencing like the Page at 60 or 65 cents a rod? Get something worth while. A Page fence is there for your lifetime, and a perfect barrier against everything. For illustrated advertising matter apply to local dealers, to **THE PAGE WIRE FENCE CO., LIMITED, WALKERVILLE, ONT.**, or to their Northwest Agents, **The Rathbun Co., Winnipeg, Man.**



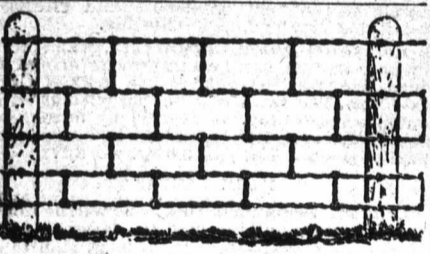
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W. E. H. Massey, the head of the Massey-Harris Company, of Toronto, selected our fence over all competitors last year, putting up over five miles of the famous Jones Locked Wire Fence on his model farm, near Toronto. Prices from 22c. per rod. This Company also manufactures Metallic Shingles and Siding.  
**AGENTS WANTED. The LOCKED WIRE FENCE CO., Limited, LONDON, ONT.**

**A GOOD FURNACE**  
THE FAMOUS MAGNET WOOD FURNACE.

Made in 16 styles and sizes, capable of heating from the smallest cottage to the largest public building. Fire travels three times the length of furnace before entering smoke pipe. Extracts every particle of heat from fuel consumed. Heavy fire pot and grates. Radiator made to expand without cracking. All joints are cup-shaped so that SMOKE CANNOT ESCAPE. Operated and cleaned entirely from the front of furnace. WILL HEAT YOUR HOUSE from cellar to garret AND DO IT CHEAPLY.



**The McCLARY MFG. CO.,**  
LONDON TORONTO  
MONTREAL VANCOUVER  
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If your local dealer cannot supply, write our nearest house.



We can out your 1898 fence account just in half. We claim we have the most practical fence on earth. Four miles of it in use at the Experimental Farm, Guelph. Send for prices.

**TORONTO PICKET WIRE FENCE CO.**

221 RIVER STREET, TORONTO, ONTARIO

**FREE FENCE MACHINE.**  
To introduce the best Fence made, in new localities, we will give Machine and License free to any person buying 100 rods.  
**CANADA FENCE CO.,**  
London, Canada.

**Machine \$10**

TO BUILD THE STRONGEST AND BEST WIRE FENCE.  
**16 to 24 Cents per Rod.**  
No farm rights, royalties or patent stays to buy. AGENTS WANTED. Write for circular. **The Bowen Cable Stay Fence Co., NORWALK, OHIO, U. S. A.**

**FENCE MACHINE**

Will weave your fence of any kind of wire, 40 to 50 rods per day. Price saved in one day's work. Agents Wanted. Write for particulars. High-grade Coiled Wire for sale. **McGREGOR, BANWELL & CO., Windsor, Ont.**

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can be raised at a profit, and the yield enlarged, if properly fertilized. Most fertilizers do not contain enough

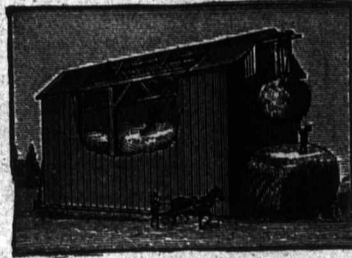
Potash.

Vegetables need plenty of potash—at least 10%—besides the phosphoric acid and nitrogen.

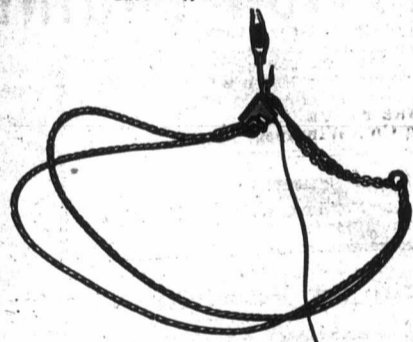
Write for our books which tell all about fertilizers. They are free.

GERMAN KALI WORKS, 93 Nassau St., New York.

BUCHANAN'S (Malleable Improved) PITCHING MACHINE



Unloads on either side of barn floor without changing car. No climbing necessary. Malleable Iron Cars. Steel Forks. Knot Passing Pulleys. Will work on stacks as well as in barns. Satisfaction guaranteed.



The Common-Sense Sheaf-Lifter

Works in connection with Pitching Machine, and is the most complete apparatus ever offered to the public for pitching sheaves. Sheaves left in the mow just as they come from the load.

RESponsible AGENTS WANTED Circulars, Prices and Terms on application to M. T. BUCHANAN & CO., Ingersoll.

FAMILY KNITTER!

Will do all Knitting required in a family, home spun or factory yarn. SIMPLEST Knitter on the MARKET. We guarantee every machine to do good work. Agents wanted. Write for particulars Dundas Knitting Machine Co'y, DUNDAS, ONT. Price, \$8.00.

THE EXCELSIOR LIFE INS. CO. OF ONTARIO, LIMITED.

Head Office: Cor. Toronto and Adelaide Sts., TORONTO Total Assets Exceed Half a Million Dollars. POLICIES LIBERAL AND ATTRACTIVE. Endowment Policies at life rates, Guarantee Dividend Bonds, Coupon Annuity Bonds, Ten-Year Renewable Term Policy, Limited Payment Investment Policies, And all Standard Policies Issued. SEMI-INDUSTRIAL DEPARTMENT. RELIABLE AGENTS WANTED for all parts of Ontario, Maritime Provinces, and Manitoba. F. J. HOLLAND & CO., Prop. Managers, Winnipeg, Man. E. MARSHALL, E. F. CLARKE, M. P., Secretary, Pps. and Man.-Dir.

Italian and Hybrids—best Queens Wax All Bee Supplies—best quality Weed Patent Process Foundation. Bees Coold, Shapley & Muir Co. Limited, Brantford, Can.

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A THOROUGHLY UP-TO-DATE INSTITUTION.

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MERIT WINS SUCCESS!

CENTRAL Business College STRATFORD, ONTARIO. This school does first-class work in every department, and enjoys a large patronage. A commercial school of the highest grade. None better in Canada. Students can enter at any time. Catalogue free. W. J. ELLIOTT, Principal.

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Analytical Chemist and Assayer. ANALYSES AND ASSAYS OF ORES, METALS, ALLOYS, FUELS, WATERS, AND COMMERCIAL PRODUCTS. CONSULTATION REPORTS on Bank St. Chambers, Ottawa, Ont.

Good Salt, Good Cheese. Windsor Salt. The Windsor Salt Co., Windsor, Ont.

ROCK SALT FOR HORSES AND CATTLE. Car lots or less; 500 pounds, \$3 here. Cash with order. PURE BONE MEAL. And animal fertilizers in 100 and 200 lb. bags. TORONTO SALT WORKS, TORONTO.

BUY Coleman's Salt THE BEST No other make of salt will give such satisfaction. Every package is guaranteed to the purchaser. Address— R. & J. RANSFORD, CLINTON, ONT.

GOSSIP.

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

John Isaac, Markham, Ont., reports having four Clydesdale stallions shipped from Glasgow, on the 22nd of April, for Montreal, and expects them home about the 5th May. Canadians are showing commendable enterprise in preparing for the breeding of good horses, which are sure to be in demand and which are now in short supply.

H. Bennett & Sons, St. Williams, Ont., write: "We are importing one of the best boars in the United States from the well-known firm of A. J. Lovejoy & Son, Roscoe, Ill. In Knight of Riverside. No boar has any better breeding, and he is quality from head to foot. He is of different blood than any of our sows, so he should mate well with our stock. It must be remembered that this firm had the 1st prize herd of Berkshire at World's Fair. Sales are very brisk. The ADVOCATE brings them in from all parts."

A. & G. Rice, Currie's Crossing, Ont., write: "The demand for Holsteins has been very large, and we have sold cattle to go to New York, New Brunswick, Michigan, Quebec, and many counties in Ontario. The outlook is very encouraging, as our sales have been to most progressive dairymen, presidents of cheese factories, farmers' institutes, etc., showing that our cattle command themselves to the most intelligent and progressive dairymen. Although our sales have been large our herd is by no means reduced. We have imported 26 head of Holsteins within the last six months in order to give our customers the best, and old customers new blood. Our new importations, like our former ones, have been personally selected with great care, and we have no doubt they will be heard from soon in the showing and official and public butter tests. Our herd is twice as strong to-day as heretofore. Among the last imported is Ver-abelle, the choice from a herd of 60 cows, record 80 lbs. Winnie E. is another grand cow, very much like our great test winner, Calamity Jane. In build, shape and size of udder and capacity. She gave 17,500 lbs. milk last year, tests 3.87 fat. We milked from her before purchasing, 29 lbs., the product of 12 hours; she had then been in milk six months. We also got two of her daughters and one granddaughter. Winnie E. and her daughter Windy-annie Win are with calf to a son of De Kol 2nd's Butter Boy. It is on such stock as this we look forward to continued demand."

CLYDESDALE IMPORTATIONS. The World's Columbian champion Clydesdale stallion, Prince Patrick, who has headed the stud of N. P. Clark, St. Cloud, Minn., for a number of years, has been purchased to come to Canada. His present owner is Mr. E. Dingman, Maplewood, Ont., who has also secured the yearling, Lord Bree, 1st prize winner at the last Chicago Horse Show. From the same noted stud has been secured the three-year-old, Ross Macgregor, 1st prize three-year-old at the same show. He also comes to Canada with Mr. J. A. S. Macmillan, Brandon, Man. We of Mr. J. A. S. Macmillan, Brandon, Man. We welcome these excellent horses to Canada, especially at this time, when good horses are on the second hand, when opportunity to refer just here to the fact that Canadian horse breeders pay no attention to national pedigree lines when an opportunity presents itself to secure really first-class animals. Our breeders want the best, and can be looked to as purchasers when the highest types of stock are in the market, whether in the United States or in Canada. Instances of this may be cited in a number of purchases during the last few years. Prince of Quality, owned for years by Robt. Davies, Toronto, and now holding a prominent position in Scotland, was bred by Col. Halliway, of Illinois; a number of D. & O. Sorby's mares, as well as their latest introduced stallions, are the produce of American studs. To these may be added the world-beating Young MacQueen, imported last year by Graham Bros., Chatham, Ont., from Illinois; the trio of great excellence recently imported by Richard Gibson, Delaware, Ont., and others which will readily occur to horsemen.

AMERICAN-BRED HOLSTEINS COMING TO CANADA. Henry Stevens & Sons, Lacon, N. Y., write, under date of April 18th, 1898: "Among the finest selections of stock that has been taken from our herd this spring were five head purchased by Mr. A. D. Foster, Holloway, Ont. One of the number was Maggie Keyes. This cow has a butter record of 36 lbs. in 7 days, and a milk record of 22 lbs. in one day, and a three-year-old record of 19,434 lbs. in one year, which is the largest record ever made by any heifer of same age, and of any breed, by any heifer of same age. Mr. Foster writes that Maggie Keyes has dropped a beautiful bull calf. This calf was sired by De Kol 2nd's Butter Boy 2nd, which gives him a combination of the richest and largest producing strains known. Another of the number was De Kol 2nd's Princess, a daughter of De Kol 2nd. The records of this great cow are too well known to a.I. interested in Holstein cattle well need repetition here. As an individual, De Kol 2nd's Princess was one of the finest males we ever saw. Another of the number Mr. Foster selected was the two-year-old Mr. Foster selected was the two-year-old Helene De Lol's De Kol, a large, beautiful animal, and in breeding she combines the blood of Helene De Lol's De Kol 2nd, and has all the indications of making a large producer. Helene De Lol's De Kol has an official butter record of 35.45 lbs. in seven days. In one day of her official test she gave 18 lbs. milk. She won 2nd prize last season in the official butter prize contest offered by the Holstein-Friesian Association of America. She is not only one of the largest producing cows, but is also one of our finest young heifers that have a combination of the Pieterje, Netherland and Pauline Paul blood. At the head of this carefully selected herd is a bull of our breeding, Sir Pieterje Josephine Mechs' hilde. His dam, Pieterje 3rd's Albino, was officially tested one week for butter, and made an equivalent record of 22 lbs. 1.68 ozs. With a foundation record of this character we see no reason why Mr. Foster cannot breed cattle that for individual merit and large production will be second to none."

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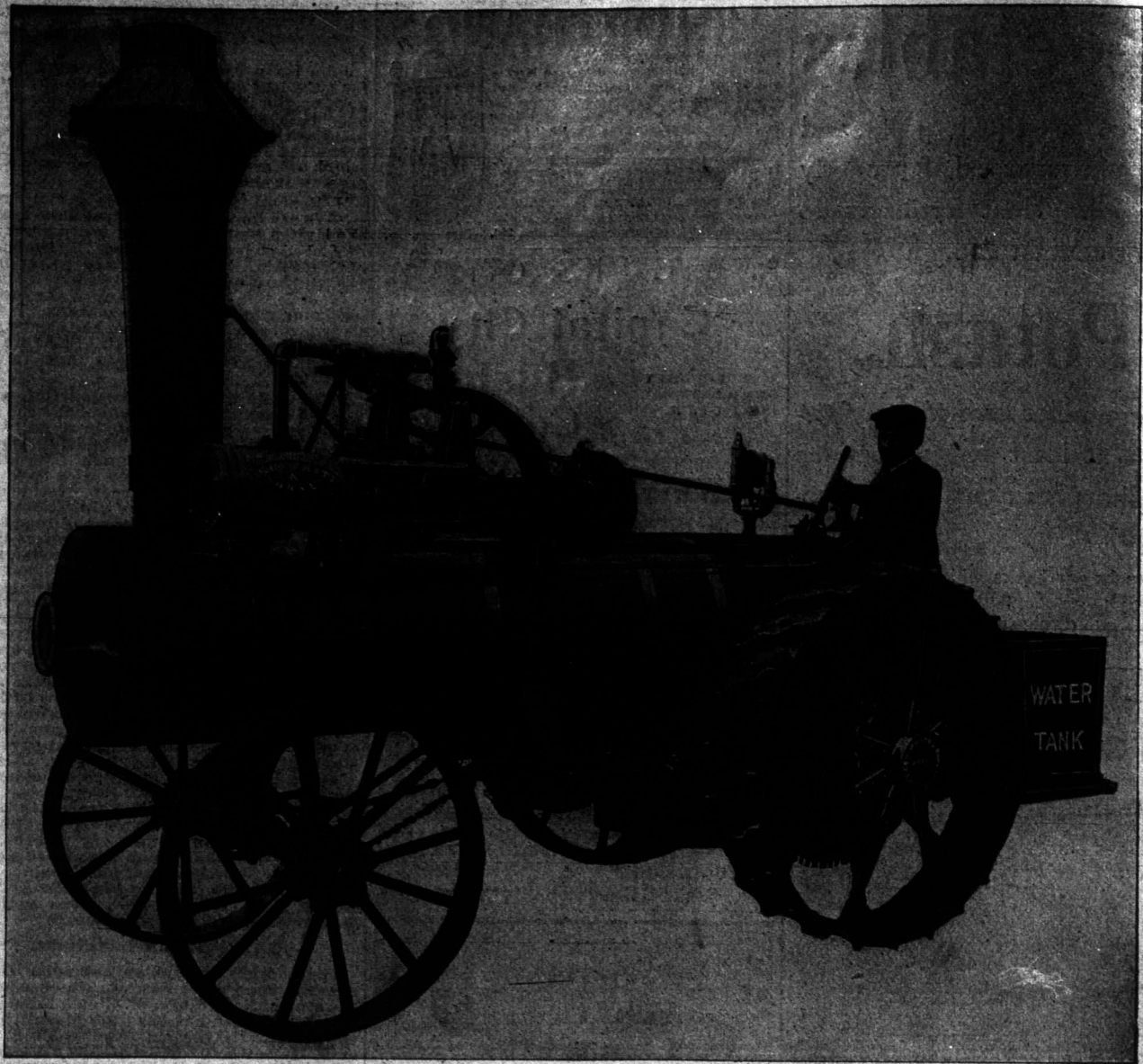
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