

**PAGES  
MISSING**

# FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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VOL. XXXV.

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No. 499

## EDITORIAL.

### The Picture and the Paper.

PRESTON, MINNESOTA, March 14, 1900.

The William Weld Co., London, Canada:

GENTLEMEN,—On my arrival home from St. Paul, last night, I found your "Canada's Ideal," which was to me a great pleasure. To have the representations of such noteworthy Shorthorns represented in such high degree of art is of itself an inspiration and an incentive to strive on toward the ideal with renewed hopes and higher ambitions. The noble Shorthorn is the ideal, and the work of art and the artist seem to be at their best in representing this fine breed of cattle. I shall prize "Canada's Ideal" very highly, and shall have it framed and placed in the most conspicuous place in my office.

I am more than gratified to know that I have some animals in my herd sired by these noteworthy sires.

In conclusion, I want to say a word in behalf of the ADVOCATE. I have learned to anxiously watch for its coming. Truly, I can not do without it, it is so full of truths and farm benefits from beginning to end.

Very cordially yours,

JOHN C. MILLS, County Auditor.

### Dairying from a Woman's Point of View.

Our readers will appreciate, we feel sure, for their practical helpfulness and exceedingly interesting style, the series of articles by Miss Laura Rose, of the Guelph Dairy School staff, the second of which appears in this issue of the FARMER'S ADVOCATE. Her treatment of the subject will range, as the papers are styled, "From the Stable to the Table," where the critical consumer passes final judgment upon the finished product; in other words, she deals with each successive step in the process of dairying, particularly as it is carried on upon the farm, making altogether a fresh and valuable compendium of dairy literature. Most of her articles will prove equally serviceable to the creamery and cheese-factory patron as to the home buttermaker, and we commend their careful study. While the scientific principles underlying dairying remain the same, the art itself is progressive; hence, we must have line upon line and precept upon precept, in order to continued success. Thoroughly practical herself and a careful observer both of the best British and Canadian practice, Miss Rose has also the advantage of her experience at the Ontario Agricultural College Dairy School and in connection with Farmers' Institutes and other work of that character, coupled with a happy faculty of expressing her knowledge of the subject. In our March 1st issue the housing of dairy cattle was taken up, emphasizing the points most needful of care, and in her second contribution, which we publish on another page, the subject is "The Dairy Cow and Her Feed," the salient points of which she has very forcefully presented, giving a clear pen-picture of the former, with practical suggestions regarding the latter. In the FARMER'S ADVOCATE constituency Miss Rose will address what may be styled an advanced class in dairy literature, who are daily putting theory into successful practice, but the success of her previous work gives assurance that the present will be equally satisfactory, and we doubt not that with the keen perception of her sex she will bring to notice not a few points that the dairy man is prone to overlook.

Sheep are trumps in the markets just now. Think of it—lambs under a year old selling at \$7.50 per 100 lbs. in Buffalo, \$7.25 in Chicago, and \$6 in Toronto.

### Pork Packing and the Hog Raiser.

Several correspondents have written us suggesting that there is a possible danger of overdoing the establishment of pork-packing concerns, a good many of them latterly being on the co-operative plan. It seldom occurs that one loses much by deliberate consideration before embarking in any new enterprise, especially when there is a rush in that direction. The co-operative principle undoubtedly was a great help in the establishment of the Danish bacon trade, and to the co-operation of farmers in small joint stock companies the successful foundation of the Ontario cheese-factory system, with its incalculable benefits, was very largely due. At that time makers with the necessary capital and courage were not forthcoming; but by the farmers of a locality combining, the enterprise was established, and with a good salesman and board of directors to advise with the maker in factory management, etc., and the visits of the travelling instructor, all went well as a general rule. Of late years, however, the tendency is that factories are falling more and more into the hands of private parties, usually the makers, who have accumulated sufficient means to buy out the concern and pay off the stockholders, many of whom have been very willing to dispose of their interests. In other cases we find English investment-seeking capital buying up groups of factories, so as to have them under one management in order to insure a uniform and certain supply of butter and cheese for Old Country custom. Hence, the old co-operative cheese-factory system begins to show signs of passing away, but that it did great good is undeniable. Pork-packing concerns, both in the capital involved for building and management, the details of internal management, and trade relations for the disposal of bacon and other products abroad, are necessarily more serious and complicated. The present-day tendency of trade and manufacture is to centralize into large concerns, and the co-operative factory must count on competing in the sale of its products with the big packing houses in the British market, which in the main regulates the price of hogs in Canada, and the hope is that they will secure to their promoters (the stockholders), and also to their patrons, a better return than might otherwise be got, by their ability to turn out a high-class product and preserve their independence. They most assuredly have their work cut out for them.

As a general rule, the farmer finds the study, management and work of his farm sufficient to occupy the best of his energies, and his personal share in the bacon business is the breeding, management and feeding of the right type of hog at as low a cost to himself as possible. If, besides, he is disposed, after due enquiry, to invest some of his surplus in the local packing house, all well and good, providing it returns him a satisfactory dividend and he feels assured of its permanence.

The fear has been expressed that with so many factories it will be impossible to produce the necessary supply of hogs to keep them going, but with no other class of stock can the supply be so rapidly increased, and we doubt not, if the price is such as to give the farmer a decent return for his labor and feed, the animals will be forthcoming; but if the price is not right, the hogs will not be raised. Last season the price of hogs fell on the farms below four cents, and the sows were not bred. To-day the supply of hogs for the packers is abnormally low, with a strong demand in Britain, and a Toronto correspondent writes us that \$6.50 per cwt. live weight may be anticipated next summer. This will mean another rush into pig-breeding, with plentiful supplies in about a year's time.

Our conclusion is, therefore, that with the co-operative factories now projected, farmers should have a fair opportunity to judge of their success; and, instead of to-day rushing into hogs and to-mor-

row into horses, the farmer will do best to keep steadily those lines of stock that are suited to his tastes and conditions, and which have done best with him in the past—not putting all his eggs into one basket, nor flying from one extreme to another. Not so long ago, dairymen were discouraged with fifteen-cent butter and seven-cent cheese, but lately we have twelve-cent cheese and butter ranging from twenty-five to thirty-five cents per pound, and some of our readers who are now marketing one hundred pounds or more per week of gilt-edged butter, realize that their faith in the butter cow was not misplaced, and had they dropped out when the outlook was discouraging, they would have missed the golden harvest of to-day.

### "Common Sense in Canada."

Under the above heading our Old Country contemporary, *British Refrigeration*, publishes the following:

"The supreme importance, in the eyes of the British consumer, of uniformity of type and quality in all produce has been characteristically recognized by Canada, and efforts are now being concentrated in the circles of authority in the Dominion to insure its recognition by all who aspire to produce for the great market of the world. The question, as applied to cattle, is receiving most attention, as being of the greater importance, seeing that not only the beef, but also the dairy traders depend upon the type of cattle raised in the various districts. The class of animal advocated for the stock-raisers who intend their produce for the meat market is an ideal type from the point of view of the butcher as well as the consumer; and if Canada can succeed in making such a class of steer the general rule, Canadian beef will undoubtedly oust all other from top-price lists. The 'beef' steer of the ideal is short-legged, deep-bodied, and thick-fleshed, early-maturing, and possessed of robustness and vigor. The type is remarkably pronounced in all the big prizewinners of the Dominion cattle shows of the past year; and in this fact there is much reason for congratulations to the Canadian judgment. A Dominion journal, the FARMER'S ADVOCATE, commenting upon the matter, urges upon its readers the greater satisfaction which is to be obtained by raising good rather than inferior stock and emphasizes its argument by the indisputable assertion that 'The better the quality, and the more uniform the character of the products we send to market—whether of live stock or of any other of the fruits of the farm—the better prices we are likely to receive, and hence the better returns for our labor, and for the feed consumed by our stock.' It would be well if other communities also laid to heart the same doctrine, for then there would not be quite so much heard about the home producer being out-classed and out-sold by his foreign competitor."

### Cooling with Liquid Air.

At the time the discovery was announced last year the FARMER'S ADVOCATE gave a review of the discovery by Mr. Tripler, of New York, of the process of liquifying air, and a forecast of its probable uses in cold storage. The first plant of the kind on a large scale has been erected at Los Angeles, Cal., owned by the Fay Fruit Company. The machine has a capacity for producing 12 gallons of liquid air per hour. At present 11,000 refrigerator cars run out of that city with fruit, each one of which requires 10,000 pounds of ice for cooling, and which occupies  $\frac{1}{4}$  of its carrying capacity for storage. Liquid air, with its wonderful refrigeration power, will be used instead, and can be stored below the floor of the car between the wheels, so that the whole space in the car will be available for the goods shipped. More than that, the cost of the liquid air will only be one-half (so it is claimed) that of the ice. The trial of the system will be watched with great interest.

## THE FARMER'S ADVOCATE AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN  
THE DOMINION.

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1. THE FARMER'S ADVOCATE is published on the first and fifteenth of each month. It is impartial and independent of all cliques or parties, handsomely illustrated with original engravings, and furnishes the most profitable, practical, and reliable information for farmers, dairymen, gardeners, and stockmen, of any publication in Canada.
2. TERMS OF SUBSCRIPTION—\$1.00 per year in advance; \$1.25 if in arrears; sample copy free. European subscriptions, 6s. or \$1.50. New subscriptions can commence with any month.
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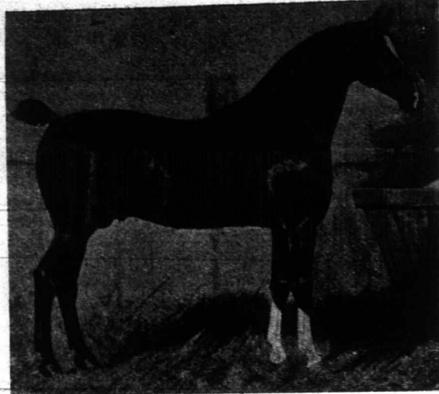
### Permanent Location of the Royal Show.

By a majority of thirty-eight to four, the Council of the Royal Agricultural Society of England, at its last meeting adopted the report of its Special Committee, appointed to consider the question of the modification or alteration of the existing show system, recommending the abandonment of the itinerant system of locating the annual show from year to year, which had been followed for sixty years, and its permanent location in some large town or city after the present rotation of districts is completed in 1902. The trend of the times is unmistakably in the direction of the permanent housing of the principal shows. The United States learned the lesson from expensive experience under the migratory system, and have settled down to a wiser plan, most of the State fairs being now permanently provided for. Ontario spent heaps of money in the forlorn hope of continuing a peripatetic Provincial fair, but found it a costly failure. The Fat Stock and Dairy Show has been "boarding around the district" and living beneath its privileges, but the prospect amounts almost to a certainty that the days of its pilgrimage are ended, and that its next exhibition will be held under cover of a permanent home. The conservative old Royal, of England, has done well to so soon get into line with the onward march of the procession, and we have not a shadow of a doubt that its future, under the proposed change of system, will be even more prosperous and glorious than the grand record it has made in its noble work of presenting high ideals to the people in magnificent specimens of improved stock and agricultural products and appliances, which have exerted such uplifting influence on the agriculture of the Empire and the world.

### Stock Sales by the Government.

The Scotch combination auction sales of cattle are often referred to by the advocates of the adoption of that class of sales in Canada. At first sight, and looking only at one side of the question, the Scotch sales would seem to constitute a good argument in favor of the system; but there are two sides to this, as to most questions, and while the best prices and the average prices for the animals sold at these sales may be fairly satisfactory, yet the reports of the three leading sales this spring, namely, at Inverness, Perth, and Aberdeen, reveal the fact that of the whole number of Shorthorn cattle entered and catalogued for these sales, no fewer than 125 were left unsold, many being withdrawn for the reason that the bidding was not satisfactory to the seller, and many more failing to find buyers owing to their inferiority. In a letter recently received at this office from a prominent Canadian breeder who was present at the sales at Perth and Aberdeen in February of this year, he writes: "I was disappointed in the offerings. Anything with merit sold high, up to 240 guineas, but there were only two or three at each place that you would consider good enough to place in good company." This is quite in accord with the statement of Mr. John Isaac, in a late issue of the ADVOCATE, that the great bulk of the offerings at these sales are culls, and that in the case of those of merit, which are brought out for competition for the numerous and substantial prizes which are offered for the best, it is not unusual to withdraw them when the bidding is not satisfactory.

As a matter of business, we see no good reason why in offering stock at a sale of this character a man should not have the privilege of withdrawing



THE NOTED HACKNEY STALLION, GARTON DUKE  
OF CONNAUGHT.

PROPERTY OF MR. THOS. HALL, NEAR MALTON, ENGLAND.

his animals, or of placing an upset price or reserve bid on them, if he considers he is not bid fair value for them, provided this right is claimed in the announcement of the sale, and this course is certainly infinitely more honorable than the practice sometimes followed of putting up bogus bidders to protect them; yet, from observation, we feel sure that the former practice, if adopted to any considerable extent in this country, would effectually take the life out of any sale. We are assured that in the proposed government sales all these contingencies are to be provided for in a code of rules and regulations which will make everything lovely. But those who have had experience in working under the rules of exhibition and sale associations know, many of them to their cost, that too often under these rules the honest man suffers, while those untroubled by conscience or unburdened by a sense of honor get the advantage, and go off with the honors and the dollars which fairly belong to the man who is straight and who may well pray to be delivered from a list of rules and regulations which hamper him but not the other fellow.

The point we wish to make in this article is, that if in a country of limited area, where breeders are comparatively close together and within easy distance of the place of sale, where the system has been long established, and where, as the result of experience, it is reasonable to suppose the best practicable rules have been adopted, over 20 per cent. of the animals entered for the sales are left unsold at a time when the business is booming, what success can be expected with this system in a country of such magnificent distances as Canada presents, where the cash system of payment at public sales has had little trial, and where combination sales under organizations conducted by prac-

tical breeders in the past have proved miserable failures at such centers as Toronto and Guelph, even when held during the weeks in which stock shows were being held at the same place, and the advantages of reduced railway fares and the presence of stockmen attending the shows were added?

There being no present nor prospective need for the proposed sales, our farmers not having asked for them, nor the breeders either, so far as we know, till it was suggested that aid could be got for the purpose, and, as has been pointed out, with so many dubious contingencies surrounding them, the Government would be ill-advised in making such an experiment in paternalism.

### Sheep-Killing Dogs.

The sheep-killing dogs continue their murderous work. Scarcely a week passes that does not bring intelligence of serious damage done to farmers' flocks by the prowling curs which infest the country. Farmers by the hundred have abandoned the keeping of sheep for the sole reason that they are exposed to this most vexatious evil. There is no more profitable branch of stock-raising than sheep husbandry, and not for many years have the market prices for mutton sheep and lambs been as high as at present. There is probably no country under the sun where sheep are liable to fewer diseases or disabilities of any sort, or where sheep thrive better, than in this Dominion. Under these circumstances, the dog nuisance is an intolerable one, and we fully sympathize with the farmers and breeders who are agitating for its abatement by a more stringent legal enactment.

We are confident that this sentiment is entertained by more than nine-tenths of those interested in the sheep-raising industry, but unless they combine in some way to give expression to their views and wishes in this regard, we fear that there is little hope for relief in the near future. The present session of the Legislature will soon draw to a close, and if anything is to be done to impress upon our law-makers the urgent necessity for action in regard to this important matter it should be done quickly. In the absence of any general organization, we beg to suggest that sheep breeders all over the Province write directly to their representatives or to the Minister of Agriculture at the Parliament Buildings, Toronto, vigorously setting forth their views on the subject. Let the legislative chamber be flooded with letters containing hot shot for the dog nuisance.

### The Proper Function of Agricultural Experiment Stations.

The presidential address of Dr. H. P. Armsby, of the Pennsylvania State Agricultural College, before the last meeting of the Association of Agricultural Colleges and Experiment Stations, deals with the object and purpose of the latter, and the best means of attaining them. Judging from recent tendencies and efforts on the part of some of these institutions, those in charge have run away with the idea that they must popularize them as a means of direct instruction to the farmer. To our mind, this is a misconception that will make such inroads upon the time and attention of the staff that the great fundamental purpose for which the station exists will be completely sidetracked. That purpose is investigation, which must be thorough or scientific in the true sense of the term. The American is so impatient for immediate "results" as to grow restive under the essentially patient and deliberate procedure under which results of any permanent value are to be obtained from experimental work. The thorough-going investigator finds it difficult to resist the clamor for a "show on paper" that the institution is "doing something" that will put dollars directly in the pocket of the farmer. And when the hustling politician takes a hand in, matters are not improved, as witness the development of the wasteful Washington free-seed scandal. As Dr. Armsby points out: "The function of the experiment station is not the impossible task of giving him (the farmer) recipes suited to every possible emergency. Its business is to enlarge (through its researches) his knowledge of the natural forces which drive his farm, and how to control instead of being controlled by them." He points out that the experiment station is not designed to do the work of the agricultural college, the farmers' institute, the reading circle or the agricultural press, but rather to be a fountain from which may flow knowledge and inspiration that shall fructify and

vivify the whole system. Teaching, he points out, is the business of the agricultural school and not of the experiment station. The central idea of the station is research—the discovery and promulgation of new truth.

STOCK.

COMMENTS ON THE PICTURE.

"Canada's Ideal" Before the Critics.

EMERY COBB, Kankakee, Ill.—"I commend your enterprise and thank you for the remembrance."

ANDREW SMITH, F. R. C. V. S., the Ontario Veterinary College, Toronto.—"It is an excellent representation of the Shorthorns."

H. CARGILL & SONS.—"Canada's Ideal" received. It is a splendid piece of work, and will do its share in making a name for Canada as well as our brave boys in South Africa."

S. E. PRATHER, Sec.-Treas. Sattley Manufacturing Co., Springfield, Ill.—"It is a very fine picture, and I will be pleased to have it framed to hang up in my office."

C. F. SHAFFER, Proprietor, Wellman, Iowa.—"Your picture, named 'Canada's Ideal,' is a magnificent picture of animal portraiture. It fills the eye of the most critical judge."

EUGENE DAVENPORT, Dean and Director, College of Agriculture and Agricultural Experiment Station, Urbana, Ill.—"Canada's Ideal" will be framed and hung in our new agricultural building."

E. R. NICHOLS, Acting President, Kansas State Agricultural College, Manhattan, Kan.—"Allow me to congratulate you for your engraving, 'Canada's Ideal.' Our agricultural department will put it on exhibition."

H. F. BROWN, Minneapolis, Minn.—"The large engraving of 'Canada's Ideal' is surely very commendable. I will have same nicely framed and occupy a place at 'Brown Dale.'"

GEO. HARDING & SON, Waukesha, Wis.—"We appreciate the picture of prizewinning Shorthorns, and will frame it at an early date. Beg to thank you for this favor."

WM. RENNIE, Toronto, Can.—"Thank you for the beautiful engraving, 'Canada's Ideal.' The picture is certainly a work of art, and reflects great credit upon the ADVOCATE."

H. H. GOODELL, Massachusetts Agricultural College, Amherst, Mass.—"Accept my thanks in behalf of the Agricultural Department of the Massachusetts Agricultural College for your 'Canada's Ideal.' I shall have the same framed and hung in our recitation room."

M. A. SCOVELL, Director and Chemist, Agricultural Experiment Station, State College of Kentucky.—"We are in receipt of 'Canada's Ideal,' and we are pleased to receive it. It is an excellent engraving, and does the Shorthorn justice."

A. CHRYSAL, Marshall, Mich.—"Many thanks for the engraving, 'Canada's Ideal.' I certainly appreciate it very much. I opened it last night, and this morning it is being framed, and will be hung up in my office as soon as completed. With kind regards."

CHAS. D. WOODS, Director, Maine Agricultural Experiment Station.—"The picture is an instructive one, and is made so it will prove to be more and more interesting as time passes. I congratulate you on bringing together in so fine a manner so many typical animals of this breed."

D. E. SALMON, Chief of Bureau of Animal Industry, Washington, D. C.—"I have the honor to acknowledge the receipt of the live-stock engraving designated 'Canada's Ideal,' for which accept my thanks. I take pleasure in stating that this picture will be preserved for reference as portraying typical individuals of the Shorthorn breed."

H. J. PATTERSON, Director, College Park Agricultural Experiment Station, Prince George Co., Md.—"Such a publication as 'Canada's Ideal' I deem highly educational, and should be in the hands of all stock-raisers in order to set before them a proper type to breed to, and have a general good influence in improving our breeds."

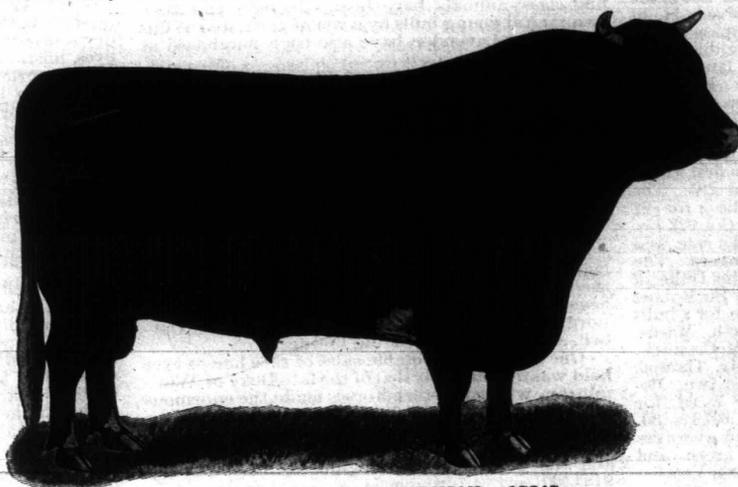
CHAS. C. NORTON, First National Bank, Corning, Iowa.—"Thanks for the beautiful engraving of Shorthorns. Shorthorns are coming to the front very rapidly over here. At the sale of Crawford & Sons, held at Newton, Iowa, March 9th, the females averaged about \$435, some being calves and some old cows."

A. P. WESTERVELT, Secretary-Treasurer, Dominion Cattle, Sheep and Swine Breeders' Associations and Ontario Provincial Winter Fair, Parliament Buildings, Toronto.—"Canada's Ideal" is an exceedingly good portraiture of a number of good animals. It should be the means of fixing on the minds of all who study it what the ideals are in the line of stock breeding."

EDWARD B. VOORHEES, Director, New Jersey Agricultural Experiment Stations, New Brunswick, N. J.—"It is certainly a magnificent picture, and will be of great value to me in my work as a teacher as well as serving as an object lesson to many farmers who visit the institution. Work of this sort cannot be too highly commended, as its influence is for good all along the line, helping the man in his adoption of ideals, and thus raising the live-stock business to a higher plane."

PROF. G. E. DAY, of the Ontario Agricultural College, writes:—"I beg to acknowledge receipt of the beautiful engraving, 'Canada's Ideal,' and to thank you for the same. The study of this picture is an education in itself, and I am sure every lover of good cattle will appreciate its merits. It should be especially valuable to young stockmen as an aid to the study of beef type, as well as Shorthorn type, and your enterprise in giving to the public such a notable collection should meet with the hearty approval of our breeders."

J. H. PICKRELL, Secretary, American Shorthorn



SHORTHORN BULL, TOPSMAN -17847-  
Winner of first prize and sweepstakes at Winnipeg, Toronto, London, and Ottawa, 1899.  
PROPERTY OF CAPT. T. E. ROBSON, M. P. P., ILDERTON, ONT.

Breeders' Association, Springfield, Ill.—"The engraving, 'Canada's Ideal,' is one of the cases where Canadian Shorthorns are admitted into the United States free of duty, without custom-house certificates. So many live Shorthorns are coming that it keeps one clerk busy almost all the time making out custom-house certificates, which will admit them free of duty. This picture commends itself enough to have it nicely framed, and then it will be hung upon the walls of our new office, which we expect to occupy in a short time, so that Shorthorn breeders who visit the office can see 'Canada's Ideal.' Please accept the thanks of the American Shorthorn Breeders' Association for the same."

An Ohio Man on the Beef Cattle Standard.

Publishers the Farmer's Advocate, London, Canada:

GENTLEMEN.—We are in receipt of a copy of your engraving, "Canada's Ideal," for which you have our thanks. The picture is certainly a very fine one, and shows a line of animals of which Canada may be proud. I have great faith in the future of meat production throughout the region surrounding the Great Lakes, and I believe that Canadian farmers have done wisely in maintaining the high standard of their beef cattle. Should any Ontario farmer have misgivings upon this point, I would suggest to him that he come over to this side of the lake and endeavor to pick up a herd of first-class feeding cattle. I think that a few days spent in this work in a State which once stood second to none in the quality of its beef cattle would show him that the rank which Canada now holds is well worth striving to maintain. There are still magnificent beef cattle in Ohio, but their number, both relative and actual, has sadly diminished during the last twenty years, and now our farmers are awakening to the realization that a golden opportunity has been neglected. Yours truly,  
CHAS. E. THORNE, Director.  
Ohio Agricultural Experiment Station, Wooster, Ohio, March 17, 1900.

Our Scottish Letter.

THE SPRING BULL SALES.

The bull sale season is over, and breeders have before them some data upon which to base an estimate for the coming year. An outbreak of foot-and-mouth disease in Norfolk in the beginning of February was an unlooked-for and somewhat disconcerting event. It upset one's calculations, and the disease being much dreaded, restrictions were imposed on the movements of cattle in England, while the Irish Privy Council made assurance doubly sure by shutting out all cattle from the green isle. In past years Irishmen have been splendid buyers at the bull sales, and the absence of their demand was felt at all the sales, but specially at the Galloway sale at Castle Douglas. Anticipating, as they justly were entitled to anticipate, an increased demand from Ireland, where the Congested Districts Board reports very favorably of the results of Galloway sires, breeders had prepared for a good demand by putting a larger number of bulls than usual through the sale. The sudden closing of the Irish ports, however, upset all calculations, and the Galloway breeders had to submit to low rates for everything except the top specimens. The Aberdeen-Angus "tail" was also disastrously affected, and the average for both polled breeds was down from the figures of 1899. Highlanders held their own, but the Shorthorns had a substantial advance.

The Shorthorn and Aberdeen-Angus centers are Perth, Aberdeen, and Inverness. While Mr. Moir was selling at Aberdeen on Thursday last the news arrived of the release of Ladysmith and its gallant defenders. The fact was announced by Mr. Moir from the rostrum, and the audience abandoned itself to hilarious cheering for several minutes, putting all thoughts of bull buying out of their minds. When business was resumed the first animal to enter the ring, curiously enough, was a white bull of moderate quality named Kruger. He was at once assailed with shouts of derision and contempt, and enthusiastically hissed. It was next to impossible to get anyone to bid for him, but after a bit a movement was made; he was decidedly unpopular, and some granite individual got a bargain of him at 134 gs. If the original Kruger could only be secured as easily the Transvaal troubles would soon be at an end. To return to our Shorthorns. The leading herd has been that of Lord Lovat at Beaufort Castle, Beaulieu, on the borders of Inverness and Ross. This herd is quite distinct in its characteristics. Whatever may have been the cause, the result of the breeding pursued is to produce a very strong, heavily-fleshed animal, rather *outré* in color—red with white patches like the Ayrshire order, undefined orange-roan being not uncommon, and nothing very striking in the way of breed type and character. All the same, the Lovat bulls sell, and at the spring sales they make high prices. This year they have surpassed all previous records. They were first in both classes at Perth, and first at Inverness. The first Inverness bull sold for 230 gs., to go to Buenos Ayres; the first in the younger class at Perth

went at 240 gs., to the same quarter; and the first in the older class at Perth, which was rather unpopular, at 120 gs., to a home buyer. These are three splendid prices for bull calves. Lord Lovat's average for three at Inverness was £126, and his average at Perth for a like number was £159 5s., more than double the amount realized at places as averages last year. Eleven of the highest priced bulls at Perth made an average of £123 3s. 8d., and the 104 bulls sold made the respectable average of £28 9s. 9d. each, the highest yet reached at these sales for bull calves. A superior Perthshire herd of Shorthorns is that of Mr. Mastone Graham, at Redgorton. He owned the second-prize bull calf in the older class, and it was sold for nearly double the price of the first-prize one in the same class, viz., 230 gs. At Inverness 72 Shorthorn bulls made an average of £30 5s. 2d. each, and at Aberdeen 164 bulls made £21 16s. 5d. each.

The significance of these figures is best appreciated when the fact is borne in mind that the bulls offered in this way are mainly destined for crossing purposes, and their quality and breeding has a vast influence on the future not only of Shorthorns, but of the ordinary cattle of the country. The choicest animals as a rule are not sold at the spring bull sales, but those best adapted for cross-breeding purposes are invariably so, and very soon no one will dream of buying a crossing bull in any other way than this. A fleshy bull is what is wanted for this purpose, and given depth of flesh, the breeding of the bull is not so much taken into account. This is, however, a mistake, and the best results in the production of commercial cattle are got by those who act on the principle that any bull is not good enough for crossing purposes. The importance attaching to pedigree is one cause of the glaring discrepancies between the awards of the judges and the estimate placed upon an animal by competing bidders. Thus, Lord Lovat's Saturn, placed first, made 120 gs. The Redgorton Royal Chief, placed second, made 230 gs. The third in the class made 40 gs., the fourth 100 gs., the fifth 95 gs., the sixth 105 gs., the seventh 41

gs., and the eighth 43 gs. In the younger class the first, from Lovat, made 240 gs.; the second, from Barrelwell, dropped to 38 gs.; the third, from Holl, made 94 gs.; the fourth made 56 gs.; and the fifth, a Montrave bull, 100 gs. The sixth was not drawn, and the seventh made 88 gs. It will be seen from these figures that judges and buyers differ very seriously amongst Shorthorns, and the case with other breeds is not much better.

The leading price of the season has been made by an Aberdeen-Angus bull calf, bred at Ballindalloch, and sold at Perth in the preceding week for 360 gs. His buyer was Mr. W. S. Ferguson, Pictstonhill, Perth. In spite of this high figure, the averages for A.-A. cattle at these sales are not as high as for Shorthorns. This is chiefly due to there being too many of them. At Perth the average price of 297 bulls was £27 6s. 1d., and at Aberdeen 188 made £22 10s. 9d. The leading averages at Perth amongst the blackskins were made by Sir George Macpherson Grant, who got £91 9s. for eleven. Lord Strathmore got £64 3s. 1d. for ten; Mr. MacLaren, Auchnagie, Ballinbrig, £57 15s. for five; Mr. George Bruce, Tochnial, £45 3s. for two; and Mr. Chalmers, of Aldbar, £37 5s. 6d. for five. Extraordinary advances have been made in certain herds of black cattle through the agency of one particular bull, and it is more than ever demonstrated by the results of these sales that the bull is one-half the herd. It is, in fact, demonstrated that he is much more than one-half the herd, because Auchnagie, for example, has sprung from an average of £23 2s. in 1899 to £57 15s. in 1900 by the use of the fine Aldbar bull, Delamore, for which he paid 190 gs. at the Perth bull sale in 1898. This fine bull was first at the Royal in 1899, and is one of the best animals of his breed seen for many a day, and the quality of his stock is a further vindication of the idea that a quality bull will breed better than a strong, coarse animal excelling, it may be, in some particulars.

Highlanders and Galloways mature more slowly than these finer breeds, but they have done well this year also. The highest price at Oban was made by the three-year-old bull, Calum Riabach II. of Atholl 1325, which has been twice champion at the Highland. He made £155 in the sale-ring, his buyer being the Earl of Southesk, who, on land better adapted for Aberdeen-Angus than for Highland cattle, keeps a fold of unusual excellence. The second-prize bull, from Poltalloch, made £71, and then there was a big drop, for the third only made £33, and the fourth made £41. The first two-year-old bull made £54, and the second £52. The first three stirks made, respectively, £45, £52, and £35. The average for 24 aged bulls was £25 19s.; for 22 two-year-olds, £23 10s. 6d.; and for 19 stirks, £22 15s. 6d. The Galloways hardly had as good a sale, and chiefly because of their excessive numbers. The top price of the sale was £135, paid by the Duke of Buccleuch for the first-prize stirk bred by Sir Robert Jardine, Bart., Castlebank. His average for 8 bulls was £36, and Mr. Wilson, Tundergarth, Mains, Lockerbie, had £38 for three. Mr. McCormick, Lochokit, had £23 8s. 6d. for six, and Mr. Thomas Graham, Beaumont, Carlisle, £29 7s. 6d. for two. Mr. Fraser, Glaisters, Kirkgrinjeon, had £28 7s. 6d. for six. Colonel Dudgeon, of Cargen, had £27 17s. 6d. for two, but a large number of herds had averages under £20. Too many cooks spoil the broth, and too many bulls spoil a sale. "SCOTLAND YET."

#### Abuse of the Stallion Syndicate System.

SIR.—Re company ownership, or syndicate plan of owning stallions, the general plan of the agent is to start out to some small village and to find out the veterinary surgeon, or someone that takes an interest in the horse business. The agent is generally a slick talker, and shows his horse to the best advantage. He now offers his man \$100, or a share for nothing, to help sell the horse. They now start out and tell the farmers how they can make money by investing in a company horse, showing how other horsemen have made money out of the business. They may sell eight or ten shares, then there is a halt, and the agent has to get another man to finish the sale. This man has to be paid for his trouble and support. When the sale is finished the men receive their pay, say \$200, for help to make the sale; the agent's expenses, \$100, and his pay takes \$300 more. Now, this is \$600 added to the price of the horse. A horse worth \$1,000 at the importer's stable will cost \$1,600 to a company, and in many cases \$2,500. After the company is formed, someone takes the horse to keep, say at \$10 per month—\$120. Now they put him on the route, which will cost \$12 per week for ten weeks, or \$120, and the groom gets \$80 for his pay. To these add shoeing it, \$10, and interest on capital, \$80; invested say \$1,600 at five per cent. Now, this makes a total of \$410. The horse is bred to say 90 mares, at \$10 per mare; he gets 60 per cent. in foal, or \$540, thus leaving the company \$130 profit. Now the sequel: The first note is now due, which is \$533—one-third the price of the horse—and there is only \$130 in the treasury to pay the note of \$533.33, with interest added. As a result the farmers have to go down in their pockets for the balance. The next thing is they become dissatisfied over the result and want to sell the horse, and as a rule he is put on the market and sold for what he would bring. This is the result of most of the company ownership of stallions I know of. There have been four companies around here, and the horses cost from \$2,500 to \$3,000, and when they were put on the market they did not bring \$300 apiece. JAMES HENDERSON.

Middlesex Co., Ont.

#### English Notes.

FROM OUR OWN CORRESPONDENT.

There has been, during the past month, sold for exportation to Canada a considerable number of pedigreed live stock, selected from some of the best studs and herds we have.

Mr. E. R. Hogate, of Toronto, is over here selecting heavy draft horses, amongst which he has already secured some very excellent Shire stallions and some few of Yorkshire Coach horses, these being shipped at the end of February. Since this date he has been successful in securing a typical Clydesdale stallion of very great merit from Mr. A. McIntyre, Lord Mayor 1896 by name, who was bred by Mr. D. Howatt, of Bogleshole, Glasgow, he being sired by Prince of Ord 7156, a grandson of that celebrated horse, Prince of Wales; whilst his dam is equally well bred, being got by that famous horse, Darnley 222.

Cattle buyers have also been very busy. For instance, Mr. Andrews, manager of the Canadian Land and Colonization Company, has selected from the noted herds of His Grace the Duke of Buccleuch and Messrs. Biggar & Sons, eleven Galloway bulls, six from the former and five from the latter. This same buyer is also taking out a few Galloway heifers for the Company, who will, when shipment arrives, stand possessed of a grand lot of these most valuable and hardy cattle, whose merit for the production of the highest quality of beef and first-class skins for robes stands unequalled.

Mr. W. D. Flatt, Hamilton, Ont., has also been, through his agent, a large purchaser of Shorthorns of the highest breeding and pedigree, thirty-five head having been selected from the noted herd of Mr. P. L. Mills, namely, eight cows, seventeen one- and two-year-old heifers, two yearling bulls and eight heifer and bull calves; from Mr. Leopold de Rothschild's herd, one cow and calf and yearling heifer; a grand two-year-old heifer from the Queen's herd; whilst from the herd of Lord Roseberry and several other Scotch breeders several first-class animals have been selected; and then two capital young bulls by a son of the noted Willis bull, Count Lavender, have also been purchased at Holywell Manor.

The pure-bred flocks of Shropshire sheep in Canada will be materially strengthened by the shipment of a very valuable selection of thirty-two in-lamb ewes, which were selected and shipped by Messrs. Alfred Mansell & Co., from some of the most carefully-bred flocks we have in the country, to the order of Mr. Bradshaw, who is to be congratulated upon becoming possessed of so valuable a lot of typical and first-class ewes.

Some first-class Yorkshire pigs have also been selected for Canada, Mr. D. C. Flatt, Millgrove, Ont., being in this instance the purchaser. Amongst the herds from which these careful selections have been made are those of Her Majesty the Queen, Lord Roseberry, and Messrs. P. L. Mills and Daybell, all of whom are leading breeders.

One of the most notable sales of race horses ever held was undoubtedly that of the late Duke of Westminster, where nineteen horses made the enormous total value of \$355,017.00, an average of just over \$18,685, the top price being paid for Flying Fox, who last year won the Two Thousand, the Derby and the St. Ledger, 37,500 guineas, or practically \$187,500.

#### Bounty Fed Stock Sales.

AN ENGLISHMAN'S OPINION.

The controversy shown to exist amongst your stockmen, in your issue of March 1st, regarding Government-aided stock sales, is possibly an important one, and certainly one wherein local knowledge of the existent circumstances and state of affairs in your country is needful before giving any decided opinion. It, however, though not directly, is a matter of importance to breeders of British stud stock, from the fact that any matter that either adds or detracts from the prosperity of the live-stock industry affects them, as it either means an increased or lessened demand for their stock from your breeders. Looked at from a purely British standpoint, the answer would be a practically unanimous No! for this simple reason: that with the acceptance of government bounty, freedom of management and control by the interested parties is lost, and in its place comes officialism and red-tapeism inherent to every governmental department in this world. Wherein this would benefit the breeder it is difficult to realize. Freedom of action and full, unfettered control must far and away be better than such management as would follow the acceptance of the governmental bounty. Looked at from a distance, your correspondent would strongly urge his fellow-workers in the live-stock community to stick to their freedom of action and risk the cost, rather than to barter away their freedom for the very doubtful advantage that might or might not accrue thereto by the acceptance of a governmental bounty and its consequent control, which, in all probability, would to its other objections add that of becoming a matter of party or political warfare, which should never be permitted to creep into the live-stock business, for, however much our differences may be politically, we are but one in connection with the live-stock interests, namely, each in our own sphere to do all we can to secure its success and promote its welfare throughout the world at large, for, as breeders and rearers of live stock, our interests are common, which neither country, kith nor kin can divide.

W. W. C.

#### The Cowboy.

BY J. M'CAIG.

Most people have accumulated a more or less generous amount of ignorance about the West and about Western life. This store of ignorance is fantastically mixed with lurid visions of massacres, scalplings, roughriding and lariat-throwing. The human figures on the canvas are Mexican and Indian, some dead-shot Jim of the former people being generally pitted against a horde of Blackfeet or Crees and managing by most improbable and overdrawn skill to outshoot or outride his red-skinned enemies. The phase of cowboy life that the reading public have been made most conversant with is the frontier aspect of it—the conflict of the cow-man with the plains Indians at a time when the latter existed in much greater numbers than at present and had lost none of their primitive energy and ferocity. The extension of the frontier towards the west by the white settler was an eager, anxious and sometimes fatal business for him. Now the Indians are entirely different. The transforming of the Indian to a white man is frequently pointed to with pride, but the process is killing him. He cannot stand houses and fences. His constitution is becoming undermined by want of the eager life to which he is constitutionally fitted and by the change from the purely meat diet of buffalo times to a mixed diet of vegetables, meat and pastry. He is even a cowboy or haymaker himself, and will borrow a quarter from you to buy a dinner, promising to pay you when he sells his hay—just as a white man would—and is so long in coming back that you are forced to conclude the hay market must have gone all to pieces. Truly the working of the white man's leaven in him is gratifying.

The Indian and Mexican may be eliminated from both the social and industrial West. The Indian is simply a figure as of a passing horseman on the outer limits of the broad prairie horizon; the Mexican has fallen back before the vigor of the invading Saxon. An occasional Mexican cow-puncher may be seen, with the bronzed and parched face of the dry southern plateau, and the live, black, passionate eyes, mistakenly thought to be energetic; but as a race their domination has been spoiled by the cold, calculating business energy and enterprise of the American or Canadian rancher and cowboy. Nevertheless, the Mexican lives in the history of cow-punching. The saddle of the cow-puncher is Mexican in style and name; his *sombrero* is the same. His "chaps" are the older *chaparrero*; the "round-up" is an adaptation from the Spanish *rodco*. The rawhide *lariat*, or *lasso*, have scarcely given place to the less picturesque "rope." The word *broncho* is as frequently used as "cowhorse," and the term "mustang" and "pinto" will live as long as the coloring and blood of the two species are found among the horses of the range. The term "cayuse," so commonly applied to the half-wild Western ponies, is not Mexican, but is derived from the Cayuse Indians, a tribe of western Oregon. The reason for the Mexican coloring that the cattle business bears is not far to seek, for the industry began in the south and has travelled north in a broad belt along the eastern side of the Rockies through the United States and up into Canada beyond the sixtieth parallel. With the growth of industry in the New England States and the consequent demand for food stuff, the cattle business extended into the free grass country of the western frontier. The southern fringe of United States territory merged into the Mexican range country. It was found by Mexicans that by driving their cattle farther north their beef qualities were improved by reason of the better grasses of the higher temperate climes and the improved appetites of their bony, dry-hided, big-horned beasts. Beef became a larger consideration than rawhide. The Mexicans learned the beef business from the Saxons, and the Saxon, with his ready susceptibility, learned the cow-punching from the Mexican. The two coalesced, or rather the invasion and conquest of the descendants of Hengist and Horsa was complete. English beef and English mind was too much for the lassitude of the southerner. It was a bloodless Spanish-American war. The Saxon took the Long Trail and carried it on towards the arctic circle; the Mexican quit, but his art was and is a dominating and necessary feature of the cattle business, and so cow-punching remained. The growth of the cattle business has been phenomenal during the past thirty years. It has extended east and west from Dakota to the Rockies at one time or another, but tends to narrow by the encroachment of the cultivator westwards. Its narrowing in the United States has made its growth in the Canadian Northwest extremely rapid during the past ten years, and it is scarcely necessary to say that there is no part of the range country in America better suited to the successful pursuit of the business than the prairie district of southern Alberta, with its good grass and water and comparatively mild winters. The amount of American capital already invested or seeking investment north of the line is a simple and forcible proof of this.

The cowboy's life is spent in the saddle. His country knows no furrow; his equipment has neither binder nor drill. His domain, in most cases, is not limited by fences, and his cattle may be at any place within a radius of fifty miles. Hence it is easily understood that the cowboy goes little on foot. When seen off his horse he does not seem to have been made for walking. His gait is awkward. His heels, as they say, do not track, and his knees are bent outward in bow-legged fashion, and his

shoulders are not carried too squarely. But put him on a horse and all is changed. He is a live and supple figure, rigid from the saddle downward, but all flexible above. You may see him dashing along the trail and into town with almost boyish elation in his prospect of having a good time. His horse is urged mercilessly with spur and quirt, for horse-flesh is not saved in the cow business. His cayuse's ears are set back, his body spread low, and he takes all turns and hillocks with marvellous certainty, and finally halts so short by a sudden draw on the curb that an ordinary man's neck or back would be broken; but it is impossible to disintegrate the cowboy and his horse. They are inseparable. The horse is guided not by drawing to the right or left on the bit, but by moving the hand holding the reins loosely to right or left so as to let the strap fall on the neck where the collar would rest. Drawing the reins across the neck to the right brings the cayuse to the right, and across to the left brings him to the left. Even this is sometimes unnecessary, for the movement of the body or knees serves to guide the susceptible cowhorse. A cowhorse will respond so quickly to the rein that he will stop short in the full gallop and turn directly about on his hind legs and be off in the opposite direction in a flash. The cowboy appears at his best only on his horse, and he must be studied there.

The equipment of the cow-puncher, though losing some of its picturesqueness, is characteristic and more or less striking. His hat is the sombrero, a broad-brimmed light gray felt with a narrow band. An awkward-looking piece of headgear at first it seems. But it is a protection from both sun and rain, and is held on by a strap passing backwards below the prominent back part of the head. His coat and vest are easy-fitting, as a rule. He wears a soft shirt and generally a bright-colored silk handkerchief about his neck. Over his legs and passing up to about the hips he wears what are called "chaps," a kind of leather legging. They usually have a fringe of leather streamers two or three inches long running along the outer seam. They are worn loosely, and are a protection to the legs among the brush. Sometimes the "chaps" are of goat skin tanned with the hair on, but are usually of calfskin. The boots of the cowboy are long boots of calfskin, made very tight and with light narrow soles. The heels are very high and are placed far forward under the foot like a ballet-dancer's. A cowboy jams his foot into the saddle up to the heel, but on account of the peculiar neat make of the shoe he is seldom caught with his foot stuck in the stirrup. For protection against rain the cowboy carries a "slicker," or yellow oilcloth coat, and in winter-time he has a brown canvas coat lined with woolen goods of some kind. The carrying of a gun is a thing of the past, and in this north country there is a tendency to seek comfort first in fur coats, mits, and even felt boots, instead of making parade of the traditional cow-puncher's paraphernalia.

The lawlessness of the cow-puncher is found more in books than in reality. The sport of making a tenderfoot dance by forming a ring about him and shooting into the floor at his heels is played out. Neither do cowboys ride into bars on horseback for their drinks or clean out the room with a "gun." As a matter of fact, the cow-punchers are, as a class, reserved, self-contained, and not given to license. They are generally credited with having an unrivalled opulence of sulphurous epithet. It is only volcanic in exceptional cases. When it does come it is generally picturesque and original. The cow-puncher does not repeat himself in his ornamental and elevated discourse any more than he does in common conversation. He is sometimes taciturn and reticent, and this mask not unfrequently covers an educated and thoughtful man, who has come from different conditions to feel the freedom of the plains, find a beginning in new surroundings or to forget a capricious sweetheart. The saddle is his home—and the Mexican saddle—the hard, gray, open, boundless prairie is his domain, and the free, broad western wind that sweeps bench and bottom, coulee and butte, making all sweet and clean, is his heritage. An easterner has no conception of the joys of the saddle. The horses are tough. They have good constitution and good wind, and are wonderfully sure of foot. The first mile in the morning is perhaps a bit rough. Your horse feels the exhilaration of starting out fresh. He is heady and tosses and rolls about uncomfortably. By-and-by you get closer to your saddle and more comfortable. You give him a dash for a quarter of a mile. The air is like champagne. Your lungs are filled, your whole body is in exercise. You feel the life of your cayuse and glow all over, and you rejoice in being simply an animal and in the best of working shape. "Yes," said an old-timer, "it shakes up your juices a bit and gives you a fresh start. This country ain't in a bad place."

[TO BE CONTINUED.]

**A High Standard.**

W. A. HENRY, Dean and Director, Agricultural Experiment Station, Madison, Wis.:—"Canada's Ideal" is to hand. Surely the stockmen of Canada have set their ideals high, and may we not hope that the rank-and-file of breeders and all lovers of good live stock will not be slow in making the most of the opportunities which so favorably surround them for reaching this same high standard. Your country in no instance excites more interest or favorable comment than in relation to the high standard of its herds and flocks."

**Agricultural Exhibitions--County and Township.**

Whether changes can be made in the present system in Ontario that would give better results for the time and money expended is a problem that I do not feel competent to solve. I have been for some time impressed with the opinion that we have too many fall exhibitions, or that there is too much time spent over them at a time of the year that we should be preparing for the next year's crop and making improvements on the farm. I have thought that the Government should withdraw from Township shows, but of late I have changed my opinion somewhat. I find from experience that the Township fair stimulates rivalry and encourages many persons and farmers to compete for prizes who would not think of doing so at a large exhibition. We have the large exhibitions, such as the Industrial, Western, and others, where the largest breeders of stock and most progressive and advanced farmers and others that desire to can exhibit. At Township fairs I would not restrict competition, but allow it the widest range possible, so far as exhibitors were concerned. It requires money to make agricultural exhibitions as well as any other institution, and in order to obtain enough money to make an attractive prize-list and programme it seems absolutely necessary to charge an entrance fee. Without some attractions other than the ordinary products of the farm, ladies' work and fine arts, the attendance is usually small. I have found that speeding in the horse-ring, judiciously managed, is the best attraction for the money expended. Apart from what is commonly looked upon as attractions, a good display of agricultural machinery is an attractive feature at a fall exhibition. In the way of offering suggestions to make the township and district fairs more successful, I cannot say I have anything new to offer, but would suggest that in the holding of a Township show the time should not exceed two days, and for a district show, three days is ample time. They should be locally well advertised by a suitable poster of not too large size. The prize list should be made as favorable as possible for all classes of live stock, but would not neglect farm and dairy products, ladies' work, etc., and would make a special effort to make the inside display as attractive as possible, for the reason that the exhibits in the hall are the special attraction to the farmers' wives and daughters and the people from the towns. I would not permit any one exhibitor to take more than one prize in any one section of a class. This rule carried out will encourage more persons to exhibit, particularly in stock, for the reason that a small breeder may have but one or two animals, and if he knows that some large breeder is to exhibit he naturally concludes that he will take enough animals to take all the prizes. I would have a printed programme for the days of the show, and have it strictly carried out.

Bruce Co., Ont.

JAS. TOLTON.

**Age to Wean Pigs.**

There is a rather common belief that a litter of pigs, after they have attained the age of five or six weeks, can be more cheaply kept off than on the sow, or that it is more economical to wean them at that age. Indeed, we fear that, in not a few cases, in the desire to get two or three litters in the year from the same sow, the pigs are weaned at four to five weeks old, which we feel sure is unwise and far from true economy. It may seem reasonable that if the whole of the feed is fed direct to the pigs, instead of a portion of it to the sow, the pigs would receive greater benefit from it, but it should be remembered that the pigs at so tender an age are incapable of extracting as great an amount of nourishment from the food as can the sow, and in a form as suitable for the digestive organs of the little pigs, which are liable to be thrown out of health by partaking of strong, heating, or unprepared food, and may thus be rendered unthrifty for a considerable length of time if not quite knocked out of the race of life.

A series of eight experiments, carefully conducted at the Wisconsin Agricultural College, demonstrated the advisability of keeping the pigs on the sow as long as possible, consistent with the healthy and strong condition of the mother; and this, for many reasons, chief of which is that a sow and her pigs together will extract more nourishment from a given quantity of food than will the weaned pigs alone. The sows and pigs were separately weighed each week, any loss or gain of the sow was deducted from or added to the increased weight of the pigs. The pigs were allowed to remain on the sow for ten weeks, when a similar course of feeding was carried on with the pigs for a period of seven weeks. Without going into the figures closely, it will be sufficient to take the average quantity of meal and of skim milk required to produce 100 lbs. increase of live weight in the pigs when sucking the sow, and after being weaned. The sow and pigs consumed on an average 231 lbs. meal and 534 lbs. skim milk, while the weaned pigs alone disposed of 230 lbs. meal and 539 lbs. of skim milk in making a similar increase. The returns were thus practically identical. Experienced pig breeders, we are sure, will generally agree that pigs which have been allowed to remain with their

dams for eight or ten weeks, with sufficient exercise, suffer far less from the weaning than those taken from the sow at five or six weeks old, a custom which is far too common, under the mistaken notion that time is lost and extra expense incurred by leaving the pigs on the sow for a long time, whereas the check sustained by the too early weaned pigs far outweighs the cost of keeping the sow and pigs longer together.

**London (Eng.) Shire Horse Show.**

The last exhibition of this century of the Shire Horse Society has become a thing of the past. It has been a grand one in every way, the entries large, the quality good, the prices realized for animals sold record ones, and, best of all, the judging was well and expeditiously done. Very old hands were two of the judges, whilst the third was a promising colt who wisely lent himself to carrying out the views of the more experienced pair who, with him occasionally formed the pair of judges by whom each class is judged. One very curious circumstance in connection with the show was that both of last year's champions again occupied their positions of last year: thus Mr. Henderson's very fine four-year-old stallion, Buscot Harold, beat all comers in the decisive struggle for supremacy amongst the male exhibits, whilst Sir Blundell Maple's extraordinary mare, Dunsmore Gloaming, had little difficulty in making good her claim for championship amongst the female Shires of all ages. Here the comparison ends, since the stallion was bred by its owner, whereas the mare was bred by our Norfolk royal farmer, His Royal Highness the Prince of Wales, K. G., at one of whose biennial sales she was sold for what at that time was considered an extravagant price. Whilst in the possession of Mr. Muntz she was dubbed with the prefix Dunsmore, which is the one for which Mr. Muntz paid 5s. to the Shire Horse Society for the sole right of using. This sale of prefixes and affixes by the Society is an amusing example of the right claimed by a few of our stock-breeding societies in defiance of law and reason. As no one has taken the trouble to upset this resumption of a right not possessed by the few societies, the anomaly continues of exhibitors and others buying animals and then dubbing them with their respective prefixes or affixes, and misleading the public by taking to themselves the credit which of right belongs to the breeder of the animal alone.

Another notable fact in connection with the recent show was the collection, in the class for mares over four years old and above 16 hands or 64 inches high, of at least four Shire Horse Show champion mares, viz.: Dunsmore Gloaming, Aldenham Dame, Aurea, and Queen of the Shires, an array of quality, size and weight unprecedented. Then to this quartette must be added still another splendid specimen of the Shire Horse breed, i.e., the mare, Miss Constance, now also owned by Sir Blundell Maple. This mare was placed third in the class; following her as fourth-prize winner came Aurea, the dam of Buscot Harold, the champion stallion; whilst Queen of the Shires, a second mare, now the property of Mr. Fred Crisp, had to be content with the reserve and highly-commended ticket. I think that in all truth it may be asserted that never has been seen six grander specimens of the draft horse at one show than these five mares and one referred to later on. Any one of them could give stones and a beating for size, substance and quality combined to the best Clydesdale mare of to-day. It is this combination which is now of the greatest value on the horse markets of these islands. Parties interested may write, and truthfully so, of the wonderful quality of bone and well-set hind legs which the best Clydesdales possess, but these alone are useless in our large towns where heavy lorries laden with three and four tons have to be started and stayed by a pair of horses on the asphalt and wood pavements now common and bound to become general in our large commercial and shipping towns and cities.

Still another notable circumstance is the fact that the first-prize yearling stallion is sired by the same horse, Markeaton Royal Harold, as the champion stallion, and also bred by its owner, Mr. Henderson, M. P., one more of our many successful men of business who have gone in for the breeding and still more for the exhibition of pure-bred stock. This wonderful yearling colt was sold by its breeder and owner to Sir Blundell Maple, M. P., still another of our merchant princes, for the record-breaking price for yearlings of 1,500 guineas.

In connection with the reserve champion mare, Southgate Charm, one of the sextette and one of the grandest four-year-old mares ever seen, may be mentioned the fact that she was bred by her present owner, Mr. Fred Crisp, who sold her at one of his auction sales for some 350 guineas, and subsequently bought her back at another sale for 750 guineas, and now possesses one of the cheapest mares for the purpose of her breeder and present owner, who, like so many others of our notable stock exhibitors, owes his fortune to trade.

To attempt to give even an approximately full account of all the exhibits at the show, and their history and points of merit, would require pages of your valuable paper. I must therefore content myself with offering the above discursive remarks and trust that they will interest your readers.

SANDERS SPENCER.

Holywell Manor, St. Ives, Hunts, Eng.

Abortion Amongst Cows.

CAUSES.

Abortion amongst cows may be due to a variety of causes.

Abortion arising from an accident, or any other cause, often becomes contagious. Infectious abortion has long been known in this country.

Amongst the causes of abortion are the following, viz., impure water, unsound food, frosted food, offensive smells, disease, fright, over-exertion, accident, and the use of bulls that have come into contact with the disease.

REMEDIAL MEASURES.

- 1. Underground drains at farm steadings should be replaced by surface drains, and these should be kept clean.
2. Liquid manure should be kept some distance from wells and streams of water.
3. The floors of byres should be frequently flushed and kept clean, a little crude carbolic acid, say 2 ozs. to a bucketful, being added to the water.
4. All aborted cows, and those showing signs of abortion, should be immediately isolated, the after-birth (generally retained by aborted cows) to be removed and destroyed.
5. The calf-bed and passages of aborted cows should be disinfected; and for this purpose, and for a continuance of this operation—applied externally as well as internally to the genitals—I recommend the commercial chloride of zinc, 1 part in 1,000 parts of water. It is less irritating, less poisonous, and much cheaper than other antiseptics or germicides. It costs from 6d. to 8d. per lb.

W. WILLIAMS, Principal, New Veterinary College, Edinburgh. March, 1900.

The Hunter and Hackney Shows.

(BY OUR OWN CORRESPONDENT.)

The 16th annual show of Hunters, Thoroughbreds, etc., was held at Islington, London, on March 13 to 16 last. The first day was entirely devoted to the awarding of the 20 premiums offered through the Royal Commission on Horse Breeding, each to the value of \$750, the horses to which these premiums are awarded being Thoroughbreds and undertaking to serve, within certain specified areas in which they are allotted, not less than fifty "half-bred" mares at the fee of \$10, with a groom's fee of 60c. For these 20 premiums there were entered 115 Thoroughbred stallions, of which some 70 were selected by the judges and sent to the vets., who rejected nine of their number, or over 12 per cent. of the number selected. The limit of age in these classes is from 4 to 20 years of age. The attendance during this day was a very limited one, and there is no doubt but that considerable difference of opinion exists as to the utility of these premiums, which, in effect, make one particular breed of English horses bounty fed, and lays it open to question whether or no the actual worth to the country at large is returned by the produce got by such premium-winners. On the second day the show was very much more largely attended, His Royal Highness the Prince of Wales being present in the afternoon, and watched a parade of the Queen's premium winners and some other classes.

Presumably you have already received full reports of the Shire Horse Show and the Hackney Show, both of which preceded the foregoing Hunter Show, each occupying a full week; therefore, there is no need to recapitulate. However, one may say that during all its existence the Shire Horse Society never had a more successful meeting. The same remark applies with equal force to the Hackney Show. In connection with this latter show it is worthy of record that its entries are one and all subjected to a stringent veterinary examination before entering the judges' ring. This year's record is indeed a remarkable one as showing the general soundness of the breed and their almost entire freedom from hereditary disease, 406 being examined by the veterinary, with the result that 386 were passed sound and 20 rejected.

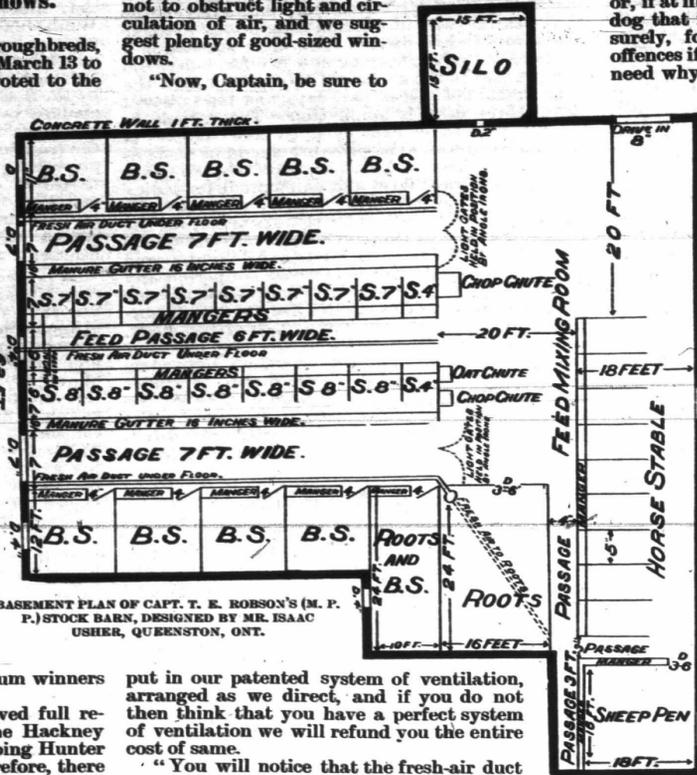
Condition in Horses and Cattle.

"Condition" in a horse has a very different meaning to the same expression as applied to cattle. In the case of the latter, the more heavily-fleshed the animal is the better is its "condition" reputed to be, whereas in the case of horses it is not great wealth of flesh, but great muscular development (so essential to the performance of the work expected of it) that constitutes the highest condition. A considerable wealth of flesh is of course necessary for animals which are used for draft purposes, because in such cases "weight" tells, but in the case of animals required for fast work it is sheer hard muscle rather than preponderance of flabby flesh that is specially required. Good condition can only be obtained by the use of proper foods, and for this purpose there is nothing better than a ration having for its basis good oats and sweet, well-saved hay. Oats should form the "foundation" of all rations for horses.

An Up-to-Date Stock Barn.

The accompanying illustration represents the basement plan of the stock barn to be constructed on the farm of Capt. T. E. Robson, M. P. P., this coming summer. The barn will be 100 feet long and 62 feet wide, inside measurement, besides the cement silo, and additional space for sheep pen and root house. The sheep pen will be used largely for ewes lambing in cold weather, and for a horse box at other seasons, as another building will be erected for sheep. The plan was designed by Messrs. Isaac Usher & Son, Queenston, Ont., who write Captain Robson as follows:

"Enclosed find pencil sketch of basement for your new stock barn. We have given our best efforts to make it convenient for feeding, cleaning, and thorough ventilation. You will notice that we have left single doors behind the cattle and box stalls, but should you think best to clean out your stables with sled, cart or wagon, make double instead of single doors. You will notice that we have put three lines of ten-inch tile as inlets for pure air. You will need five foul air shafts on each side and one at each end to carry foul air up through your barn. These shafts should be light boxes about 3x10 in., inside measurement. They should be carried a little higher than the hay or grain is mowed. You will also note that we have designed two light picket gates at the upper end of each cattle passage. One gate is held by angle iron, the opposite gate being held in position by any fastening to the other gate. By this means cattle cannot get through into feed rooms. You will see by plan that we have designed ten box stalls of somewhat different sizes. We think these very necessary in your business of breeding high-class cattle. We would suggest that the partitions in box stalls should not be built higher than the separation of cattle requires, so as not to obstruct light and circulation of air, and we suggest plenty of good-sized windows.
'Now, Captain, be sure to



BASEMENT PLAN OF CAPT. T. E. ROBSON'S (M. P. P.) STOCK BARN, DESIGNED BY MR. ISAAC USHER, QUEENSTON, ONT.

put in our patented system of ventilation, arranged as we direct, and if you do not then think that you have a perfect system of ventilation we will refund you the entire cost of same.

"You will notice that the fresh-air duct running in front of box stalls on east side of your stables stops at the corner of root cellar, and is there connected to a vertical tile which brings the surplus fresh air to top of root-cellar floor. By placing two 2x6-in. scantling (which are tied with 1x2 in. pieces 4 in. apart) immediately over and diagonally across root cellar the fresh air is distributed through roots, and the foul air is removed by shafts as above mentioned. We construct the root cellar by placing, on each side of passage shown on plan, upright scantling (4x4 in.) to ceiling and imbedded in the cement floor at bottom. Then nail 1x4-in. slats, 4 in.



CROSS SECTION OF BASEMENT SHOWING ARRANGEMENT OF FLOORS, GUTTERS, PASSAGES, ELEVATED FEED PASSAGE, FRESH-AIR DUCT, ETC.

apart, on inside of scantling. With fresh air under and circulation on two sides your roots will not decay. The door on north-west corner admits driving in and out of your stables, leaving ample room to turn and stow a number of vehicles without interfering with feed-mixing room or access to your silo. We think this is more advantageous than having your vehicles and horses in separate buildings, as you can hitch and unhitch in any kind of weather without exposure. You will notice we have designed a small portion of your horse stable and your sheep pen on the north-east corner and outside main building. This we deem

necessary, as you can arrange a much cooler atmosphere than in the main part of your basement stables. If these plans do not meet approval, kindly advise us so that we can make any change that you suggest. We are building basement stables on our own farm for the accommodation of 125 head of cattle on somewhat similar plans to the draft enclosed for you, and as we have developed a plan for supporting the upper floor, we would like to meet yourself or your contractor for the woodwork and discuss the most economical way to support the barn floor above and the enormous load that it will have to carry.
ISAAC USHER & SON, Queenston, Ont., Feb. 27, 1900."

A Plague of Dogs.

At the present time the farmers in North Yorkshire are suffering severely from a plague of dogs. Their sheep are being destroyed at such a rate that the matter is becoming most serious. This can well be believed when one of our contemporaries states that "fully one hundred" sheep have been lost in this way around Thirsk. There can be small wonder that the farmers of the district have determined to petition Parliament upon the subject. Their proposals include an increased dog tax and a new regulation requiring the owner of every dog to have his name and address engraved upon its collar. These suggestions are good, but it is doubtful if they are sufficient to meet the case. The name on the collar would be useful when the animal was caught, but would not assist in the catching. Probably the best plan would be to enable the magistrates or the county council to declare a district to be infested with dangerous dogs upon receiving proof of sheep having been worried. Then when such order is in force require every owner of a dog to keep it shut up or chained from sunset to sunrise, or, if at liberty, securely muzzled. The owner of a dog that is given to committing this crime would surely, for his own protection, prevent further offences if he knew of the matter—and there is no need why he should not know. If he lives in a pastoral district, and his dog continues to thrive, and refuses to take meals at home, he may safely assume that it is causing him to run the risk of having to pay for someone's sheep.—Mark Lane Express, London, Eng.

FARM.

The Sale of Prison-Made Twine.

I may say that Central Prison binder twine will be sold to farmers direct who apply for it, so long as any of the stock may remain unsold. It is expected that fully 1,000 tons of twine will be produced in time for the harvest. It is not possible at the present time to fix the price, as it will be based on the market price of hemp used, adding cost of manufacturing, and providing a margin of 14 cents per pound for profit. It will give you some idea of the trend of the market when it is stated that the price of Manila hemp has advanced from 33c. per lb. in July, 1897, to 14 1/2c. per lb. on 1st January, 1900. The general price of twine is also likely to be affected by the scarcity, owing to hemp not being obtainable for making it. The condition of the market affords a tempting opportunity for combinations and the exacting of famine prices. This is being duly guarded against, so far as the prison product can be made effective in regulating prices, but the quantity being limited, it is impossible to predict how far efforts being made will work successfully. Yours truly, JAMES NOXON, Inspector.

[EDITORIAL NOTE.—In another column Inspector Noxon, of Toronto, Ont., announces the plan whereby farmers may obtain twine for their own use from the Ontario Central Prison, for which prices are to be fixed on June 1st. Read carefully the advertisement. The Warden of Kingston Penitentiary, Mr. J. M. Platt, announces also, elsewhere in this issue, that the time for receiving orders for twine made at that institution has been extended to May 1st. Write Mr. Platt at once for further particulars. Owing to prospective high prices, binder twine is a live topic, and the question of its manufacture and sale by the Government is very fully discussed in a pamphlet lately issued by Hon. David Mills, Minister of Justice, Ottawa, and from whom, we presume, copies may be obtained.]

Have you provided a sufficient supply of well-cleaned seed grain, so as to be ready to rush the seeding when the time comes? Have the implements been repaired and sharpened, the harness mended, cleaned and oiled, and the horse collars made comfortable. Is the supply of summer firewood for the house cut, split and piled ready for use?

The Peace River Valley.

To the Editor FARMER'S ADVOCATE:

The great District of Athabasca lies north of Alberta and Saskatchewan, between latitudes 55° and 60° north and longitude 100° to 120° west. The area is about 280,000 square miles. It is not my purpose to enter into details concerning this great area, of a good deal of which there is not much known, except about its numerous lakes and watercourses, but to examine a little into its western portion, which comprises the Valley of the Peace River.

This great river, which takes its rise among the mountains of British Columbia, flowing eastward through the main chain of the Rockies, emerges in a broad and beautiful plateau, partly prairie, partly timber, and drained by unnumbered tributaries which flow through valleys of great beauty and fertility, from 100 to 400 feet below the general level of the country. The deepest valleys are near the mountains, and as they approach the main river they become much deeper, and the streams are therefore swift. This plateau is about 2,500 feet above sea level, both north and south of the river, at a distance, but about 2,000 feet near the river. As the valley of the river stretches away to the north-east, its elevation gradually becomes less until it reaches the vicinity of the Great Lakes of Athabasca and Great Slave Lake, where it is only from six to seven hundred feet above the sea. Very much might be said of this vast area, comprising about 100,000 square miles. The general reader, however, does not care too much for particulars, but this country has been heard of by the outside world; reports have gone abroad that the sunshines, the water runs, vegetation is abundant, animals roam over its surface, and that even mankind is found there. Eastern people, who are accustomed to heavy rains, deep snows, stormy weather, cold blustering days, with disagreeable east winds at all seasons, do not say very much, but when this northern country is mentioned, they just step up nearer the stove, shiver a little, and button another button or two. Westerners, whose minds are supposed to be somewhat enlarged, and whose thoughts travel on a larger plain, do not, of course, ascend to the shivering pinnacle; but when they see their own beautiful domain, it is hard for them to think that the Creator of all things did not exhaust His power when He made their land, and that even a possibility may exist wherein they have not received it all, but that a region large enough for an empire has been most beautifully and wondrously planned and laid quietly away out of reach until such time as its development might best serve the interests of mankind. That time is perhaps approaching, and people are beginning to enquire how it is that this region, so far away up among the parallels, can become the happy and prosperous home of millions of our race?

There are many things to be considered in this respect, and first is that of climate, for on this hang all the possibilities.

It is well understood that elevation has the most wonderful influence on the temperature of the atmosphere. At school we were taught that at the equator the altitude of perpetual snow and ice was about 16,000 feet above sea level, and that as the distance either north or south of the equator increased, the snow line descended to a lower altitude, until somewhere within the arctic it was down even to the sea level. By a close study of the map of North America we will learn that the table-lands east of the Rockies become gradually less as one approaches the north. The elevation in Mexico is nearly 10,000 feet, while in the north-western States it comes down to nearly half that; and at 49° north, where it comes under the smiling influences of our Dominion, it is in the neighborhood of 4,000 feet. It loses another thousand before it leaves Alberta, and by the time the 56° of north latitude is reached it is only about 2,000 feet. Now leaving the foothills and proceeding down our valley towards the north-east, it descends, as has been mentioned before, to less than 1,000 feet. So much for elevation. Now, 300 feet in altitude is reckoned to be equal to 1° of latitude, so the difference of 9,000 feet in altitude would be equal to 30° of latitude, other things being equal; but they are not, and I will endeavor to show how we have the advantage. The ranges of mountains south are over a wide area from the coast, with their heads covered over for thousands of feet with eternal snows; while between our valley and the mid influences of the Pacific the distance is not great, and the highest mountain peak scarcely exceeds 6,000 feet. The ranges are largely beneath the snow line and covered with timber and vegetation, instead of ice and snow. Again, what the Gulf Stream is to the Atlantic Ocean, so is the Japan Current to the Pacific; that great stream, hundreds of miles in width, flowing up from the warm waters of the south, laden with warmth and moisture, passes close on our shore and breathes constantly out upon us as it passes without having its temperature much lowered or its moisture all precipitated before it reaches the eastern plain, as is the case farther south, where the high mountains take up all the moisture from the Pacific breezes and leave the country at no great distance from the coast a desert waste. The Union Pacific Railway passes for about 1,500 miles across what is known as the American Desert, and its roadbed is for that distance at a higher elevation than our highest mountain peaks.

When we were little children we liked to get into the sunshine, because it was warmer. Sunshine and warmth are not far apart. We have in June

about 18 hours of sunshine, and at that time the sun never gets far below the horizon, so that light, which must accompany vegetation, is ours for 24 hours in the day. Such, in a general way, is our position. It may be seen from this that being even 1,000 miles nearer the north pole than the good people of southern Ontario does not necessarily imply that we are so very much more boreal in our surroundings, our feelings, or our lives.

It shows plainly also how one thing may be set over against another, and as a great American philosopher has put it, that there is nothing in this world without its compensation. E. J. LAWRENCE. Peace River Valley.

Experimental Union Field Tests for 1900.

The members of the Ontario Agricultural and Experimental Union are pleased to state that for 1900 they are again prepared to distribute into every township of Ontario material for experiments with fertilizers, fodder crops, roots, grains, grasses and clovers.

This system of co-operative experimental work in agriculture was started in 1886 with 60 plots, which were situated on 12 different farms in Ontario. Since that date, however, the work has increased from year to year, and in 1899 there were 12,035 plots, which were situated on 3,485 farms throughout Ontario.

LIST OF EXPERIMENTS FOR 1900.

1. Three varieties of oats.
  2. Three varieties of six-rowed barley.
  3. Two varieties of hulless barley.
  4. Three varieties of spring wheat.
  5. Three varieties of buckwheat.
  6. Three varieties of field peas.
  7. Two varieties of bug-proof field peas.
  8. Three varieties of Soy or Japanese beans.
  9. Three varieties of husking corn.
  10. Three varieties of mangolds.
  11. Two varieties of sugar beets for stock feeding.
  12. Three varieties of Swedish turnips.
  13. Two varieties of fall turnips.
  14. Three varieties of carrots.
  15. Three varieties of fodder or silage corn.
  16. Three varieties of millet.
  17. Three combinations of grain for fodder.
  18. Grass peas and two varieties of vetches.
  19. Dwarf Essex rape and two varieties of kale.
  20. Three varieties of clover.
  21. Sainfoin, Lucerne, and Mammoth Red clover.
  22. Five varieties of grasses.
  23. Three varieties of field beans.
  24. Three varieties of sweet corn.
  25. Four fertilizers and no fertilizer with corn.
  26. Four fertilizers and no fertilizer with mangolds.
  27. Sowing peas at four different dates to determine the injury done by the pea bug (*Bruchus pisi*).
  28. Planting potatoes the same day and five days after being cut.
  29. Planting cut potatoes which have and which have not been coated over with land plaster.
  30. Planting corn in rows and in squares.
- Material for either No. 25 experiment or No. 26 experiment will be sent by express, and for each of the others it will be forwarded by mail.
- Each person in Ontario who wishes to conduct an experiment, and is willing to use great care and accuracy in the work, and report the results of the test as soon as possible after harvest, should select the exact experiment desired and apply for the same at an early date. The material will be forwarded in the order in which the applications are received until the limited supply is exhausted. It might be well for each applicant to make a second choice, for fear the first could not be granted.
- C. A. ZAVITZ, Agricultural College.  
Guelph, Ont., March 19th, 1900.

The Country Schoolhouse.

BY MRS. EVERGREEN.  
The country schoolhouse and its surroundings ought to be one of the prettiest sites in all the country-side, when we consider its mission—the influence it has on the young. But how often it stands bleak and bare, without the least bit of nature's adornment about it. The school is the home of the children for a good part of their youthful days. Why not have it made beautiful with those things which are so cheaply and easily secured, giving the children the care of them, and thereby creating a love for the beautiful? I think one of the defects of our present-day system of education is its failure to keep the beautiful before and around the children. What a relief to the little ones it would be, once in a while, to turn away from dates, figures, boundaries, and all such, to take a lesson among the trees, grass and flowers growing around the schoolhouse, especially if they were of their own hand planting. The teacher, the trustees, the parents, should all combine to help, make some appropriation, lay out plans and arrangements, and take an interest in Arbor Day. In some places in the Old Country, prizes are given for the best pot of plants or bed of flowers. In Germany, many of the schools have gardens in connection, in which the pupils are given lessons in agriculture, horticulture, grafting, etc. In an agricultural country like ours, the children ought to be taught something of what will most likely be their calling in after-life. I have passed schoolhouses where no attempt appeared to be made to even look tidy; rubbish of all kinds lying around; not a tree, shrub or flower to be seen—nothing to cultivate in the child a love of either neatness or beauty.

The Sugar Beet Industry.

THE GROWING OF THE BEETS—THE MANUFACTURE OF SUGAR.

Mr. C. M. Taylor, York Co., Ont., asks us for information regarding the growing of sugar beets and the manufacturing of the sugar.

Sugar beets require good soil of a friable nature. The soil should be deep and with good drainage. Yard manure should be applied the previous season. The land should have been deeply plowed in the previous fall, and a subsoiling would help the roots to get hold. Prepare a mellow seed-bed before planting. The seed should be planted in May; from 10th to the 20th is recommended if the soil is in right condition to work. From twelve to fifteen pounds of seed per acre is usually sown. A much less amount is necessary, provided the soil is in warm, mellow and moist condition so that nearly all the seeds will germinate. The seed should be planted not deeper than half an inch, in rows not less than twenty inches apart nor more than twenty-four inches, in order that horse cultivation may be readily given. As soon as the rows can be followed, a hand cultivator or hand hoe should be used to loosen the earth near the plants and check any weeds that are appearing. Bunch the plants with a narrow hoe when they are from an inch to an inch and a half high, and thin them to one in a place when they are two to three inches high and having four leaves, leaving them about six inches apart. Frequent tillage (fairly deep) should be given throughout the growing season. The beets should be mature before being harvested, which is indicated by the outer leaves turning yellow and drying. Loosening the soil between the rows with a narrow plow will enable the beets to be pulled without bruising them. Cut off the tops squarely with the rough portion of the beets. The best size is from one to three pounds—beets of heavier weights are apt to be poor in sugar. They should be secured without frost, and may be stored in cellars or pits, like potatoes or other roots, or they may be taken direct to the sugar factory. Yields run from nine to eighteen tons per acre, but fifteen tons may be considered a satisfactory crop on suitable land, in a suitable season, with suitable treatment.

The varieties that have yielded most highly of beets rich in sugar and purity in the State of Michigan are: Improved Kleinwanzlebener, Hoerning Improved, Flotus Improved, and Government Kleinwanzlebener.

The factory that is required to work up the beets into sugar is the serious problem of the whole matter. A bulletin issued by the Michigan State Agricultural College states that the manufacturer, in order to succeed, must have the best machinery that the world can produce, the most labor-saving, the least expensive to operate, and the one that will extract the largest amount of sugar of the best commercial quality from the beets. He is in competition with the best machinery and highest skill of the race. A first-class modern sugar plant cannot be secured for less than \$300,000, add to that \$100,000 for buildings and working capital, and you have the lowest price for which a successful plant can be established. In addition to this, the factory requires a good supply of rich sugar beets, which must be certain year after year. It is estimated that a crop of 3,500 acres of beets will be required each year to properly stock a sugar factory. Other requirements of the factory are plenty of water (2,000,000 gallons per day), cheap fuel, plenty of limestone in the immediate vicinity of the factory, and, finally, good railroad facilities.

The conditions under which a beet-sugar factory would be successful can be better understood if a brief description is given of the process of extracting the sugar from the beets. The beets on being received at the factory are sampled, analyzed, and the tare or deduction for dirt determined. They are then floated in a flume to the washer, and after being thoroughly cleaned are sliced into thin triangular pieces known as cossetts. These are packed into a diffusion battery consisting of ten or fourteen cells, holding about two tons each. A continuous stream of hot water is so directed that the fresh water enters the cell where the cossetts are most nearly exhausted. When all the sugar has been extracted in this way, the cossetts are pressed and used as cattle food. The water extracts from the beets not only the sugar, but also a number of impurities, which may be gotten rid of before crystallizing out the sugar. The juice is first treated with two or three per cent. of slaked lime, and the excess of lime precipitated by passing in carbonic acid gas. After filtering under pressure, the juice is again treated with a smaller quantity of lime and finally with sulphurous acid gas to completely decolorize it. By evaporating off the water from the purified solution, sugar is obtained. This is a general description of the process, in which there are very many intricate details to contend with. For instance, the process of evaporation is a slow one, since a high temperature would burn the sugar. This is done in a series of three or four tanks, the steam of the one serving to boil the next. The final evaporation is done in a large vacuum pan holding some thirty-five tons, and when the crystals of sugar have become the proper size, the sugar is separated from the molasses by a centrifugal machine, and dried.

The price paid for beets varies with the quality, since it costs more to extract the sugar from poor beets than from rich ones, and the effort should be to produce quality rather than quantity. Two

things are taken into consideration—the total amount of sugar in the beets and the purity of the juice. Smooth beets of medium size, grown in a season of much sunshine, contain from ten to sixteen per cent. of sugar. Some of the factories in the Western States pay \$4.00 per ton for beets containing twelve to fourteen per cent. sugar, and purity not less than seventy-eight, while \$1.50 per ton is paid for beets containing 15.5 to 16.4 per cent. sugar. A reduction of fifty cents per ton is made for each per cent. of sugar below twelve, and a reduction of fifteen cents a ton for each degree of purity below seventy-eight. Beets containing below ten per cent. sugar and of less than seventy-three purity are not wanted at the factory.

#### A Trip Through Manitoba.

Having been honored, in company with Mrs. Yuill, with an invitation to attend meetings of the different Breeders' Associations held at Winnipeg in February, we accepted the invitation. When we arrived in the city, we found it greatly crowded, as all the different Breeders' Associations, such as horse, cattle, sheep and swine, poultry, and the Dairy Convention, also the Fraternal Associations (Freemasons, Oddfellows, Orangemen, Forresters, Royal Templars). The Lumbermen and Curlers' Bonspiel met in the city at the same time. All the railways running into Winnipeg sold one-fare tickets. Owing to the Manitoba Hotel being recently destroyed by fire, it was difficult to obtain accommodation, but, fortunately for us, Miss E. Cora Hind, Secretary of the Dairymen's Association, had previously obtained accommodation for us at Hotel Leland. Many had to get their meals at restaurants and hotels, and lodge over a mile from them, but the citizens proved equal to the occasion and threw open their houses for the accommodation of visitors. When the rush was over, they seemed to be all comfortably settled.

The breeders' meetings were all well attended and the business was all disposed of on Thursday night, with the exception of the poultry. We had our cramming machine with us, and the Association provided us with a dozen chickens which we fed three times a day all week. On Friday we killed, dressed and packed them ready for the British market.

The poultry industry has been very much neglected in this Province, therefore our illustrations proved very interesting. The hall was crowded every day all week. We were kept very busy feeding the chickens three times a day, at 10 a. m., 2 p. m. and at 8 p. m. We were also expected to address one or more of the breeders' meetings each day. At one of these meetings, H. McKeller, Esq., Superintendent of Farmers' Institutes, being present, thought we could do some good among the people of Manitoba, and asked us if we would attend meetings at Crystal City, Portage la Prairie, Neepawa, Brandon, and Emerson. Taking into consideration that the notice was so short, the meetings were well attended by appreciative audiences.

The subjects which were the most interesting were: Care and management of dairy cattle, Raising steers for beef, The bacon hog, Care of milk for cheese and butter making, Buttermaking in the home dairy, How to select the best-laying pullets, Feeding hens for egg production in winter, Fattening turkeys and chickens for the British Market, How to raise young turkeys.

We visited the Government Experimental Farm at Brandon, and through the kindness of the efficient Superintendent, Mr. S. A. Bedford, we were escorted through the buildings, where we found specimens of nearly all the different breeds of cattle we have in Ontario. The cattle representing the beef breeds were exceptionally good. At that station there is an experiment being conducted of feeding steers dehorned and those with the horns on. So far the result are in favor of those with the horns on. We visited a creamery at Brandon which is running all winter, and is equipped with all the modern appliances for making butter. At Emerson we saw where the Company of Gordon & Ironside, of Winnipeg, were feeding 500 steers for the British market. They were enclosed in a piece of bush on the bank of the Red River, with temporary sheds to go into at night. These sheds were built of poles and covered with straw. They were being fed all the corn meal they would eat without wasting any, which was 18 pounds per head per day, with all the good light-land prairie hay they could consume. They were a fine lot of steers. There were about 500 pigs in another inclosure, fed on ground corn, and water out of the river. They are also doing well.

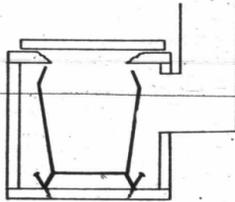
Our meetings were not so well attended as they would have been had the time for advertising been a little longer. In one case the Secretary was in the woods, and did not get the notice of the meeting until the previous evening. Some of the meetings were held in the evenings, as it was more convenient for railway accommodation, and were not so well attended as those held in the afternoon. At all our meetings we met people from Ontario whom we knew, and in every case those we met were well pleased with the country, and many would not return to live here under any consideration.

This has been a very fine winter in Manitoba; no blizzards, but the roads have been very bad, not enough snow for sleighing, and in some places the drifts are so deep it is almost impossible to get through with wheels. If no unforeseen event occurs to retard the progress, it is bound to be a great country after a few years. The Government of Manitoba recompenses their Institute workers very liberally, paying each speaker \$4 per day and all expenses.

JOSEPH YUILL, Lanark Co., Ont.

#### A Household Convenience.

I have a good thing to suggest to those who are willing, at very little trouble and expense, to lessen the discomforts of farm life. The fact that the water closet is out of doors, and at some distance from the house, constitutes a hardship throughout the winter that the kind farmer deprecates and yet does not know how to avoid. This hardship can be avoided very cheaply and in a perfect manner wherever there is a furnace under the house and a fire burning continuously night and day through the cold period of the year. Every one who has cleaned the furnace tubes knows how the air "sucks" into the opening used for cleaning. If a hole were cut in the furnace smoke pipe, just above the furnace, the air would rush into the pipe, just as the air rushes into the cleaning hole. Connect a 6-inch pipe to the smoke pipe, and continue this pipe down to the floor, and it will be found that the air is being drawn into the open end of this pipe. Let this pipe pass into a closed box. If this box is not air-tight, the air will be found rushing into it through every crevice and crack. The air passing into the box would be drawn up through the pipe into the smoke pipe. If there were anything in the box of a bad odor, such odors could not get out of the box, because the air is rushing into the box through every possible opening. The offensive odors would pass off with this air through the smoke pipe into the outer air above the house. I herewith show a sectional



Closet Attachment to Furnace.

view of the box, properly furnished and arranged for the purpose. The pipe passing out and up at the right-hand side connects with the smoke pipe. The whole top turns up on hinges like the lid of a chest. The opening in the top is closed with a cover, as shown. It is fastened at one edge with hinges, and can be turned up out of the way when required. When the receptacle is to be carried out, the top of the box is turned up and the cover of the receptacle put on. There is room to leave this cover inside of the box. Nails, considerably inclined, driven into the bottom, guide the receptacle to the exact place again. The box should be fairly tight, though not absolutely so, for some air should pass in to carry all offensive odors up the smoke pipe. Especially should there be some leakage around the small cover on top to allow air to carry away offensive odors from the top of the receptacle. In most furnace cellars room can be found for this arrangement, and any tinsmith can connect with furnace smoke pipe. I put one in at the beginning of the winter, and it is a great convenience and a perfect success. The difference between going into a warm cellar and going through the snow to a bitterly-cold building out of doors is very great indeed. It could be connected with a coal-stove smoke pipe, provided there were a convenient place to put the box. You need not have the slightest fear of anything offensive as long as there is a good draft up the smoke pipe with which it is connected. Of course, as soon as warm weather comes and fires are put out, the thing would not work, but then it would not be required. The box I made is 17x24 inches, and 13½ inches high, inside measurement. The bottom extends out in front 2 or 3 feet to form a little platform.

H. PETTIT.

Elgin Co., Ont.

#### Varieties to Grow in Western Ontario—Early Seeding Favored.

To the Editor FARMER'S ADVOCATE:

SIR,—There has been quite a number of new varieties of seed grain tried in our neighborhood, but the most of them prove dismal failures, and the balance, as a rule, no better than the old standard varieties.

**Oats.**—Joanette and Tartarian lead in the black varieties, and Siberian is probably our best white. Joanette stools very freely on our land (loam), consequently must be sown quite thinly.

**Barley.**—Mandscheuri and Mensury are the favorites; the former has given us some immense yields.

**Corn.**—This is one of our principal spring crops, and nearly every one has his favorite variety, and as there are such a large number, it is hard to tell which is the best. Personally, we prefer the White or Yellow dent. We seldom have less than 125 bushels per acre (ears), and any quantity of first-class fodder.

**Beans.**—The most widely-grown variety is the Pea bean. This suits the market best and produces the heaviest crop.

**Spring Wheat and Peas** are seldom grown, the latter on account of the bugs.

**Potatoes.**—Probably the Early Ohio is still our best early potatoe, and the White Elephant, which was our best late variety, has given place to such later introductions as the Empire State and Rural New Yorker No. 2.

**Seeding and Cultivation.**—As a rule early seeding produces the better crop, therefore we always endeavor to have our machinery in good repair, our seed grain cleaned, and clover seeds on hand, so that when the soil becomes sufficiently dry we can rush matters. As we believe in shallow cultivation

for spring grain, a fine seed-bed is rapidly produced with gang plow or disk harrow. The seed is sown with a grain drill, which distributes grass and clover seed also. This is immediately rolled if the weather is dry, as it leaves a level surface for the binder to work upon.

W. A. MCGEACHY,  
Kent Co., Ont.

#### The Handling of Wheat at Fort William.

To a wheat-grower of the western plains a trip through the large terminal elevators at Fort William is full of interest. The human mind is so constructed that it can readily picture the accomplishment of great things, but rarely does it take into account the contributing elaboration of details which has led up to the final climax or height of accomplishment in a given direction. For example, the settlers of Manitoba who came in the early '80's, if they had been told they would live to see the country exporting 30,000,000 bushels of wheat annually would have probably acquiesced, believing as all did that they had found a veritable "Land of Promise"; but if told that in order to the accomplishment of such an agricultural feat it was necessary to have 30,000 farmers bring 2,000,000 acres of virgin soil under cultivation, not to speak of the 3,500 miles of railway and the elevator system required to handle that amount of produce, and the flourishing towns and cities and the population of a quarter of a million supported by the industry, it is probable the most sanguine would have demurred. So, when the western wheat-grower is told that the Fort William elevators have appliance for unloading 400 cars of wheat daily and can load into boats a million and a half bushels of grain in a day, he is doubtless struck with the idea that it is pretty big business, but he doesn't recognize the stages by which this business has grown nor the aggregation of ideas, plans and experiments gathered from the four corners of the earth required to bring forth such results.

A representative of the FARMER'S ADVOCATE was recently given an opportunity of carefully looking into the method of handling grain in the four large C. P. R. elevators at Fort William and of the cleaning, drying and scouring in King's elevator at Port Arthur.

#### CAPACITY.

The storage capacity of the elevators is as follows: Elevator A—1,100,000 bushels; size 308x90 feet. Elevator B—1,100,000 bushels; size 308x90 feet. Elevator C—1,500,000 bushels; size 308x90 feet. Elevator D—1,500,000 bushels; steel, with tank bins. Or a total storage capacity of over 5,000,000 bushels.

#### INSPECTING.

All wheat is re-inspected here upon arrival, after which it is run to the A, B or D elevators, C not being a receiving elevator, but only for storage as an annex to A. At A and B 9 cars can be unloaded at each elevator at one time, and at D 4 cars. At the three elevators 400 cars can be unloaded in the day. A, B and C elevators are immense wooden structures, with over 200 bins each, mostly holding 5,000 bushels, though each elevator has a few 10,000-bushel bins. For each car being unloaded, there is an elevator, cleaner and scales. If a car of wheat requires cleaning, it is done on the spot and never mixed until cleaned. The shipping out is done on the opposite side of the elevator, and has a full complement of shipping scales and bins and special weighman. Each of the three wooden elevators can load a vessel carrying a quarter of a million bushels in five hours.

But it is in looking over elevator D that one is impressed with the idea that here are appliances and system hard to improve upon. This is a steel structure throughout, frame of steel, walls of steel, floor of steel, and cribbing of steel. Indeed, you wouldn't find enough wood in the building to make a decent kitchen fire. The working portion is 68x90 feet and 150 feet high, which has four receiving and two shipping compartments. The storage portion consists of circular steel tanks 65 feet deep, with cone tops and sitting flat on the ground. Eight of these tanks are 65 feet in diameter and 16 are 35 feet. The larger ones hold 125,000 bushels each and the smaller 35,000. These tanks are arranged in two double rows, between which, above and below, runs the large conveyor belts to carry the grain from the working portion to any tank in which it is to be stored and dropping into the top, or for emptying the tanks at the bottom, conveying it back to the working portion and shipping scales, from which it may be carried nearly 1,000 feet by conveyor belt and delivered into the vessel at the rate of 15,000 bushels per hour.

The screenings aggregate in the neighborhood of 700 tons per year, and are this year sold to a farmer near by at \$4.50 per ton, who is feeding them to sheep with good results.

The University of Edinburgh has worthily bestowed the degree of LL. D. upon Miss E. A. Ormerod, whose contributions on Agricultural Entomology have been exceedingly helpful to the farmers of Great Britain and Ireland, and to a very considerable degree to those of America as well. Miss Ormerod has devoted the best years of her life to a study of the life-history and methods of prevention of the insect pests of the farm, and her researches in this direction have enabled agriculturists in many countries to save money in checking the ravages of such pests.

**"Successful Farming."**

The new book on "Successful Farming," or farming for profit, written by Mr. William Rennie, Sr., late Superintendent of the Ontario Agricultural College Farm at Guelph, and now on sale, is the plain and pointed teaching of a successful practical farmer, who has demonstrated by actual work in the sight of the public the undoubted success of the methods of farming and feeding which he recommends. Mr. Rennie was many years ago awarded the first-prize silver medal offered by the Ontario Agriculture and Arts Association for the cleanest and best-managed farm, and the many thousands of farmers who have visited the College farm at Guelph in the last ten years can testify to the thoroughness of cultivation and resultant good crops exemplified under his management there. The term scientific farming has been long looked upon by the average farmer as impossible, or at least impracticable, farming; but Mr. Rennie's example and teaching has shown that it simply means intelligent, sensible and successful farming, as his success has been due to the use of no expensive special fertilizers or feeds, or methods of management, but to such as are easily within the reach of the general farmer. If the man and the book had taught nothing more than the paramount value of clover as a factor in supplying humus or vegetable matter in the soil and maintaining fertility, together with the wisdom of surface manuring and thorough tillage for increasing productiveness of the soil, the destruction of weeds, and the conservation of soil moisture, they had done magnificent service to the farmers of Canada; but, in addition to this, the book treats helpfully of many other features of farm work, such as rotation of crops, under-draining, fencing, economic feeding of stock; root, corn, and rape culture; breeds of stock and farm bookkeeping, making in all a valuable book of 300 pages, profusely illustrated, well printed and bound, and conveniently classified. As a Canadian product, and the product of a man known to be reliable and practical, "Successful Farming" may well find a place in the library of every farmer disposed to be progressive.

**Cement Walls.**

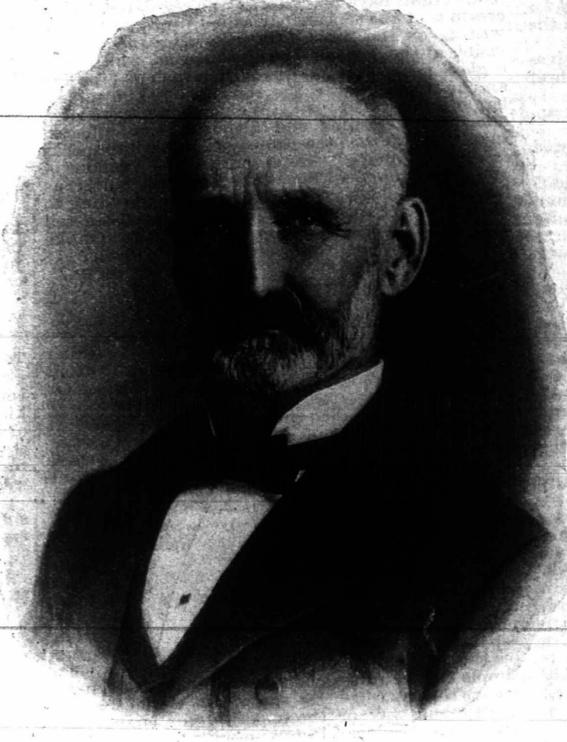
To the Editor FARMER'S ADVOCATE:  
I notice in your issue of Feb. 1st several articles on concrete work, and I would like to say a few words along that line. Concrete work has passed the experimental stage and has become one of the leading materials for building purposes, especially among the farmers of Ontario, and I believe if the farmers knew more about concrete for building barn basements, it would be more extensively used; for a wall built with concrete is more durable, cheaper and stronger than either brick or stone. Let me say, I know whereof I speak, for I am a practical mason and know the cost of a wall built of stone, brick or concrete. I will just refer to one building I superintended in 1898—the evaporator of J. W. VanDyke, Grimsby, Ont.—and shall give you a description of same. The size of the building is 45x160x24 feet to plate, with gables 12 feet high, making in all 36 feet high from foundation to top of gables. The first story is 13 ft. high and 12 in. thick; the second, 8 ft. high and 10 in. thick, gables, 8 in. thick; and every 14 ft. there are buttresses 1x2 ft. for the trusses to lie on. The first-story walls support the second-story walls and iron roof, and the second floor and machinery and fruit is supported by trusses. There is not a post or pillar in the first story; it is all in one room, 43x158 ft., inside measurement. The first floor is of Thorold cement concrete, and is used in the fall for evaporating purposes, and in the winter for a hockey or curling rink. Now, sir, I think that if a concrete wall of the thickness and height I have stated can support such tremendous weight, it is positive proof of its staying qualities. Now, as to the cost of the building, Mr. VanDyke states it cost him from \$1,000 to \$1,200 less than brick or stone, according to the estimates he received for the work. NORVAL B. HAGAR, Welland Co., Ont.

**Good Varieties of Grain.**

SIR.—I will describe some good new varieties of grain I have been growing for the last few years. I purchased seed of Mandscheuri barley from the O. A. C., Guelph, four years ago. It is taking the place of other varieties formerly grown here. It is a six-rowed variety, growing longer heads and longer and stiffer straw than the common variety. The grain is about the same weight per bushel. I have been growing Siberian oats for several years. They are white, of good weight, standing up well, and producing straw of good quality. I have grown the Liberty oat, also, for three years. It has succeeded very well here. It produces larger grain of a more even size, having fewer small grains than most other varieties, sometimes producing three grains in one chaff. The straw is somewhat coarser than the Siberian, and grows very even in height, stands up well and keeps juicy until ready to cut, and is very free from rust. It is a white, branching variety. R. B. BROCK, Norfolk Co., Ont.

**Growing Artichokes.**

To the Editor FARMER'S ADVOCATE:  
SIR.—Our plan of growing artichokes is very simple. We follow the same method with artichokes as we do with potatoes. Plant on a low but well-drained place, from the middle to the end of May, after working the land to a fine mellow texture. We prefer planting in hills 3 feet each way; and keep the soil constantly stirred throughout the summer, or until the stalks get too high for the horse. We have planted in the fall by manuring a sod and turning them under every third furrow; but they did not prove as satisfactory as the spring planting, although I do not see but the sod method would give good results if the land was comparatively free from weeds. We have never fed off the stalks when green, as I have heard of some doing, although one of our neighbors, being short of grain feed, fed them to the cows during the summer with good results. However, I think the yield of tubers would be materially lessened. When we wish to harvest them, we first let the cattle in, and they eat off the leaves; and then let the hogs have the run of the field or paddock along with their clover pasture. They will harvest them very cheaply and to our satisfaction, as well as apparently to their own. When the artichokes are all rooted out, or at any rate before the frost comes, we turn everything out and work the land down level and leave it for the spring, when, if we still want the same crop, we let it grow, as there are enough left to re-seed. If we want a grain crop we proceed as with any other land. At present I cannot tell how much pork an acre



MR. WM. RENNIE, SR.  
Late Superintendent of the Ontario Agricultural College Farm.  
Author of "Successful Farming."

of artichokes will produce, but two years ago we harvested a plot that yielded at the rate of 1,500 bushels per acre. Hogs are very fond of them, and do well; and as the hog does considerable of the cultivating and all the harvesting, especially where a permanent paddock is kept, it proves to be a very cheap feed. We have the "New White" variety, procured from Rennie's. F. C. ELFORD, Huron Co., Ont.

**New "Ligowo" Oats.**

To the Editor FARMER'S ADVOCATE:  
Not having noticed anything on Improved Ligowo oats in your paper, I concluded that little or nothing was known about them by the majority of farmers. I have grown them for a couple of years, so can give you a little information as to their qualities. I first procured the seed from the Experimental Farm in 1898, and sowed it on heavy clay loam. They yielded at the rate of eighty-two bushels per acre. Last year being a poor year, they did not yield so heavily. I may say that the Improved Ligowo oats are the heaviest cropper we have ever grown, and also the heaviest in weight. I have them that weigh thirty-nine pounds per bushel. The oats are very large and long, the straw is coarse, long, and free from rust. They are also a very early oat. If you think this would be of any value to the readers of your paper, you may publish it. Wishing success to you and paper, Haldimand, Co. GEO. GOWN.

[ED. NOTE.—This variety of oats is now advertised in the FARMER'S ADVOCATE by the Steeles, Briggs Seed Co., Toronto. Send for their catalogue.]

**Seeding Notes from Middlesex Co., Ont.**

To the Editor FARMER'S ADVOCATE:  
Peas suffer much from the bug or weevil, and yet they are very generally grown. They succeed best on spring-plowed sod, harrowed well and sown with the drill. The Golden Vine is still grown. The Mummy holds its own, and yields well. The coarseness of its straw tells against it somewhat. The Prussian Blue has not proved as good as was expected, from reports; goes too much to straw on rich land. The Canadian Beauty is a new pea that, so far, has done well. It withstands drought well in the ripening stage. In Barley the Mandscheuri leads—strong grower, good yielder. Barley does best on land fall-plowed, surface-worked in spring, and that is fine and mellow. Many varieties of Oats have been tried, and most have been discarded. Farmers generally have settled down to two kinds—Black Tartarian (not too long from imported seed) for black oats, and American Banner for white. Of the two, the Banner is the most generally grown. They both have strong, stiff straw, are good yielders, and are good to seed down with. Some varieties, such as Joannette and Siberian, stool out so much that young grass is choked out. THOS. BAY, Middlesex Co., Ont.

**Varieties of Grain in Wabigoon.**

To the Editor FARMER'S ADVOCATE:  
As requested in yours of 16th inst., enclosed please find a few notes on newer varieties. Soil in this district mostly clay. On the higher parts most of the humus has been burnt off. Oats.—Banner and Rosedale have given good returns. Am sowing Siberian this year, owing to its giving greater length of straw. Improved Ligowo yielded on a small patch at rate of 64 bushels per acre. They weighed, as taken from thresher, 42 lbs. per bushel. The Banner went 36 lbs. per bushel. Barley.—Of the varieties not commonly grown. The Success (beardless) yielded 23 bushels from one bushel sown. Black barley, too short, and it was not sown too thick, as, according to Mr. Wood, many people make a mistake. Spring Wheat.—Manitoba Red Fyfe and Goose wheat. Yield 27 to 30 bushels per acre. Grain large, but not so hard or flinty as that grown in Manitoba. A. E. ANNIS, Wabigoon District, Ont.

**Township Fairs.**

This is a subject that was very thoroughly discussed at the meeting of the Fair Association in Toronto, in February last, with the general conclusion that it was a matter which would in time right itself. The old law of "the survival of the fittest" would seem to apply in this case. I am one who believes that, where practicable, township fairs will better serve the object for which they are maintained, by grouping into one district fair, a far greater exhibit may be seen, and more enjoyment, with less loss of time and expense. The question of time is of more importance to the farmer (especially in the fall of the year as a rule farmers are short-handed) than perhaps anything else. Where combination is practicable, I would say by all means combine. As by running township fairs within easy distance of each other, they, to a considerable extent, injure each other. And the prizes, as a rule, are not sufficient to induce the public to patronize both; but where communities are such that the district fair is not practicable, by all means encourage the township fair.

In cases of live stock, I would favor making it open to as large an area as possible, as it is only by comparison that we improve. Regarding speeding in the ring, it seems almost impossible to have a proper test of the qualities of a real driving horse without it, as speed and endurance are the first essentials in a driving horse. And even with all the progress we are making in the line of speed, the poor horse is even becoming too slow for this moving time; and as a matter of attraction, a good test of speed will give more real enjoyment than many of the cheap mountebanks that so often perform at the fall fairs.

The general essentials in accomplishing the best results of the fall fair are: 1st. A sufficiently large area to draw from in order to insure a full exhibit. 2nd. A Board of Directors who are men of experience and enterprise, and who are willing to devote the time necessary to do the work allotted to them. A liberal prize list, so revised from year to year as to encourage what is worth encouraging, and by dropping all such classes as are generally taken by one individual. With these three essentials, it only remains with the clerk of the weather to insure the success of the fall fair. JOHN BURNS, Sec. Ontario and Durham Ex. Ass'n, Whitby, Ont.

To a considerable extent the rearing and feeding of live stock on the farm is necessary to fertility.

## DAIRY.

## Butter--From the Stable to the Table.

ARTICLE II.

## THE DAIRY COW AND HER FEED.

The dairy cow is not an animal in her natural, normal condition, but one which by continuous selection, breeding and care, has been developed from an ordinary mammal into what might be called a living machine for converting coarse food into milk.

It is the habit in mammals, when their young have reached a certain maturity, for the mammary glands to cease secreting milk, but man has so developed this particular function in cows as to make the lactation period almost continuous. This fact gives us an animal whose constitution has been weakened and its nervous system greatly intensified, requiring the utmost care and intelligence in handling to give a profitable return.

There are a number of dairy breeds, each with its peculiarities and special recommendation. The *Jersey* and *Guernsey*, which may be classed together, are pre-eminently noted for giving rich, yellow milk, containing the largest fat globules. They are large and economical butter producers, and consequently are the buttermakers' cows.

The *Holstein* is the largest of the dairy breeds, consuming quantities of food and giving in return a good flow of milk of average quality. She might be termed the milk-seller's cow.

The *Ayrshire* is of medium size, giving a fair quality and quantity of milk having the smallest fat globules, which makes it difficult to cream. For this reason the milk is particularly adapted for cheesemaking, and the *Ayrshire* is known as the cow for the cheesemaker.

Some *Shorthorns* have distinguished themselves as milkers, but as a class they run more to the beef type.

A general description of the dairy cow is applicable to any of the dairy breeds.

In form she should be wedge-shaped, as viewed from the front, top and back.

Her constitution is indicated by width of chest, giving plenty of room for heart and lung action, also by a mellow, elastic skin, and fine, soft, oily hair.

A large barrel shows capacity for digesting quantities of food.

Her nerve power, so essential in milk secretion, is shown by her full, bright, intelligent eye, her broad forehead and her prominent, open-jointed spinal column.

But the main feature of the dairy cow is her ability to secrete milk. For this she must have a capacious udder, with large teats evenly placed. The veins on the udder should be numerous and prominent. The milk veins should be large, tortuous, and extending well forward before entering the abdomen.

The general appearance should be decidedly feminine, and her disposition gentle, but lively.

While much stress may be laid on the form of a cow, still the only true test of her value is in her ability to produce butter-fat. This can only be ascertained by weighing and testing her milk. Scales and a Babcock tester are indispensable in building up a paying dairy herd. Have a standard, and, after a fair trial, discard every cow which does not come up to it. Demand that each cow give you 6,000 pounds of 3.6 per cent. milk, or if the pounds be fewer the per cent. must be correspondingly higher. This is not making too high a demand when records show that some *Holsteins* have given as much as 30,000 pounds of milk in one year, and a noted *Jersey*, *Signal's Lilly Flagg*, 1,047 pounds of butter in a year.

Perhaps I might just explain what 3.6 per cent. milk means. A fair sample of the milk is taken and tested, and shows there is 3.6 per cent. fat in it, meaning that in every hundred pounds of that milk there would be three and six-tenths pounds of pure butter-fat, which would make four and a quarter pounds of butter.

It was impossible for the Israelites to make bricks without straw, so it is just as impossible for a cow to make milk without a liberal supply of food and water. Depend upon it, she is going to look after herself first, and if you only give her food enough to maintain the heat and wear and tear of her body, you need not look for large returns in the milk pail. It is the poorest of economy to stint a milking cow in her food.

No question is receiving so much attention in agricultural journals as balanced rations, and feeding has now become a science.

As grass is the ideal food of the cow, we should endeavor to supply succulence to the winter ration to approach as near as possible summer conditions. Silage has filled the long-felt want in this respect. No cheaper, better bulky food can be provided. It increases the flow of milk, and makes the cream easier to churn.

35 lbs. of good silage,  
10 lbs. cut clover hay,  
4 lbs. bran,  
2 lbs. chopped oats,  
2 lbs. chopped peas—

all mixed together and given in two feeds (night and morning), with fifteen or twenty pounds of mangels fed at noon, or if you have not the mangels give a little good oat straw or hay. This makes a ration on which cows should do well. It is necessary to occasionally make a change in the ration, as it gives the cow more relish for her food. Appetites

vary in cows the same as in human beings; some want more, others less. Some feeders recommend giving what will be eaten up clean in two hours.

A word with regard to the water. I fear many think so long as the water is wet it is good enough for the cattle. It is a sad mistake. Impure water is not only bad for the cows, but it is a means of spreading disease, and many serious outbreaks of diphtheria, typhoid fever, etc., have been traced through the milk to the water the cows have had access to. See that it is pure, then give her a liberal supply of it, for remember over 87 per cent of her milk is composed of water.

Of all the creatures the farm can boast—  
And in my time I've seen a host—  
The most profitable one that I know now  
Is a No. 1 good dairy cow.

LAURA ROSE.

O. A. C. Dairy School, Guelph.

## Thickness of Cream?

To the Editor FARMER'S ADVOCATE:

SIR,—In your issue of February, Mr. Stonehouse, in an article on buttermaking, says: "Experience, coupled with good dairy literature, taught us to thicken our cream until one gallon would churn 5 to 5½ lbs. butter." I can't help thinking there is some mistake in this statement, and would be much obliged if you can inform a green hand at the dairying business if it is possible to thicken the cream to that extent, and, if so, can it be done without losing a considerable quantity in the skim milk? We have been using a separator for 2 months with satisfaction, and in compliance with instructions have not altered the regulator, as the cream is of the consistency called for by experts in writing on the subject. Furthermore, no milk is visible at the bottom of our cream cans, which have a glass, permitting one to notice such if present; and no cream rises to the top of our skim milk if left over night in pail. We have no trouble in churning or ripening, and the butter is not affected in quality by the presence of either "white specks or curdlike lumps." However, it takes 4 gallons of our cream to make 7 lbs. butter; and the butter, as far as I can judge, is in quality quite according to the book. If you, or the separator men, can tell me how to fix that amount of cream so as to make 20 lbs. butter from it, you will greatly oblige,  
South Cypress, Man.

MR. STONEHOUSE'S REPLY.

To the Editor FARMER'S ADVOCATE:

SIR,—Your communication of the 19th, regarding "Greenhorn's" trouble with cream, received. From this gentleman's statement I infer, of course, that he is using a separator, and, I think further, that it must be what is called the Hydro-Lactic separator, as I cannot conceive of any regular machine separator making such thin cream. If such is the case, then I can only say I am sorry any intelligent farmer should be caught by such cheap, clap-net, Yankee delusions, as these things have been fully exposed by all leading farm and dairy journals, and all the experimental stations both here and in the U. S. But if, on the other hand, your correspondent has a regular separator, then he either does not understand his machine and how to operate it, or else he has not an up-to-date utensil, and at the present time you will find "back numbers" even in separators. This regulating the thickness of cream, or the percentage of butter-fat in it, is a very simple matter in a good machine; it just simply means that by turning a screw—the cream screw—a little one way or the opposite, you change the cream outlet so near the skim-milk line that some milk will be delivered along with the cream; or you can change the outlet to such a position that only the pure cream will be delivered. This should not affect the clean skimming of the machine unless the cream gets above 40%, which is not advisable anyway, as such cream is troublesome in churning unless the buttermaker has had experience in handling such cream. We just gradually worked up to it, and have churned by actual weight 30 lbs. from 5 gals. cream, but five pounds to a gallon usually gives better results in skimming as well as churning. The advantage of thick cream is that it saves so much churning, as it is no more trouble—as far as washing utensils go—to churn 50 lbs. than 10 lbs., and cream without milk in it will churn at a lower temperature, which in warm weather gives a firmer butter; besides, we always found it ripened better too, doing away with those white specks or curdlike substance which so often troubled us when cream was allowed to ripen thoroughly; i. e., if thin with milk to start on.

I can assure "Greenhorn" that what he refers to can be done, and to his advantage, too; and if his machine will not do it, just tell the agent you do not want it any longer, as there are some that will, and in the simplest way imaginable, while others are, I know, just as difficult and complex to adjust. But, by all means get your cream thick enough to churn out at least 3½ lbs. to 4 lbs. per gallon.  
York Co., Ont.

M. STONEHOUSE.

## Beet Sugar Machinery Duty Free.

Among the announcements of Hon. Mr. Fielding, Finance Minister, in his recent budget speech at Ottawa, was one to the effect that to encourage the beet sugar industry, machinery (not manufactured in Canada) for factories will be admitted free of duty.

## Remedies for Kicking Cow.

To the Editor FARMER'S ADVOCATE:

SIR,—I see by Feb. 15th *ADVOCATE* that you want a remedy for a kicking cow. I will give you a contrivance for a kicking cow, which appeared in the *ADVOCATE* in 1897, from W. W. Bruce County: Place a ring on a hame strap and buckle it around her foot; fasten a large ring to the wall behind the cow; tie a rope line to the ring on her foot, pass it through the ring in the wall, and then let her kick until she gets tired and stops, then let her foot down. If she kicks again, you pull the rope. Don't kick her (she will do all the kicking that is needed), but pet her, and after two or three days she will give it up. She can't hurt herself.  
P. R. WATSON.

Bruce Co., Ont.

To the Editor FARMER'S ADVOCATE:

SIR,—I see in a late issue a request is made by a subscriber for a remedy for a kicking cow. We have at different times had some very bad kickers, but the following device has in every case effected a complete cure: Tie one end of a rope around hind leg, just below hock joint, with a slip-knot, draw tight, and bring her foot backward until she can only bear a little weight on her toes, then draw other end of rope tight around some object behind cow. This effectually prevents her getting her foot forward, and therefore from striking your pail. After a few attempts to kick, she will soon get tired and become quiet. This is a woman's device, but is well worth a trial.  
A FARMER'S WIFE.

To the Editor FARMER'S ADVOCATE:

I appreciate your paper very much, as each number brings me so much useful information just at a time when I so much need it, and I think that no farmer who consults his own best interests can afford to be without such a useful paper.

I noticed in your issue of Feb. 15th a subscriber inquiring for a remedy for a kicking cow, and here cheerfully give him my plan: If the cow is nervous, treat her gently, don't scold or abuse her, but rather pet and coax her. If she still will persist in kicking, take a rope, or strap, which is better, and pass it around her body in front of her udder and just back of her hips. Draw it up tight, and you can milk her in safety. I have tried this plan on several heifers which were bad kickers, and it worked successfully.  
W. C. HULL.

Middlesex Co., Ont.

To the Editor FARMER'S ADVOCATE:

SIR,—I see a subscriber to your paper wants a remedy for a kicking cow. I may say I had a bad kicker that our people dare not pass within reach of her. The only way I could milk her was to place a chain round her body and fasten her front foot up to it by means of a hame strap. Fastened in this way, she could not kick, nor hurt herself. I might also inform you that I cured a cow of ringworm with Little's Phenyle, which I also found useful for sore teats or sores of any kind.  
W. E. MACKEAN.

## Prevention and Cure of Milk Fever.

We prepare cows against milk fever by taking all roughness away from them for a week or ten days before cows are due to calve; we feed nothing but hot bran mash twice daily and about two quarts to a feed only, the third feed we give two quarts of soaked shelled oats, a few turnips and red or sugar beets with the bran mash; we give salts twice before calving, from ½ of a pound to 1½ pounds, according to size of cow and condition of her bowels; to the salts we add 1 ounce of ground ginger, 1 ounce of jalap and ½ pint of sweet molasses (homemade preferred). If we catch cow laboring or soon after calving we give from a pint to a quart of either sweet oil or raw linseed oil, and add from one to two tablespoonfuls of turpentine; we put enough warm blankets on cow to keep her perfectly comfortable, sometimes as many as three wool blankets and pin them up close so no air strikes cow; we usually put a small Canton flannel next to her, one that does not come over her tail, then we can pin a piece of an old clean rag of any kind on to the end of that to hang over her tail so as not to soil the large blankets in pinning them around her, and when those rags become soiled we remove them, and put on another; we invariably sponge cow off after cleaning or right after calving, the tail, the vulva and her quarters, with a solution of 4 grains of bichloride of mercury to one quart of warm water, and sometimes, if afraid of fever, we flush out the womb with same solution or a little weaker, say 2½ or 3 grains to the quart of water, by using a clean rubber syringe; the very first symptoms we notice, say if the cow begins to tramp about with her hind legs and becomes uneasy, nose dry and ears cold, we give from one-half to a pint of No. 1 whiskey and two ounces of aromatic spirits of ammonia and give the cow a good hard rubbing every hour. Bath her udder with warm water, rub it well and strip about one-half the milk out, never milk a cow clean for four or five days, but milk often; if the cow does not revive in a couple of hours, we give ½ pint of whiskey, 30 grains of quinine, 1 grain of nux vomica, mixed with 1 pint of hot tea made of camomile flowers, saffron and mace (or powdered nutmeg) every four hours, as hot as possible for cow to take, and as the cow improves we give the doses farther apart, but never forget

the udder and the hand rubbing of udder, legs and body; if legs get cold rub them well with alcohol and bandage them light. If a cow gets down we never let her lie flat, but prop her up and hold her up with bales of straw or hay; if bowels do not move readily, we give 1 pint of sweet oil or raw linseed oil with 1 tablespoonful of turpentine every 8 hours in between the other doses, and we give injections of hot water, castile soap and glycerine every hour or two. If cow cannot make water, which occurs very often, we take the water from them, or put 1/2 ounce of spirits of nitre in each dose of medicine and tea we give her. This will cure any cow of milk fever, unless cow gets down bad and gets to crowling and twitching her head, neck and muscles. In that case I give 2 ounces of chloral hydrate and 1 ounce of bromide of potash, dissolved in 1 pint of boiling water with 1/2 pint of molasses (sweet, homemade preferred), divided in two doses, two hours apart. Never give more than that under any circumstances. Then go on again with the other medicine, adding 1 to 2 ounces of aromatic spirits of ammonia if cow becomes stupid. The main thing is to keep cow extra well bedded and well blanketed and give lots of hand rubbing over the spinal cord and around neck. Sometimes, in extreme cases, we put mustard plaster over loins.

**M. HILGERT.**  
 [NOTE.—Mr. Hilgert has a valuable herd of high-producing Jersey cows, of which for years he lost numbers from among them annually with milk fever, but since he has adopted the preventive treatment above described, the cases of milk fever in his herd are by far less frequent, and of the cases that do occur he claims, by his curative treatment, to save about four out of five animals attacked.—  
 ED. FARMER'S ADVOCATE.]

### GARDEN AND ORCHARD.

#### Nova Scotia Fruit Growers' Meeting.

To the Editor FARMER'S ADVOCATE:  
 Through the kind invitation of the officers of the Nova Scotia Fruit Growers' Association, I had the pleasure of attending their annual meeting held at Wolfville on January the 29th, 30th and 31st. I thought a few lines might be of interest to some of your many readers. The spacious College Hall was used for the occasion and was well filled with an enthusiastic and practical body of fruit-growers. The President, Mr. Bigelow, delivered the annual address in his usual happy and forcible manner, foreshadowing many subjects that would require their careful consideration. First it was his happy privilege to congratulate the fruit-growers of the Province on their successful season's operation, the freedom from insect pests and fungous diseases; that the apple crop would exceed four hundred thousand barrels, all of which had been disposed of to good advantage, many orchards realizing twenty-five per cent. on a valuation of one thousand dollars per acre; the plum crop, some sixty thousand ten-pound baskets; one thousand barrels of cranberries; pears and other fruits a fair yield and satisfactory returns. He drew attention to the Act which comes in force this year, defining the size of the apple barrel, as well as the proposed inspection Act defining the size and freedom from blemishes that would constitute a first-class barrel of apples. The expenditure on the School of Horticulture had been well and wisely expended, and the question of freight rates and badly-ventilated compartments on steamships. This subject appeared to me quite as much in evidence there as in the Province of Ontario, and must, in my opinion, if some improvement is not brought about in the near future, be referred to the Dominion Government for legislation to compel public carriers to give reasonable safe carriage to such products.

The gathering was thoroughly representative of the fruit-growers of the Province, and our friend Dr. Saunders, without whom an Ontario fruit-growers' meeting would not be complete, being present, gave an increased interest to all present. The subjects brought forward were important and the discussion interesting and instructive. The exhibit of apples was large and the samples fine. The citizen, when referring to Nova Scotia's ability to produce, had only to point to the right hand or the left, and with pride to the exhibit before him. I need not say that the Cornwallis and Annapolis valleys are noted for their fine apples, the home of the Gravenstein and many other varieties. The hay lands, or, rather, what are called the dyke lands, are very productive and the potato crop second only in importance to the apple crop in that Province. In regard to the standard barrel as defined by the Dominion Act, there seems to be some serious objections raised, and action is being taken to urge upon the Government the suspension of the Act until such time as one more fully covering the various requirements of the people can be agreed upon. I must admit I was most favorably impressed with the shape of the Nova Scotia barrel, for the simple reason that in our Ontario barrel, when laid upon its side, as it should be when being loaded upon the cars or on steamship, the pressure comes directly upon the bilge or center of the barrel, while their barrel rests upon the quarter hoops and relieves to a great extent the direct pressure upon the contents, in proof of which I find the Nova Scotia fruit-growers have in their Old Country catalogue of sales far less "slacks." While I am not prepared to admit that they pack with more care than the Ontario grower, I am strongly of the opinion that the form and shape

of the barrel is an important factor and should claim our careful consideration.

While attending this meeting I had the pleasure of meeting many old friends, and I cannot but refer to one or two pioneers in fruit culture in that Province, the photo of one I enclose, Mr. R. W. Starr, of Starr's Point, directly opposite the town of Wolfville, in the valley, and whose display of apples could scarcely be excelled in any Province in the Dominion. Gentlemen who has given so much time and study to the origin of so large a number of varieties, and has also produced them in his large and beautiful orchard, might well be rated as a benefactor to the Province in which he has spent many years of his life. He was also one of Nova Scotia's representatives at Chicago, and installed the exhibit with that care and attention to all the details so necessary to success.

Mr. C. E. Brown, of Yarmouth, one of the directors of the Association for many years, and whose contributions to the horticultural journals were always of interest to fruit-growers, was present and full of enthusiasm to promote that great industry in his Province, but, sad indeed to say, while penning these lines a few weeks later, to see in a Halifax paper of his sudden demise from his vineyard on earth to the land of eternal bliss. Well may we extend to his friends and co-workers our deep sympathy on this sad occasion.

For fear of trespassing at too great length on your valuable space, I will defer for the present to give a short history of their system of handling the apple crop, and also some fruit farms I saw.  
 Grimsby, March 15th, 1900. A. H. PETTIT.

#### Onion Growing.

Onions can be raised on a variety of soils, but yield the most satisfactory returns on a sandy loam or gravelly soil. Onions require liberal manuring with well-rotted yard manure, nightsoil or the like.



MR. R. W. STARR,  
 Starr's Point, near Wolfville, Nova Scotia. An enthusiastic and successful fruit-grower.

Wood ashes at the rate of 200 pounds per acre in connection with the yard manure gives good results. In preparing the land it is not wise to plow deeper than four or five inches. After plowing, the soil should be worked up fine with cultivator and harrow, making the land quite firm. Land that is planted to onions the first time requires more seed than old onion land. If it is designed to pull the onions when small, for bunching for the early markets, seven or eight pounds of seed will be required for an acre, in rows 18 inches apart, when the hand cultivator is used, or 6 pounds, 2 feet apart, when a horse cultivator is employed. The seed should be quite shallowly covered and the ground firmly pressed over it.

A second plan is to plant sets, pressing them into the soft soil, along the line from three to four inches apart. A small set, so long as it has life, is to be preferred to a large one. Growing from sets is probably the simplest and easiest method of raising onions, but as the sets come expensive when a large quantity are used, and as the keeping qualities of the onions are not considered equal to those grown from seed, they are not so reliable for winter use.

A third method is the hotbed process. The seed is started early in the spring, in a moderately cool frame. It is sown thickly but evenly. When the onions are about the size of lead pencils or a little smaller they are transplanted along a line somewhat similar to the sets. Some gardeners plant the young onions two inches apart, and when they are of sufficient size, remove every other one. The onions thus pulled can be easily sold or used.

The greatest trouble in growing seed onions is the first weeding, but if the rows are put in very straight and the hoe is kept clean and sharp with a file so as to cut the earth close up to the plants, a good deal of the labor is removed. After the first

weeding has been accomplished, the wheel hoe cultivator may be employed successfully. It is well to cultivate frequently, say once a week, until the plants are well grown. Onions may be grown on the same ground for several years; in fact, they always seem to do better for some time after the first year.

#### Orchard Culture.

BY G. C. CASTON.  
 SPRAYING.

Of late years a very common cause of unproductive and unthrifty orchards is the ravages of insects and fungous diseases. The proper spraying of the orchard is just as necessary as the spraying of the potato vines, without which potato-growing would have to be abandoned. It is several years since the disease *Fusicladium*, or apple scab, made its appearance in the orchards of this country. It had made considerable progress before means were adopted to check it. Experiments had to be made with chemical mixtures. Apparatus had to be devised for the application of the remedies, and in the meantime the disease made rapid progress, until it had obtained a foothold in every orchard in the country. But now that the proper treatment is well known, and excellent apparatus devised for its application, there is no excuse for allowing this disease to work havoc in our orchards.

The disease is propagated and communicated by spores, which live over winter on the bark and in the soil about the tree, old leaves, etc. The conditions under which they propagate most rapidly are the presence of heat and moisture, "muggy weather," when the air and soil are loaded with moisture and warmth, and there is no circulation of air. The very same conditions that produce rust on wheat will cause a rapid development of the spores of the apple scab. Hence orchards on level ground, where the trees are planted too close, will suffer more than those on rolling ground, or where the trees are farther apart, so as to allow of a freer circulation of air.

There are some important points in treating this disease that must not be overlooked. First, the treatment is preventive. Spraying with Bordeaux mixture is intended to prevent the growth of the spores, or, rather, to prevent them from getting a foothold upon the leaves or fruit. Therefore, it must be applied at the right time. It is a good plan to spray the bare trees before the buds swell. This may be done with 2 lbs. copper sulphate, dissolved in 40 gals. water, without any lime. But last year I used the full mixture on bare trees, and I think it fully better. Then spray again just before bloom, and again just after blossoms fall, and after that be guided by circumstances and good judgment. If rainy weather prevails so as to wash off the mixture it will need to be repeated. If weather is dry it may need no further treatment. However, it is well to spray the fourth time, in, say two weeks after the third. The bark and leaves should be covered or coated with the mixture, and this will be a very good guide as to how often we should spray.

By all means use a good spray pump. There is nothing will discourage or disgust one with the treatment quicker than a poor, faulty apparatus, while with a proper appliance the work is easily and rapidly done. I use a Spramotor, made at London, Ont., and I have no hesitation in recommending it as a first-class apparatus. It never gets out of order, works easily, and does rapid and effective work. It is the greatest folly to invest in cheap trumpery spraying apparatus. The best is the cheapest, and where orchards are small, it would be better for two or more to join and purchase a good pump for their joint use (one good pump would serve for two or three small orchards) than for one man with a small orchard to invest in any of the cheap affairs that are no use.

A few general directions just here will be in order, as to how to do it properly and rapidly. The full Bordeaux mixture as used in this country is composed of four lbs. bluestone and 4 lbs. fresh lime, dissolved in 40 gallons of water. When insects are to be destroyed at the same time, from 4 to 8 ounces of Paris green are added. When only a few trees are to be treated, the bluestone may be dissolved in hot water. But where larger orchards are to be sprayed, it will save time to dissolve it the day before. We usually reckon a barrel of Bordeaux mixture to the acre of trees. I take a barrel that holds 20 pails of water, fill this full, weigh up 20 lbs. bluestone, tie it in a bag and hang it in the water. It will all dissolve in 24 or 30 hours. Every pail of this represents a pound of bluestone. Have the lime also previously dissolved in another barrel. Have these barrels near the pump, or wherever the supply of water is to be obtained. Then when filling the pump-barrel (the spray pump is fixed in a 40-gallon barrel), put in 4 pails of the stock solution, then fill three-parts full with water, and then add the lime and Paris green. Before filling the barrel quite full apply the cyanide test. I always use this, and would advise everyone to use it. Get from the druggist five cents worth of cyanide of potassium, dissolve in half a pint of water. (Keep it corked and out of the way of children, as it is poisonous.) When your mixture is made stir thoroughly from the bottom, then drop a few drops of the cyanide in the mixture. If it (the cyanide) turns purple on striking the mixture you must add more lime; try it again, and if the cyanide shows no change of color when it strikes the mixture, then your mixture is safe and will not injure the foliage of the trees. I always add a little more

lime after the test shows enough. It is better to have an excess of lime than not enough. Have the lime clean and made thin with water. If no strainer on the pump barrel, strain the lime through fine wire sieve or coarse sacking. On arriving at the orchard, slip the peg out of the plunger and work the agitator up and down several strokes until the whole is thoroughly agitated before beginning to pump. If obliged to stop for a few minutes or longer at any time before the barrel is empty, slip out the plunger peg and agitate as before. It is very important to keep the solution thoroughly mixed. The Paris green, not being soluble in water, goes to the bottom the instant the mixture is still; so does the lime. Therefore, thorough and persistent agitation is one of the secrets of success in spraying.

A bamboo pole 10 feet long, with a brass pipe through the centre, and from one to three nozzles on the end, enables one to reach the top of the trees and all over the branches easily. Where the pole is connected to the hose a stopcock is placed, giving perfect control, and prevents loss from dribbling while moving from one tree to another. If no wind is blowing one can drive between the rows and spray from both sides of the waggon. A one-horse waggon with a deck of boards instead of a box is the best. With a boy to drive and work the pump, and an active man to handle the nozzle, rapid and effective work is done.

The use of Paris green in the mixture is for the destruction of codling moth and all masticatory insects (that is, insects with jaws) that prey upon the foliage. In the case of the tent caterpillar, the quantity may be increased to 8 ounces (4 ounces to 40 gallons water is the quantity mostly used), or perhaps even more, so long as plenty of lime is used and the cyanide test shows the mixture to be safe.

The benefits of spraying are not all seen at once, or in one season. Where the *Fusicladium* has had a start of several years before any spraying is done, it takes some time to get the trees back into a good state of health. But where proper and persistent spraying is done, a gradual change will be noticed. There will be less scabby fruit, the foliage assumes a more healthy color, and the whole tree appears in a more thrifty condition. Good healthy fruit buds are formed as the tree resumes its normal healthy condition, and the results are—other things being equal—increased production of fruit, and that of better quality.

We must remember that the leaves are the breathing apparatus of the tree. When these are destroyed by insects or corroded with the fungus scab, the tree cannot make proper use of the food which the sap carries up from the soil, no matter how well the soil may be fertilized; cannot elaborate fruit buds for next year's crop, and this fact, mostly overlooked and underestimated, is the main cause of many orchards failing to produce good crops. The owners wonder why their orchards fail to produce. The causes are in most cases not far to seek, and the remedy is in their own hands, if they will but take the trouble to use it. Some people say that it all depends on the season, and that some years there is little or no scabby fruit. It is very true that some seasons the weather is cool, dry and windy, and the conditions under which the fungus develops are absent, and as a consequence we have cleaner fruit. But the germs of the disease are there all the same, and perhaps the next season the fruit is worse than ever. In dealing with insects and fungous diseases, eternal vigilance is the price of success. And those who wish to have healthy trees and good crops of fruit, must spray their orchards, and remember, *it will pay*.

And now let me sum up some of the chief points. Are your trees of bearing age yet? Do they not bear a crop, or if they do bear a few, is the fruit spotted and of poor quality? Is the foliage sickly in color, and the leaves corroded with dark, rusty spots? Are the tent caterpillar and other insects plentiful? If so, you need a spray pump, and you need it badly. If you never sprayed before, get someone who has just to give you a start. Get your bluestone in 100-lb. lots, even if you have to join with others in order to buy wholesale. You will get it cheaper. Be sure to get a good pump. Spraying with a poor outfit is like trying to sup soup with a needle. The work must be done quickly and at the right time. Set your nozzles so they will make a fine spray like a mist. Apply sufficient to wet all the leaves and bark of the tree. Stop at that. Don't drench the tree till it drips. That is a sheer waste of material. Keep the mixture thoroughly well agitated right from the bottom while applying it. Always use the cyanide test, to be sure there is plenty of lime. It is easily done. Don't expect too much in the way of results in one season. It took your orchard several years to get into its present condition. You can't expect to cure it all in one year. Don't think because there is still a few spots on the apples that you are doing no good. The good effects of one season's spraying is often seen more the following year than the first. Don't trust the work to careless hands; see that it is properly done. Don't spray one season and skip the next. Be persistent; your reward is sure, and you will be repaid well for your labor.

A good spray pump is a useful article in many ways about the farm. It can be used to spray the potatoes. It is used to apply kerosene emulsion to destroy the suckling insects, such as the aphides, or plant-lice, on plums, cherries, and young apple

trees, and of which I propose to treat in a future chapter. And it can be used to whitewash the cellar, the poultry house, the stable, and other buildings. It can be used to advantage in applying disinfectants for preventing the spread of contagious diseases, etc.

A word or two as to the cost of spraying. Say you have 4 or 5 acres of orchard, it will take about 5 barrels of mixture for each spraying. Twenty pounds bluestone, at 7 cents per lb., \$1.40; Paris green, 50 cents; lime, 15 cents; total, \$2.05 for material. A man and boy with a horse will do it in one day; say \$2.00 for wages, and you have the cost of each spraying, \$4.05. If sprayed four times, total cost \$16.20. One good crop of clean, marketable fruit will give a big profit on the investment.

## POULTRY.

### Peafowl! (Why Not?)

Why has the raising of peafowl on the farm been so steadily neglected? Why should it be the only variety of poultry that has not been affected by the grand march forward of the industry? It seems to be left away behind—"out of sight," in fact. The younger members of many families have never even seen these fowl. It is certainly not from any lack of beauty that they are thus abandoned; for as far as color of plumage and graceful form count, of all birds native to Canada, or introduced, the peacock surpasses all others. His slender legs seem scarcely large enough to support so great a quantity of elegance. Even those feathers that are scarcely noticed have great beauty: the handsome brown flight feathers of the wing; then the metallic blue-black in connection, and above these the mixed brown, white and blue. But when we see the peacock we do not think of these. We notice first his tail, the longest feathers of which are very nearly 5 feet; and such feathers!—of so many shades that to describe them were impossible, and the most skillful artist's brush could only produce one effect, while on the living bird, every turn or motion makes the colors ever different. It is seen in all its splendor when spread out in a huge fan measuring over nine feet across the base, the sun gleaming on the brilliant and varying tints of its row after row of ivory rods, edged with fringe of richest bronze, and surmounted and half-concealed by those beauty eyes of nicely graded sizes down to the very smallest, which merge in the brilliant green of its back, which again meets and blends with the peacock blue of his slender, graceful neck, which is a fitting support for the dainty head, with its fan-shaped tuft. He is supposed, proverbially, to be very proud; at any rate he seems never to tire of showing his beauty, and of attracting the notice of all other fowl. I cannot understand why they pass him by so carelessly. Is it that they do not see, or that, like the shallow human bird, they are slightly jealous, and do not care to admire beauty which they do not themselves possess?

The peahen is a daintily pretty bird, even though not so showily dressed; wearing always a sober gray suit, which when worn a year becomes faded and is then discarded, when a new dark gray takes its place; this is always brightened about the neck and breast with blue-green and white. Hers is an ideal suit for any female who wishes to look well, yet inconspicuous. One may pass quite close to her nest without noticing her, so well does she harmonize with her surroundings. Her eggs are large and very firmly shelled, and are rounder in shape than turkey eggs; she lays about eight before wanting to set, and if these are taken she will lay as many more. Incubation lasts four weeks. I set four peahen eggs and six turkey eggs, on the ground, under a Rock hen. She hatched all but one peahen, which failed to get out. I allowed the hen to wander with the flock. She raised the three peafowl and four of the turkeys, so I judge they are not hard to raise. I fed them occasionally. In the morning, near the kitchen window, I would hear their peculiar call, which was rewarded by some oatflakes.

The peacock is very friendly in his nature; in fact, both old and young are perfectly tame. He delights in the society of young chickens, which he would not willingly injure. I have heard of flocks being killed, but, from observation, I judge it was rather by the excited objections of the mother hen than by the wrong intentions of the peacock. We have never found him the least bit rough, though at first it would afford him great pleasure to chase the old turkeys. Now he is often travelling through the woods and fields with the flock. It is said that they are an excellent preventive to the destruction of poultry by hawks. They have a loud, shrill call, which is often heard before rain and always when any danger approaches. It would be a bold robber that would venture near the poultry-yard at night when the peacock or peahen is giving his or her warning shriek. One would not care to kill the beautiful peacock for the table, even if one could not dispose of surplus stock alive; but the peahen makes a very delicate and savory roast, and has a generous supply, especially on the breast, of excellent firm meat.

GYRA.

### Going Into the Poultry Business.

I advise anyone intending "going into the business of raising poultry" to have comfortable quarters for the fowls. Any warm, comfortable roosting and nesting place will do until something better is provided. Be sure that plenty of dry dust for bathing is supplied at all times. It is the great remedy against lice, to which fowls are especially liable. This, with plenty of sun, pure water and regular feeding, will give success both in eggs and chickens. Do not crowd the house, and be sure the fowls have plenty of ventilation. Plenty of heat, plenty of food and water, plenty of fresh air, will bring plenty of fresh eggs in the winter and spring, when they are scarce and high. In the summer, allow the fowls to range over the farm, thus paying for themselves in destroying insects and keeping themselves healthy. Always feed regularly, as above stated, and they are sure to return at night.

**The Poultry House.**—The poultry house should face the south on one of its broadsides, and the more glass you have in this the better. One portion should be half dark for the nests, as I have shown by a plan in March 1st issue of the *ADVOCATE*. The roosting place may be in one end; the perches not more than 2 or 3 feet from the floor, especially if the breed is heavy. The perches should be quite large; 2x1 in. scantling, set on edge and nicely rounded, has been found to be all right. A scratch-room is also necessary. Keep everything about the house scrupulously clean. Whitewash at least once in three months with lime, and if lice make their appearance, fumigate the house and sprinkle Scotch snuff among the feathers of the fowls.

**Proper Foods for Fowls.**—Never give fowls sloppy food. When mixed feed is given, it should be made as stiff as possible. I prefer feeding in troughs, as I think the mash, if fed on the floor, would become stuck to the floor by the treading of the fowls while eating. Oat chop, shorts and roots, cooked together and fed pretty hot in winter, with a little black pepper, make a good food. Have broken bone, lime and gravel always before the fowls, as these help them digest their food. Give them a little meat, but not too much. Wheat (parched), oats, along with a little corn, are good egg-producers.

**Market Breeds.**—If your aim is poultry for market, I advise getting Brahmas and Plymouth Rocks. These breeds will lay sufficient eggs for table use and breeding purposes. Give them large, roomy quarters while growing, but while fattening they should be somewhat confined.

**Egg Producers.**—The Leghorn, Poland and Houdan are great layers, and their eggs are good. The Hamburgs are good layers, but their eggs are small. For a laying breed I prefer the Leghorns, because they can be depended on for eggs at all times of the year, if properly cared for.

Elgin Co., Ont.

CLAUDE BLAKE.

### Poultry in the East.

PROF. A. G. GILBERT'S MEETINGS ON P. E. ISLAND.

We were much pleased to have with us for two weeks Prof. A. G. Gilbert, Poultry Manager at the Central Experimental Farm. Twelve meetings were arranged for him by the Provincial Farmers and Dairymen's Association in some of the most populous districts of the country. At most of these meetings there were good audiences of intensely interested listeners. Some of the appointments happened on stormy nights, but even then quite a number turned out. The addresses of Prof. Gilbert were of an exceedingly practical nature, and dealt with the profitable production of eggs and poultry. He gave the farmer an idea of the great profit to be derived from the poultry business, if only they would engage in it intelligently. His advice as to the care and feeding of fowls for egg production in winter and summer, and the information he gave us in regard to markets and shipping, will result in making the poultry industry much more profitable in future.

Our poultry here has been handled heretofore much on the same lines that our dairy business was before the advent of Prof. Robertson on the Island. There was always a large export of eggs from this Province, but they were all produced in the spring and summer, when eggs were at their lowest. They were gathered up through the country by peddlers, or taken in by the country shop-keepers; often two weeks old before they left the farmers' hands, they would generally be a week or two more before they reached the Boston market, where most of them were sold. It will readily be seen that of such eggs a very small proportion of them only would be fit for human food. This is the way our egg industry was mismanaged in the past. During the last year or two, we have been shipping a good many eggs to England, and farmers are getting more particular to have them fresh and non-fertile, as they have learned that dealers want to handle only such stock for British markets.

There has been large quantities of poultry, such as turkeys and geese, shipped from the Island every fall, which brings a fair price. But we have had no shipments of fattened chickens, such as the Government have been sending from their experimental fattening stations. The fattening stations started here last season will do good, by illustrating to our people that poultry of the right kind can be fattened and sold at a profit, if the people will only get the right kind of fowls to fatten. But they may as well understand first as last that the mongrel chicken cannot be fed to make a profitable broiler at ten weeks or a six-pound cockerel at five months for

the English market. What our people want first is information with respect to the kind of fowls suitable for the dressed poultry market. We think instead of Prof. Gilbert spending two weeks here that he ought to be allowed to spend at least two months so that he could visit all sections and instruct the farmers in this very important branch of their business. That he is the man to do it we are satisfied, after having travelled with him for two weeks and noted how readily he gets his audiences interested, and, in fact, enthused in the business. If the Dominion Government will give the poultry industry in this Island only half the attention and encouragement that was given by their predecessors to the dairy business here, there will be just such a boom in it as will place it alongside of that business as one of our greatest sources of income.

The fact that our people here are so far from the Experimental Farm where these experiments with poultry are carried on that they are unable to visit the farm and see for themselves is a very strong argument in favor of the Minister of Agriculture sending Mr. Gilbert to this Island for an extended lecturing tour. In fact, I believe we should have such a man resident here for a year, to get this important poultry industry started right in all its different branches.

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

**A Promising Industry for Women.**

Farmers' wives and daughters, do you want money? If you do, here is something to lay hold of now, something both pleasant and profitable; just the thing for the women folk. It is the new industry of raising poultry for fattening. Spring will soon be here, and you should start early. In order to conduct the business on a large scale, you should have an incubator; then, instead of waiting for your hens to cluck, you could get your wooden hen ready at once and have your chickens hatched early. The eggs should be set about the 15th of March or the 1st of April. "The early bird catches the worm" is an old proverb, but in this case it is the early chickens the buyer wants to catch, and for which he will pay the highest price. In this, as in every other business, you need to have patience, perseverance, and enthusiasm, if you want to succeed. After your chickens are hatched, with what pleasure and pride you will watch the growth of your beautiful feathered family, and what a pleasant task it will be to feed and look after them. As a general rule, women are far more interested in poultry than men are—that is why they should manage it themselves. One must love the work in order to attain success. The Wyandottes are the best for fattening, as they grow so large. Now, farmers' wives, up and bedoing! Start out at once with energy and determination, tell the men you are going to manage the poultry-raising. Tell them the work is too easy for them. It would only make them lazy. When you sell your chickens, and get your returns in cash, you will be able to purchase many comforts that you cannot very well afford at the present time.

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

MRS. ANNIE RODD.

**ENTOMOLOGY.**

**Entomology in the Northwest.**

[An address given by Percy B. Gregson, President of the Northwest Entomological Society, Waghorn, Alberta, to the pupils and parents at Waghorn Schoolhouse, Alta., on the "Oviposition of Insects."]

The last time I gave a sketch, you will recollect I said something about the uses of leaves to plants. I said that plants themselves were really composed chiefly of carbon. You can make charcoal of a plant, and then burn up the charcoal till nothing but a few ashes remains. It goes away into the air as a gas, and is called carbonic acid gas. The plants and trees have to get this carbonic acid gas, and there is no other way except from the air. We found, then, that the leaves are the lungs, so to speak, of the trees and plants. They breathe the gas in through small openings in their upper surface, and so the plants live and grow. We could kill a tree or plant by plucking off every leaf as it came, or by keeping it from breathing the air by means of its leaves. That is the reason why they die when they are plowed under: they cannot breathe.

This evening, however, I want to say a little more about insects. The more we know about them the more wonderful everything connected with them appears, and let us this evening look into some of their habits with regard to "eggs." The eggs of birds, as we know, are all nearly of the same shape, but the eggs of insects are infinitely varied in their forms, and besides dissimilarity in shape they are for the most part externally ornamented with a variety of beautiful figures and devices. They are not really the plain, ordinary-looking globules we are accustomed to think. If we examine them through a microscope we shall find that some are figured on one side and plain on the other; some are crossed with wrinkles; some are figured all over with hexagonal devices; some are ribbed, and some seem as if carved by the most skilled of sculptors. Some eggs are depressed, with a central cavity above and below; some are orbicular (round), and some are of a cylindrical shape, with prominent ribs. Others are of a flask shape and quite smooth. Others, again, resemble a miniature sea urchin, and others are crowned by imbricated scales like the tiles of a roof, and so on.

But the instinct possessed by the female in depositing her eggs is no less wonderful. By an un-

erring foresight she deposits them in the precise place where food suitable to the existence of her progeny (after extrusion from the egg) is found. In the case of butterflies and moths, with very few exceptions, the eggs are enveloped in an adhesive cement, which fixes them to the spot on which they are deposited. With some butterflies this cement is so strong that the eggs hang down, eight or nine in a string, from the twig, one below the other. This cement is evidently intended by nature to prevent the eggs from being carried away to a place where the young caterpillar would starve. It also preserves the eggs against adverse weather. Several species of moths, which lay their eggs in the fall, cover them with a thick coating of soft, hairlike down which they strip from their own bodies. They first attach to the trunk of the tree enough down to make a bed for the eggs, and into the bed the moth then places successive layers of eggs, surrounding them all with a similar coating of soft down, and over the whole number she spreads a cement and lays a neat roof of down over the whole, like the roof of a thatched cottage, as a protection against the winter storms. Her task completed, and having denuded herself of down for her offspring's sake, she expires.

There is a great diversity in the arrangement of eggs after extrusion. Sometimes they are deposited in confused masses, but in general they are arranged in an orderly and even systematic manner. Many butterflies place their eggs upon one end, ranked close together in perfect order, so that the caterpillars on hatching escape from the upper end, without disturbing the adjoining eggs. Some moths deposit their eggs round twigs of trees like a bracelet, arrayed with extraordinary neatness and regularity, as if set by the hand of a skillful jeweller.

But I must hurry on. I have mentioned the wonderful foresight of insects in selecting a suitable place for their progeny. This instinct is common to nearly every insect (flies, beetles, etc., nearly all are guided by it). The horse bot-fly lays its eggs on the hairs of animals, which being licked by the tongue are drawn down into the stomach of the animal, and there the grub finds its food. The Hessian fly lays its eggs in the creases of the young green-blade of the wheat, and on the hatching of the larva it works its way naturally down the leaf, within the leaf sheaf, to the culm or stem, where it remains, sucking the juice of the plant. The mosquito lays its eggs in a mass on the surface of still water, where it floats like a boat or raft, and the young larva, hatching from the underneath, at once finds the water, which is its natural environment, and where it remains to pass through the stages preparatory for the perfect insect. The flea is among the exceptions to those insects having this instinct, for that creature seems to prefer to lay its eggs loosely among hairs of animals or clothing, unattached by cement, and consequently on any shaking the eggs fall to the ground, where the larva finds congenial food.

The Colorado beetle (potato bug) lays its eggs on the under surface of the potato leaf; and an interesting example of foresight is shown by the ladybird. These pretty little beetles, as well as their larva, prey upon the larva of the Colorado beetle, and upon plant-lice. The female ladybird therefore lays its eggs in a group of plant-lice, or in close contiguity to the eggs of the Colorado beetle, so that there shall be a ready repast for her young progeny when they hatch.

This foresight of the female in selecting a suitable food for its young, shows us, in the case of pernicious insects, how important it is to keep our gardens clean from weeds which will attract the fly or moth at the time it is laying its eggs.

Turning now to the fecundity of insects, the number of eggs one female will lay is enormous. Many female moths lay 500 eggs apiece, some 1,000, and some even 1,500; but compared with the queen bee this amount sinks even into insignificance, for the queen bee lays the extraordinary number of 1,400,000 eggs in a single season. The common house fly lays 80 or more eggs at each sitting, and, as it lays three or four sittings during its life, the result is something like 300 eggs per fly. These eggs hatch in a couple of days, and the life-round of the fly until the next brood being only from 10 to 14 days, the progeny of a single female fly during the entire summer is estimated at upwards of 2,000,000 flies.

The eggs of insects can withstand a great degree of cold. It has often been noticed that after a severe winter insects are, in fact, more numerous in the succeeding summer, and the reason is that while birds, animals and insects themselves perish, the degree of cold these can withstand is in a much less ratio than that which can be resisted by the eggs of insects. The eggs of many insects are productive after being exposed to a temperature of 20 degrees below zero. So also the vital principle in the larva of many insects is not extinguished by extreme cold.

With all the array of different insects around us, with their tremendous fecundity, and with such power in certain of their stages of resistance to the elements, the wonder is that we are not overwhelmed by such a vast multitude. But insects in all stages of their life have many enemies. They are devoured by other insects and by birds, animals, spiders, toads, etc., and destroyed by every side. droughts. There are deadly enemies on every side. There are many insects which are parasites; that is, which lay their eggs in the bodies of other insects, so that when the young larva hatches it eats the living flesh of the insect in which it is born. Every insect, large or small, is liable to be attacked by a

parasite. The Hessian fly, for example, small as it is, is preyed upon by at least ten different kinds of other flies. There are many insects which lay their eggs in the bodies of caterpillars. Sometimes as many as 80 or 100 minute larva of parasites will live in a single caterpillar, gradually eating up his interior, but not touching a vital spot; while the wretched caterpillar will go about eating his food until at last he succumbs to the enemy within. There are even minute insects which lay their own eggs in the eggs of others, and the young larva lives and comes to maturity inside the egg—a warm shelter indeed!

But time will not allow me to say more now; and there is so much—so very much—of such interest and wonder. Upon some other evening I hope to be able to tell you about the fierce struggle for survival that is ever going on in the insect world, and to show you some friends of the farmer in that world.

**Scale Insects on American Fruit Imported into Germany.**

Dr. Howard, official Entomologist of the U.S. Department of Agriculture, has recently published Mr. E. A. Schwarz's translation and abstract of an important series of "Investigations on American Fruit Shield Lice," by Dr. L. Reh. Some of the results reached by these investigations are of much interest to the fruit-growers in our scale-infested districts.

On the fruit examined, Dr. Reh found altogether 259 specimens of Putnam's scale, 17 of Forbes', 757 of San José, 115 of the Camellia scale, 129 of the scurfy bark-louse, and 59 of the oyster-shell bark-louse. He did not find any free living larva of any of the species; of the Camellia scale and San José, he found several mature females containing eggs or embryos. He holds that the importation of fresh fruits infested with either of these two species is liable to introduce them.

With regard to dried fruits, he says "it must be accepted as an invariable rule that no living scale has ever been found thereon." No living scales have been found on dried apple peelings. This report is encouraging to managers of fruit evaporators who have found a market in Germany for their dried apple peelings up to the time of their prohibition. He experimented with San José scale on fresh apple peelings, and found that they lived only from eight to fourteen days; on very thick peelings they lived twenty days. The wrappings, packings and boxing of infested fruit were examined, but no living scale was found on any of these. The prohibition of the importation of dried fruits, apple peelings or fruit packings is held unnecessary.

He found nine per cent. of all the San José scale killed by natural insect enemies, and 22 per cent. infected by fungi.

**APIARY.**

**Spring Management of Bees.**

BY MORLEY PRITTY.

Much has been said and written on this subject and possibly some bees have been too much managed for their own good or their owner's profit. If bees are well wintered, a few simple rules, with a great deal of sense and experience, are the best stock-in-trade for spring management. Cellar-wintered bees are removed and placed on summer stands early in April. As the motion of carrying out and the change from absolute darkness to daylight thoroughly arouses them, it is necessary that the day chosen be sunny and warm enough for bees to fly (not below 50° F. in the shade). The apiarist should have plenty of help, and keep the cellar as dark and cool as possible during the operation, to avoid greatly disturbing the bees before they can be carried out. Practically sting-proof gloves may be made of cotton which has been used as a hive-cloth long enough to be thoroughly coated with propolis on one side. It is a good plan, where the hives are set in rows in the apiary, to carry out one row, then darken the cellar while the covers and entrance blocks are adjusted; then take out another row, and so on. Set covers on loosely to allow the cushions to air and dry, and close the entrances to about three inches. Mark, "to be fed," any hives which seem rather light.

The most convenient method of feeding in spring is to make syrup of granulated sugar dissolved in water in the proportion of 4 lbs. sugar to 1 quart of water. Fill empty combs with this and hang them in a warm room to drip. They should be quite warm when taken to the hive. After the bees have ceased flying in the evening, go to each hive needing stores and turn back the cloth far enough to remove one comb next the wall, replacing it by one filled with syrup. The entrance should be closed while the top is open, and the change made as quickly as possible to conserve the heat of the hive. Sealed combs, with cappings crushed to induce the bees to distribute the honey, are preferable; but are not so easily obtained at this time of year. I need not state that the matter of spring stores is of the utmost importance. It is equally important to guard against

**ROBBING.**

As it is so ably expressed in "Langstroth on the Honeybee," under the adage, "An ounce of prevention is worth a ton of cure": "Bees are so prone to rob each other in time of scarcity that unless great precautions are used the apiarist will often

lose some of his most promising colonies. As soon as they can leave their hives in the spring, they may begin to assail the weaker colonies. If the marauders . . . attack a strong and healthy colony, they are usually glad to escape with their lives from its resolute defenders. The beekeeper, therefore, who neglects to watch his needy colonies, and to assist such as are weak or queenless, must count upon suffering heavy losses from robber bees." Experience teaches that where fifty or more hives are kept, the apiarist, during the spring months, should go through the yard at least once every hour, when bees are flying and no honey coming in, to watch for indications of robbing. These are detected by an unusual activity about the entrance, and a shrill sound peculiar to robbers. The flight of young bees which occurs from many of the hives almost every warm afternoon may be mistaken for robbing; but there can be no doubt if the bees emerging from the entrance are loaded with sweets. When it is discovered that a hive is being robbed, sprinkle quantities of flour on the bees at the entrance, and watch the other hives to find the robbers' home. Close their entrance for a time, taking care not to smother them. Put hay over the entrance of the hive robbed, and sprinkle freely with cold water. If this does not break up the robbing, remove the hive to the cellar in the evening, leaving an empty box in its place as a decoy to the robbers. Two or three days' buzzing about this box will satisfy them, and the hive may safely be replaced on its stand, in the evening. The time of greatest danger from robbing is when the bees are first out, and from fruit bloom to the opening of white clover.

As soon as the thermometer reaches 70° F. in the shade, on a still day the brood chambers may safely be opened for adjusting brood and stores, and clipping queens. First, find the queen and gently lift her from the comb by the wings; then grasp two or three of her legs between the thumb and first finger of the left hand, holding her so while about half of one wing is clipped off with a small pair of pointed scissors. By experienced beekeepers, spreading brood may be practiced with advantage; but for the beginner and average beekeeper it is safest to leave this matter to the bees.

#### The Bee Yard in Spring.

(Synopsis of a paper read by D. H. Heise, Ontario County, Ont., before the 1896 Beekeepers' Annual Meeting.)

The first step towards success in the spring should be taken not later than September 15th, the fall previous, by contracting the brood-chamber with a division board to a size sufficient to accommodate the strength of the colony, say from 4 to 7 combs. The remaining combs in the space so contracted should contain an ample supply to carry the colony safely till fruit bloom. There is then no occasion to open up hives for examination until the weather is warm, when the risk of breaking the cluster is reduced to a minimum. The first examination should be taken on a calm day, with the thermometer about 70° in the shade, and after the bees have collected both water and pollen. All hives should now be contracted to the capacity suited to the cluster, if this has not been attended to in the fall. As colonies of average strength will be found at this date with from 2 to 4 frames of brood in different stages of development, these frames should be raised up high enough to permit of the uncapping of the honey along the top bars and in the corners. This will cause the bees to move it, and they will store it in the cells surrounding the brood, where it will be of most advantage. In case of there being no honey along the top bars of the frames containing brood, frames of uncapped honey should be placed, one on each outer side of the brood nest proper. Uncapping serves the double purpose of providing liquid food for the larvae where it is easy of access, and of giving the queen room to widen out her circle.

All garbage and dead bees should be removed from the floors. Afterwards, if a quilt is used, replace it with gum cloth, return the top packing, contract the entrance, and close the hive. This only takes a few minutes. Queenless colonies should be forced on not more than 3 frames, and united with weak colonies at the first favorable opportunity.

#### FORCING BROOD.

In 8 or 10 days, if the weather is propitious and the bees have gathered moderately from the fields, more uncapping should be done, the brood chamber enlarged, if necessary, and frames with honey placed outside the division board. We want to compel the bees to convert honey into brood, because bees are wanted at this time, if we want our supers filled rapidly when the main harvest arrives. From now on to fruit bloom frames are to be added to the brood chambers and frames of honey inserted as required, always selecting a suitable day.

#### CLIPPING BEES.

At the opening of fruit bloom all full-winged queens are to be clipped. I do this in this way: As the queen is heading for the top bar, where the frame is held on an angle, I catch her by the wings with the finger and thumb of the right hand, and then transfer her to the finger and thumb of the left hand, securing her by two legs on her left side. When thus held she cannot move, and the operator's right hand is at liberty to remove with a pair of scissors any portion of the wings desired. When the job is done, hold her snugly close to the comb, relax the pressure on her suddenly, and she regains her liberty without having her body touched at all.

All strong colonies will now be in a condition to have their full quota of brood frames returned to the brood chamber. All above average strength must be provided with supers filled, or partly filled, with brood frames, allowing the queen to occupy them if she wishes. By this means we get dark fruit bloom and dandelion honey exchanged for bees, which, at the opening of the white flow should be given to weak colonies.

#### CLEANING FRAMES.

Another very important detail is the scraping of propolis from frames and out of rabbets, making everything clean and smooth, which greatly facilitates manipulation of the frames in the busy season. The less propolis there is in the brood chamber, the less there will be in the sections. Care must be taken that the bees are not starved between fruit bloom and clover bloom. When this period is tided over, spring management ends and summer care begins. Have everything in readiness for the season's work.

### QUESTIONS AND ANSWERS.

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

#### Veterinary.

##### PARALYSIS IN HORSE.

E. W., Oxford Co., Ont.:—"My horse has been so sick I cannot use him. He laid down in the stable and he cannot get up. He is in good fair condition. I have been working him some all along; he has had hay nearly all the time; he has worked about one day a week on the whole. He seems to have no use in his limbs, and he strikes a great deal with his front legs and some with hind legs. He lays stretched out all the time, and then he throws his head back as far as he can. I have him in a warm place, on the ground floor. I gave him about 2½ pints of raw linseed oil, 1 oz. of sweet niter, and 1 tablespoon of black pepper. His bowels move freely, and he makes water and lots of it. He will not eat anything. Do you think it is indigestion?"

[Your horse is affected with paralysis, evidently, especially of the hind limbs. From the symptoms given I do not think he will recover. He should be gotten upon his feet and supported by slings. Of course, if he has so far lost power that he cannot stand, but will throw his whole weight on the slings, he must be let down again. It does not do to raise a horse entirely off his feet. Sling are merely for the purpose of enabling an animal to rest himself without lying down when he is unable to rise again, and unless he can stand without full support they should not be used. If he cannot be placed in slings he should be turned from side to side every 6 or 8 hours and kept well bedded with clean dry straw. If his bowels become constipated give some more oil or 6 to 8 drams of aloes, with 2 drams ginger, and give 2-dram doses of nux vomica three times daily. If he does not show any improvement in a few days it would be a kindness to destroy him. Give him a little of anything he will eat, but if he will eat soft, easily-digested food, it will be better than dry grain.]

J. H. REED, V. S.]

##### EPILEPSY IN PIGS.

BACON RAISER, Brant Co., Ont.:—"I had sixteen pigs two months old, in a warm pen. About a week ago one began to have fits. When it touched food it would jump backward and lie on its side, apparently without breathing, then its limbs would twitch and it would breathe with difficulty. After a minute or so it would get up and sometimes eat, never having an attack a second time at one meal. Since then a number have had fits, and four, two of which I never saw with fits, have died. I examined the dead ones and found a quantity of blood around their throats, and a frothy substance in their windpipes. The livers were spotted and one stomach was inflamed. The pig that was first sick drinks a little milk. It is very weak, and walks about a great deal and turns in a circle, but does not have the fits very often. The feed has been principally shorts."

[Your pigs are suffering from a form of epilepsy induced by indigestion due to the nature of the food and want of exercise. If possible, allow exercise, and change the food. In all animals the brain is liable to become affected from stomach trouble. Give the pigs about 2 ozs. (for each pig) of either Epsom salts or raw linseed oil in their food once daily, until it causes purgation. If they will not eat their food with the medicine in it you will have to drench them. A pig is hard to drench, and great care must be taken in order to avoid suffocation. Cease feeding shorts, and feed small quantities of grain, with a liberal amount of either turnips or mangolds or a few boiled potatoes. In winter-time when pigs are confined they require roots or something to take the place of the green food they get at other seasons; they also suffer from want of exercise, and we should endeavor to keep them under conditions as nearly natural as possible. After you have caused purgation, I would advise a little of the following mixture (say a dessert-spoonful for each pig) given in the food once daily, viz., equal parts of Epsom salts, sulphur and powdered charcoal. It would also be well to draw a little blood from the pigs at once, which can be done by cutting a piece off the tails or ears.]

J. H. REED, V. S.]

##### DISEASED LIVER—GRUB IN THE HEAD IN SHEEP.

A. A. D., Haldimand Co., Ont.:—"I had a sheep which, on 28th February, was taken sick. She did not go up to the rack to eat with the rest, and was, to all appearance, in pain, with a discharge at the nose. She would turn her head from one side to the other and look back, and once in a while would try to clear her nose, but would not eat at all. She died on the 6th March, and I opened her. In her stomach I found some of her food which she ate previous to her becoming sick. Her liver was so that I could poke my finger into it quite easily. I had been feeding on hay (timothy and blue grass) mixed with some peastraw. I gave her what is generally the farmer's remedy—turpentine and tar. The last two days she was taken with a diarrhoea which had a very offensive smell. Could you tell me from this description what is the ailment, and what I might do to effect a cure, as I have another going the same way?"

[Your ewe was evidently affected with grub in the head, and also with a disease of the liver, called scirrhus. In these cases the liver becomes disintegrated and very friable, and assumes a yellowish color. It is supposed to be caused by food containing large quantities of saccharine (sugary) matter. I find the two complaints frequently associated, but whether they have any connection is hard to say. I have had a good deal of experience with the liver trouble, and have not been able to find a cure. Sometimes it kills quickly and sometimes more slowly. The abdominal cavity frequently contains considerable quantities of fluid when death occurs. Grub in the head is also very hard to cure. In some cases the inhalation of the fumes of burning sulphur, effected by holding the head over a pan of live coals upon which a small quantity of sulphur has been sprinkled, will kill the grub. Another reputed cure is to hold the sheep on her rump and inject well back into the nostril an ounce of one part turpentine and eight parts sweet milk. Inject one nostril at a time, and immediately let the head down until coughing ceases. There is danger of suffocation, and great care must be taken. The grub is the result of the deposit of a fly in the nostril during July and August. By smearing the nostrils of the sheep about twice weekly with tar during fly time the trouble can be prevented.]

J. HUGO REED, V. S.]

##### RINGBONE ON COLT.

J. McK., Algoma:—"I have a roadster colt 10 months old, which has what appears to be ringbone coming on fetlock. Would you advise me to blister? and what would be best to use?"

"2. Where can I get a good horse book on breeding, training, and diseases of horses?"

[If the colt shows no sign of lameness, leave him alone. If lame, it would be well to blister the fetlock. In many cases in young animals blistering will affect a cure. In case it fails, you will have to get a veterinarian to fire him. Use the following blister: 2 drs. each of cantharides and biniodide of mercury mixed with 2 ozs. vaseline. Clip the hair off the enlargement all around the limb; clip a little above and below the enlargement, too. Apply a little of the ointment and rub with smart friction; then apply a little more and rub well, and so on. It takes from 20 to 30 minutes good hard work to blister a part properly, as the effects of a blister depend to a great extent upon the mode of application. It requires to be well rubbed in. Tie the colt's head, so that he can't bite the parts. In 24 hours rub well again with the blister, and in 24 hours longer wash the parts off with warm water and soap and apply a little hog's lard or sweet oil. Let his head down now, and give him a nice box stall, if possible, but don't allow him to run where he will get into water or slush. Apply a little lard or oil daily until the scale comes off, when you will tie him up again and blister as at first. If after 4 or 5 months after the second blister he is still lame, you had better have him fired.]

2. If you write J. A. Carveth & Co., 413 Parliament street, Toronto, they will send you a list of veterinary books, with prices, and you can order what suits you.]

##### LUMP JAW.

GREENHORN:—"After reading these articles in the last two numbers of the ADVOCATE, re lump jaw in cattle, I would like to know if the disease ever starts in the cheek opposite the teeth. I know of a case of lump jaw that was under treatment. There were some young cattle kept in the same field, and three of them took lumps in the cheek, on one or both sides. These lumps were not attached to the bone in any way, as they were killed and I saw one of them taken off with the skin. I asked to have it cut open, and there appeared to be a hole in the center from the skin extending in towards the mouth. There was no matter of any account, but the hole seemed rather open and running a small amount of dark, watery stuff, very dirty looking. Now, I would like to know if this is the same disease, or if there is any possibility of it being so?"

[It is very probable this case was lump jaw, but it is impossible to say with certainty. The lumps of this disease are liable to appear on either jaw or the tongue, and in many cases are not attached to the bone, especially in the early stages; later on the bone may or may not become involved. When the bone is not involved, a cure can, in most cases, be effected by carefully dissecting the tumor out. We must always look with suspicion upon lumps on cattle's jaws, unless known to be caused by a direct injury.]

J. HUGO REED, V. S.]

**SHOULDER SLIP.**

E. F. Prescott Co., Ont.:—"A valuable mare of my father's has something wrong with shoulder. She is 5 years old, large, in fine condition, lively on the road, and very boisterous in her stall, frequently climbing into her manger, which is about as high as her chest, and sometimes has difficulty to pull the last foot out. At the end of January, after having started on a two-days trip, with a load of grain, at daylight, I noticed she was limping; she limped the whole journey till she got home; now it cannot be noticed, but about two or three weeks ago a large hollow appeared in her chest, as though the shoulder point were sprung out; last week that disappeared, but the shoulder seems to have moved forward, and just behind the bone on which the collar rests, is a hollow running from the top to the bottom, parallel with the collar, and about an inch or so deep. She shows no sign of any pain. Please advise and oblige yours truly."

[Your mare has shoulder slip, or sweeny, the result of sprain of the muscles of the shoulder, caused, in this case, no doubt, by the mare straining to get her feet out of the manger. At first there are swelling and soreness of the muscles, with sometimes lameness. The inflammation subsides, and is followed by atrophy (wasting away) of the muscles, when the animal is seldom lame, but there is usually an imperfect action; she fetches the foot forward in rather a rotatory motion. In extreme cases the shoulder slips partially out of joint at each step, hence the name "shoulder slip." Recovery is slow; it usually takes from 6 to 10 months to affect a perfect cure. The animal should have rest, but if forced to work her, she should be worked or driven on smooth and hard ground, on no account should she be used in the furrow to the plow. We sometimes insert setons, but it requires an expert to insert them, and I would advise the application of a blister about once every month until the muscles have regained their normal condition. Clip the hair off the affected parts, and use the same blister and apply the same way as is recommended in this issue for the colt with ringbone.]

J. H. REED, V. S.]

**PROBABLY TUBERCULOSIS.**

A READER, Huron Co., Ont.:—"I have a steer 3 years old that took a cough about two months ago. He seemed to breathe about a half too fast, and he went off his feed pretty much for some weeks, but by nursing him he has held his flesh pretty well. I do not think he is much thinner now than he was before he took sick. After he takes a drink he has a spell of coughing. Sometimes he seems to cough harder than others, and he seems to be breathing more regular now than a month ago. He has never got food to fatten him. He seems a lot brighter than he did six weeks ago. Is there any danger of tuberculosis? First few days he stood around, not eating. He was frothing at the mouth, but that only lasted for a few days. Now, as he continues to cough, are the other cattle safe near him? He is inside all the time since he took sick. He never seemed to run at the nose that I noticed."

[It is impossible to state positively whether your steer is affected with tuberculosis or suffering from an attack of inflammation of the lungs which has become chronic. As a rule, inflammation of the lungs will terminate either fatally or in a cure in much less time than your steer has been ill. The absence of a discharge from the nostrils and a fetid breath indicate tubercle. It is probable he had tuberculosis in a latent stage, and the cold and draft excited it to activity; then the removal to warmer quarters and good care partially arrested the disease. If he is tubercular, there is a danger in keeping him with other cattle, especially in the stable; there would be little danger of affection if running out in the open air. I would advise you to have him tested with tuberculin to decide whether he is affected. He is evidently suffering from some serious affection, as he refuses to eat enough to fatten.]

J. HUGO REED, V. S.]

**POLL EVIL.**

G. W., York Co., Ont.:—"We have a horse, 6 years old, that has a big lump on his head. It is about 3 weeks since we first noticed it, and it is sometimes larger than others; not very hard at present, but very tender. He will not let us rub it with anything if he can help it. We think he has bumped his head on the top of the stall. We are anxious to have him cured as quickly as possible, as he is a fine heavy draft, working every day except stormy days."

[Your horse has bruised the poll in some way, and the effect is what is called poll evil. In many cases, if properly treated in the early stages, serious results can be avoided; but if pus is formed, which in some cases occurs early, it will be a tedious case. Bathe the parts repeatedly and for a considerable time with warm water to allay the inflammation and alleviate the pain. When the inflammation has been allayed in this way, blister with the following: 1 dram each of powdered cantharides and biniodide of mercury, mixed with 1 ounce of vaseline or lard. Clip the hair off and apply the blister with smart friction; in 24 hours rub well again, and in 24 hours longer wash off and apply a little lard. Apply lard or sweet oil every day until the scale comes off; when, if there still be any enlargement, blister again. If, in the meantime, pus should form, it must be opened and all sinuses (if any be formed) dissected out. Of course, if this stage be reached, blistering must be ceased. If necessary to operate, you had better employ a veterinarian.]

J. HUGO REED, V. S.]

**UNTHRIFTY HORSE.**

T. McK., Lambton Co., Ont.:—"I have a horse, 6 years old, that never did much work. He has not done anything for three months, and is as poor as can be. His hair is dry and long. He looks as though he was wormy, but I have given him all kinds of medicines for worms and never could get any from him. A veterinary gave me a lot of powders, but they were of no use. I gave him a couple of balls of aloes. I feed whole oats and bran, ground oats and boiled, in changes, also hay, cornstalks and straw. He will eat all you may give him and won't gain in flesh. He is regular in his bowels and water. I also fed about two tablespoonfuls of raw linseed oil on his oats. His teeth are pretty sharp on the edges. Will you please tell me what will help him?"

"2. Give me a prescription for a good condition powder that will build a horse up in flesh, purify his blood, and give him life."

[Your horse is evidently a poor thriver. We occasionally meet a horse that cannot be put in good condition, and we also sometimes meet one that eats too much. The ability to eat appears unlimited in yours. I would advise you to have his teeth dressed, then feed the following powders, 1 1/2 ozs. each: Sulphate of iron, sulphate of copper, and calomel (the iron and copper, of course, must be finely powdered). Mix, and make into 12 powders and give one night and morning in damp food. After the last powder has been given, administer a purgative of about 1 oz. Barbadoes aloes and 2 drs. ginger, with water enough to make into a ball, or you can mix it with a pint of cold water and give as a drench. Don't feed anything but a little bran until the physic acts. After this, feed only a limited quantity of good hay twice daily, and a reasonable amount of good clean oats, either whole or chopped, three times daily, with a couple of feeds of bran about twice a week. A few carrots, say four or five daily with his midday meal, can also be fed to advantage. You might give a powder every night and morning for a couple of weeks, composed of 1 dr. each sulphate of iron and powdered gentian. If you give the powders you will need to feed either boiled oats or dampened chopped or crushed oats.]

As to your second question, any drugs that will act that way injure the constitution of the horse, and we therefore do not recommend such. If the horse to be made ready for market be in good health, careful and intelligent feeding and regular exercise and reasonable time are all that is required.]

J. H. REED, V. S.]

**NAVICULAR DISEASE.**

J. G., Wentworth Co., Ont.:—"I have a mare seven years old. I bought her last fall. She had been running the hard roads, I believe, before I had her. Her front feet are stiffened right up and her chest has drawn in. I thought with rest she would get better, but she has not. I had her out driving only a few times when the snow was soft, but then she is worse and can hardly move for awhile after it. She has not had shoes on since I've had her. Will you kindly oblige by giving me information as to what to do?"

[The symptoms given indicate navicular disease (coffin joint lameness), a well established case of which is incurable. The falling in of the muscles of the breast is a wasting of the muscular tissue due to the fact that the muscles are not performing their normal functions owing to tenderness of the feet. The symptoms may be relieved by poulticing the feet or by repeated blistering around the coronet, either of which will encourage the growth of horn and thereby relieve the contraction which is the result of inflammation in the joint. In some cases an animal will go better with bar shoes and in other cases bars appear to increase the symptoms. You might try them. It is not probable she will ever be sound, but with care you may get considerable satisfaction out of her at slow work. If she becomes practically useless, you might get a veterinarian to perform neurotomy (removing a portion of the nerves that supply the foot). This operation removes the lameness by removing sensation, but does not cure the disease. It is a last resort, as an animal may become entirely disabled shortly after the operation; while, on the other hand, she may go practically sound for an indefinite period.]

J. HUGO REED, V. S.]

**COWS IRREGULARLY IN SEASON.**

SUBSCRIBER, York Co., Ont.:—"Can you explain why cows come in heat irregularly. I own a registered bull, and have had a good deal of trouble with cows coming back frequently, generally in about ten days; they seem to be nearly crazy. I do not believe it is the fault of the bull, as cows properly in season hold all right. The trouble is general in his district, nearly every farmer has one or two in his herd."

[We should judge from the description that there is contagious abortion among cows in the neighborhood, as this is one of its accompaniments. There is no sense nor use in having cows served that come in heat irregularly; and if abortion is the cause, the bull which serves them is liable to convey the disease to healthy cows bred to him, and thus to extend the trouble. The "crazy" cows should be kept tied up, or separate from the healthy ones, and not served for two or three months, or till they get quiet and regular, if they ever do, which, in many cases, is doubtful. Treatment for this trouble is given in an article headed "Abortion in Cows," in this issue.]

**ASCITES IN CALF.**

W. W., Durham Co., Ont.:—"I have a Short-horn heifer of good pedigree, 2 years old last November, well grown, calved the 26th ult. Calf was weak, could not rise. There was a quantity of loose water in the stomach and bowels. We could notice the water rattle as we moved the calf. Could anything have been done at the time by a vet. to save the calf?"

"Do you advise breeding her again? She was very large for months before calving. So much water at calving I never saw. The heifer is doing very well. She was on rape in the fall with the other stock. Would that be hurtful?"

[The calf had abdominal dropsy, or ascites, and nothing could have been done to save it. There was also, evidently, an abnormal quantity of fluid (called amniotic fluid) in the womb of the dam. It is probable the large quantities of rape eaten by the cow during the fall had something to do with the formation of the fluids, although this condition occasionally occurs under different circumstances; in fact, it is liable to occur during any pregnancy, and with some females it is habitual. I would advise breeding her again, and also advise that she be not allowed to feed on rape or like forage during pregnancy. If the same condition should occur again, it would be better to fit her for the block.]

J. H. REED, V. S.]

**OBSCURE DISEASE IN SHEEP.**

L. J. W., Durham Co., Ont.:—"In your valuable paper will you please give me some information? I have taken your paper for 17 years. I have a sheep which acted sleepy and dumpy for several days, then got off her feet and took the scours, then went very weak. When I had done all I could, I thought it wise to try and save the hide at least, so killed and opened her. I found everything as natural as could be, as far as I knew, and was in good flesh; used to grain once a day; was not in lamb."

[From symptoms given it is impossible to say the cause of illness in this ewe. The post-mortem symptoms given are entirely negative, and the ante-mortem symptoms do not definitely indicate anything positive. Such symptoms are frequently caused by a plugging of the opening from the stomach into the intestine. This frequently occurs by some foreign object, as a wool or hair ball or other obstruction becoming insinuated in the opening. It may be the liver was diseased, which caused digestion trouble.]

J. HUGO REED, V. S.]

**Miscellaneous.**

**CULTIVATION OF HEDGES—CEMENT WALLS.**

J. L. KELLY, Lambton Co., Ont.:—"The ADVOCATE suits us in every department. As the work for each season rolls around, there is good advice given. I have put in cement floor and foundation under buildings in 1890. Foundation timber and fence timber are getting scarce in our neighborhood. Would you kindly give your opinion in the ADVOCATE on cultivation of hedge fence and making cement walls?"

[From our observation of hedges, we are very little encouraged to recommend that form of fencing. We have noticed many attempts to grow hedges as stock barriers, and we have seen more disappointments than successes so far. Honey locust has been the chief hedge plant used in Ontario, and when well attended, in suitable land, a good fence has been secured in six or seven years, and with annual prunings improve, year by year afterwards. Of course, these hedges were pushed and held in position by barbed wire. The chief causes of failure have been plants dying from being barked with mice, and other causes, leaving blanks, throwing the entire fence a year behind or ruining it altogether, as the plants require to have three or four years of good growth before being trimmed into hedge form. When preparing ground for a hedge, it should be well manured and cultivated the previous year. One or two year old plants should be set in spring, about a foot apart, a little deeper than they stood in the ground before being dug. The soil should be cultivated so as to be kept free from weeds and grass until the plants are four or five feet high. They should then be trimmed off to about three and a-half or four feet high, and each year afterwards the hedge should be trimmed into shape. This causes it to thicken up, and if two or three strands of barbed wire have been stapled to the plants the first time they were trimmed up, a fairly good fence will likely be the result. There are objections, however, to hedge fences. They draw quite heavily on plant food and moisture from either side for several feet; they require annual trimming, which means considerable labor, to say nothing of the time and labor required before the row becomes a fence. Along the front of a farm, or as borders to a lawn where an ornamental effect is desirable, a hedge, to our minds, is quite in place, but in these days of rush and changing conditions, a hedge fence is too slow of completion, and being immovable, without destruction, is too much of a fixture for the Canadian farm. The increasing value of timber, as Mr. K. infers, has made the fencing problem somewhat difficult of solution, but with the advent of the so-called "iron age" comes the ever-increasing and improving wire structures, which are already proving to be superior to wood for fencing purposes, even though the latter were not advancing in price.]

Regarding cement walls, we would refer Mr. Kelly to the FARMER'S ADVOCATE of Feb. 1st, 1900, pages 64 and 65.]

## SILO CONSTRUCTION—DOGS.

Wm. S., Wellington, Ont.:—"I want to build a silo. I have had the lumber cut for 3 years. Hemlock, the very best, 2 in. thick, from 4 to 10 in. wide; and two pieces, 2x6, to splice my bands on, as I was going to put the bands just half way round, and the two pieces would make staves, and project 4 in. for the bolts to run through. My lumber is 24 ft. long, and I intended making it 14 ft. in diameter. Of course, I wanted to build as cheap as I could. Now, I can get \$15 per thousand for my lumber, and some people tell me a cement one is the cheapest, so I just want to know all particulars, so kindly answer me the following questions:

"1. Would you advise me to build a wood or cement silo, the lumber at \$15 per thousand, and cement at \$3 per large barrel?

"2. What would be the cost of a silo, 15 ft. diameter, 20 ft. high, with cement at \$3 per barrel, and the very best gravel?

"3. How many hoops will one take, 15 ft. by 24 ft. high, and the size of the iron for hoops?

"4. How much will one hold, 15x20 ft.?

"5. What is the law with regard to dogs worrying sheep? Can a man shoot a dog he sees among his sheep, or stray dogs generally?

"6. I would like if some of the windmill owners would tell us how they like them for power work?"

1. A square cement silo, 15 feet in diameter and 20 feet high, will require about 40 barrels of cement and four times as much good sharp gravel and small stones. It will cost about \$20 for labor, and will hold about 60 tons of silage. If well constructed and thoroughly set before being filled, it should last a lifetime or longer. A stave silo, 15 feet in diameter and 24 feet high, will require 1,104 feet of plank, or 2,208 feet board measure. It will need 7 hoops of 3/4-inch round iron, and will hold about 75 tons of silage. If kept properly tightened, and the bottoms of the planks set in cement up out of the ground, we see no reason why a round stave silo will not last from 16 to 20 years, or longer. If one has substantial farm buildings, that are likely to remain as they are for 40 or 50 years, the cement silo would probably be most satisfactory, as it would require practically no attention to keep it in as perfect order as when new. If, on the other hand, there is a probability of having to overhaul the buildings within the next ten or fifteen years, the stave silo would probably give very satisfactory results.

2. The cement silo would cost about \$120 for cement and \$20 for labor, besides the expense of roof, doors, etc.

3. Seven hoops of 3/4-inch round iron, with 3/4-inch threads, should hold the silo firmly. The second hoop should be placed about 2 feet from the bottom, the 3rd 5 feet, the 4th 8, the 5th 13, the 6th 18, and the 7th 24 feet from the bottom of the silo.

4. A square silo, 15 feet in diameter by 20 feet deep, will hold about 65 tons of silage, or if round, a few tons less.

5. Any person may kill any dog which he sees pursuing or worrying any sheep or lamb, and persons owning dogs addicted to sheep-worrying may be summoned before a justice of the peace, and, on conviction of the fact, the dog may be ordered to be killed and the owner fined. One cannot legally destroy a dog that may be straying about harmlessly.

6. We firmly believe modern steel power mills, when properly erected in favorable locations, are eminently satisfactory. We say this from a knowledge of the experience of many who have given power mills a trial. We will be pleased, however, to hear from users of power mills just what their opinions are regarding their usefulness.]

## WATER IN THE STABLE.

READER:—"I would ask your advice about putting water in my stable. I have water running into a trough in the yard, but some of my neighbors have it in the stable and it seems to be a great convenience. In your opinion does it injure the cattle's health not to go outdoors at all during the cold weather? Where would be the best place to get information re buckets, piping, etc., and what would be the probable cost for a stable for fifty head of cattle and horses? We have lots of running water from a spring."

[About two years ago we asked a number of stock farmers who had given watering in the stable a trial as to their opinions of the plan, and without a single exception all were convinced that much convenience and benefit were derived therefrom. Occasionally we find a man who has defective troughs in his stable, which leads him to find fault with his troughs, but not necessarily with the system. Having water in the stable, accessible to the stock at all times, should not be taken as an excuse for leaving them in all winter. While it may not be easy to trace injury to the stock to constant housing, there is no question in our mind but that a little daily exercise in the open air in fine weather must be advantageous. We do not approve of making it a rule to turn the stock out into the yard for a certain number of hours every day, irrespective of the weather. There are many days in the course of a winter when stock should not be turned out, and many others when a half hour's liberty would be sufficient, while there are many days in which several hours outside would be beneficial to the stock. For prices and descriptions of watering basins, pipes, etc., write the following firms, mentioning the FARMER'S ADVOCATE: Ontario Wind Engine and Pump Co., Toronto, Ont.; Woodstock Wind Motor Co., Woodstock, Ont.; Gould, Shapley & Muir Co., Brantford, Ont.; and Raney Selby Co., Kingston, Ont.]

## INSECT PESTS ON PUMPKINS, MANGELS, TURNIPS.

J. B. H., Lambton Co., Ont.:—"1. Last season my pumpkin crop was seriously attacked by two sorts of bugs, one eating the vines and foliage and the other the fruit. I tried Paris green on the vines and flour paste with aloes on the pumpkins, but without effect.

"2. My mangel crop in the garden was badly infested with black ants, and although I could find no ant-hills, they were travelling thickly over the ground and ate holes in the mangels, which were further destroyed by fowls. Those grown 30 rods away in a field were not molested. I used Paris green with sugar, which killed only a few.

"3. The turnip louse destroyed my early turnips and most of the late ones, as well as badly infesting my cabbages. We used poisoned shorts on them without any visible effect. Kindly tell me in an early issue of your paper how best to deal with these various pests?"

[1. In all probability the insect that ate the pumpkin vines was the squash bug (*Anasa tristis*), a rusty-brown flattened bug about half an inch long, with the under side yellow, and has a very repulsive buggy odor. Leaves attacked by this bug become sickly and yellow, and if the pests are numerous, the whole plant may finally die. It is not easy to destroy this insect without hand-picking during the cooler hours of the day while the bugs are sluggish. It is of little use to attempt to poison them, as they do not eat from the surface, but insert their tiny beaks and suck the sap. Kerosene emulsion applied when the bugs are in the young, soft stage is about the only useful application. The insect that injured the pumpkins proper was probably the Twelve-spotted Diabrotica, a small yellow beetle with twelve black spots on its wing-covers. The best remedy is to surround the vines by light frames and cover them with muslin. Applications of slaked lime, land plaster, soot and ashes have all been recommended, and are undoubtedly of some value.

2. A remedy that is suggested on the face of the question is to grow the mangels away from garden or orchard, in the field. About the only satisfactory way of destroying ants, however, is to hunt up their hills by following several of them individually, as they have hills somewhere at no great distance. When the hill is found the insects can be destroyed by punching several holes deeply into the nest and pouring into each a tablespoonful of bisulphide of carbon. Throw a damp blanket over this, and in a few minutes remove it and hold a flame of fire at the end of a long pole close down to the hill, which will cause the fumes of the chemical to explode, forcing poisonous vapor throughout the nest, destroying most of the inmates. After this is done it would not be amiss to pour on a pail of boiling water to complete the job.

3. The turnip louse, also known as the cabbage aphid (*Apis brassicae*), is a very injurious enemy of the cabbage, turnip, and other cruciferous plants. It is a small greenish insect, generally covered with a whitish mealy coating. It appears in great numbers on the leaves in the early autumn. Since it sucks its food from beneath the surface of the leaf, poisons such as Paris green are of no avail. Kerosene emulsion applied with a sprayer is the proper treatment, as the coal oil penetrates its soft body and kills it instantly. Before endeavoring to destroy any insect it is important to learn something of its habits and method of taking its food, then the best application can be given in the most effective manner.]

## PEAS FOR PLOWING UNDER.

CRAZY SAM, Compton Co., Que.:—"1. I have an eight or ten acre field that is run out. It has also been pastured for a few years. I am thinking of raising a crop of green oats for fodder and as soon as the oats are harvested, sowing it to peas to be plowed in. Do you think the season is long enough to do that? Do you approve of the plan? If not, what would you suggest? Must the peas be plowed under before frost time? What kind of peas are best for such?"

2. How much of the value of manure is lost if allowed to remain all summer under cover, being trampled hard by hogs, and hogs also allowed to run on it during summer?"

[Since seeding with peas is expensive, and the growing season after harvesting green oats is so short, we are not inclined to recommend enriching land in that way. Our plan would be to sow the oats rather thinly, and sow at the same time about ten pounds of Red clover seed per acre. This will not provide much of a crop to plow down this coming fall, but if a fair catch is secured, a good bulk of valuable green manure will be ready for plowing down the following June. If it is feared a good catch of clover will not be secured, it will be well to sow rape as soon as the ground can be gotten ready after the oats are removed. Sow about four pounds of seed to the acre, broadcast, in a mellow seed-bed.

2. Manure loses value just in proportion as it ferments or is subject to leaching. Under a shed leaching would likely be almost entirely prevented, but we cannot see how the pile would escape decomposition in greater or less degree, even though it is kept firmly tramped. It is impossible to say just what the loss would be by keeping the manure in a pile all summer, but it would certainly be considerable. It would be much better to get the manure into the soil soon after it is taken from the stalls, as then it has lost nothing and the fermentation that will take place in the soil will do the land good not only by the fertility that it will add, but also from the effect it would have in setting free inert plant food.]

## WEEDY LAND—SOWING MIXED GRAINS.

A SUBSCRIBER, Montreal:—"I purchased a farm last July which had been idle a year and badly cultivated for some time previous. It produced a very heavy crop of wild mustard and other weeds. These I had cut and burned, but much of these went into the ground. I had the farm plowed about August, after which most of the mustard grew, and the plants were frozen in the fall. Will I be safe in planting the crop this spring, or will the weeds likely choke the grain? Can mustard be successfully fought with the spraying outfit? 2. I am going in for hog-raising for market, and want to sow oats, peas and barley mixed. Not having had experience, I would like to know about the amount of seed and the portions per acre. The soil is inclined to be light, but about 10 acres of sod I had plowed seems in fairly good condition. I am having manure hauled this winter."

[Land cannot yield two full crops at the same time, and since the weeds already have possession, it would seem wise to manage the land this year in such a way as to clear it as far as possible. Were such a way as to clear it in the land, no doubt a fairly good crop of grain could be secured by spraying with a 2 per cent. solution of copper sulphate a short time before the mustard is ready to head out. A test conducted on a farm near the Guelph Agricultural College last year proved that copper sulphate 2 per cent. strong (two pounds in 10 gallons of water) will effectively destroy the mustard plants without injuring the grain. If this were done year after year, thus preventing plants from maturing in seed, the field would ultimately become cleared. In effect, however, this would require a long time, since every plant could not be touched with the spray in a growing crop, and then it would take years of ordinary cropping before all the seed in the soil would have germinated. Our advice would be to grow a hoed crop, such as roots, potatoes or corn, giving careful attention to cultivation throughout the season, or otherwise summer-fallow the land this year and grow a hoed crop next year. If a hoed crop is grown, the land should be well worked from spring till planting time, so as to cause as many as possible of the weed seeds to germinate and be destroyed. Thorough surface cultivation while the crop is growing will repay itself in the help it will give the crop, and will clean the land at the same time. If summer-fallow is attempted it would be well to allow the weeds to grow till probably June 1st, then plow and cultivate for a month or six weeks, and sow with buckwheat, one bushel per acre, to plow under, or rape, 4 pounds broadcast per acre, to feed off or plow down. If the rape is sown two pounds per acre, in drills 28 inches apart, it can be cultivated while growing, to the advantage of the crop and the destruction of the weeds.

2. There are various proportions of these grains recommended. We have found it necessary to sow more peas in proportion to the other grain that is expected to be harvested. In fact, sometimes the entire pea crop will be smothered out. One bushel of oats, one bushel of peas and three pecks of barley per acre should prove a good seeding. It would be well to use two-rowed barley and any varieties of peas and oats that do well in the section.]

## APPLYING MANURE TO SUMMER-FALLOW.

NEW SUBSCRIBER, Perth Co., Ont.:—"Having read the editorial and the suggestions that follow from other writers, on 'The Making and Application of Farmyard Manure,' I would like your advice on the following: I have a field of very light sandy soil, which is of poor quality, and intend to summer-fallow it on account of Canadian thistles. It was seeded down with Alsike clover last spring, which I intend plowing down for manure. 1. Would it pay to buy ashes to sow on this soil, besides giving it a light coat of manure? 2. As the manure is very coarse, would it be advisable to spread it over the field now and leave it there till next June before it is plowed under? The clover might derive some benefit from it, but would that pay in return for having the manure there that long? I would suggest hauling it out in large flat heaps. By giving your practical advice on this matter you will greatly oblige."

[1. Fresh unleached hardwood ashes are estimated to be worth twenty-five cents per bushel for the potash they contain. Sandy soil in poor condition is almost invariably deficient in potash, so that if good ashes can be bought for a price lower than we have mentioned, the investment will be a good one. Leached ashes are of little or no value.

2. Unless the manure were applied so thickly as to smother the clover to some extent, we consider it advisable to spread it while the ground is frozen, as then the growing clover and weeds will take up the soluble manure, producing a heavy crop to plow under. The manure would lose nothing whatever from lying on the ground in this way, while considerable loss would occur from piling the manure in the fields as is suggested.]

## MUSTARD SEED FOR STOCK—A SUGGESTION.

C. C. N., Prescott Co., Ont.:—"Is wild mustard seed of any value for feeding stock? If so, how ought it to be fed, ground or unground, boiled or unboiled, or mixed with other grain, and what stock is it good for? I would suggest that those advertising stock for sale mention the county in which they live."

[I have had no experience with wild mustard seed for stock. If I fed it, I would most certainly either boil or grind it. I would not hesitate to feed it, but would mix it largely with something else. Cannot somebody who has fed this product throw some light on the question? G. E. DAY, O.A.C., Guelph.]

## THE FARMER'S ADVOCATE.

APRIL 2, 1900.

## ROUND BRICK SILO - OATS AND PEAS, ALSO CLOVER FOR SILAGE.

J. H. H., Norfolk Co., Ont.:—"Would you please give me, through your valuable ADVOCATE, information whether a round silo built of brick would stand the pressure by putting it about ten feet down in the ground and about twenty feet above? Would oats and peas mixed, cut on the green side, also clover, save in the silo?"

[1. Having never seen a round brick silo tested, we cannot offer more than an opinion as to the resisting power of such a structure. No doubt a brick silo could be made strong enough to resist the strain, but we think at too great cost to warrant such an undertaking. We would much prefer using cement concrete, or plank, and setting it on top of the ground. A cement silo can be made eight-sided, which is practically as good as the round form for keeping the silage. Plank could be set up in round tub form, and hooped with 3/4-inch round iron, so as to give satisfaction.

2. There appears to be no difficulty in getting good ensilage from clover, but we do not feel like recommending green oats and peas, from our present experimental knowledge. The clover should be mowed at the same stage as for hay, and put in without being allowed to wilt to any extent. If it has become rather dry, water should be sprayed on as it goes into the silo. If the clover is very green and has dew on it, it is better to allow it to dry off before cutting, else the silage will be too sour. It is well to fill continuously when started, levelling and tramping well as the filling proceeds.]

## CROP TO GROW - CEMENT FLOORING - ROOFING - WHITEWASHING - SEPARATORS - INCUBATORS - PEA BLIGHT.

SUBSCRIBER, Prince Edward Island:—"I have been a subscriber to the ADVOCATE for some time, and find it is worth many times its subscription price every year. I would like information on some subjects:

"1. In the season of 1896 I sowed 5 acres of sod with oats; in 1897 manured, and grew potatoes, turnips and mangels in field; during winter gave field light coat of gas lime; sowed wheat in 1898; and last summer (1899) cut a good crop of clover hay in last of July; in October plowed down the sod, plowing about 3 to 4 inches deep (we usually plow 6 inches). At the time of plowing last October, the field was almost a solid body of green clover, some stocks measured from 20 to 25 or 26 inches long. Now, what would you advise sowing next season? It does not suit us to take another crop of roots.

"2. I have a building, 22x24 feet, that I wish to use for a cow stable. What would be the cost to floor it with cement, and what is the cost of cement per barrel?"

"3. Is cement a suitable material for horse stall floors?"

"4. Is it best to coat a shingled roof with paint, oil or tar, or would it last longer without anything, as some advise?"

"5. Is there anything cheaper than shingles for roofs in this country?"

"6. Can a Spramotor be made to do good work as a whitewashing machine, and what would be the cost of an outfit for both whitewashing and orchard spraying?"

"7. Have the disk cream separators much superiority over the bowl separators?"

"8. What is the difference between the Prairie State incubator and the Cyphers, and can an incubator be used to advantage without a brooder?"

"9. Last year I had about 3 acres of field peas that did well till about 15 inches high, then wilted completely in 3 days. What was the cause, and would you advise sowing any this year?"

[1. The field should be in first-class condition to yield a full yield of any crop that does well in the district. If oats are grown, it would be well to select a variety that grows stiff straw of medium length. Whatever grain is sown, rather thin seeding should be given.

2. The varieties of cement with which we are most conversant, viz., Queenston and Thorold, and which are mined and prepared near Niagara Falls, Ont., make very satisfactory stable floors. One barrel of either, mixed with gravel and sand in proper proportion, will do 45 square feet of floor, so that the space 22 by 24 feet would consume about 12 barrels of cement. The cements cost about \$1 per barrel at the works, to which would require to be added the necessary freight bill for transportation.

3. When cement is used for horse stalls, it is well to bed in smooth cobblestones almost flush with the surface, binding and leveling up with cement. Horse stalls are more generally finished by laying two-inch plank over the cement for the animals to stand on. They can be nailed down to scantlings bedded into the cement, or the entire platform can be bound together and laid in behind the post, fitting firmly. It is well to provide for removing the planks occasionally in order to clean the floor thoroughly.

4. If shingles are painted or oiled before being laid, so as to render them entirely waterproof, no doubt the life of the roof thus covered would be materially lengthened, but when painting is done, as ordinarily, by applying the material to the exposed surface only, the tendency seems rather to hasten its destruction than preserve it, as the wet gets above the paint, rotting the shingle at that point.

5. We are not conversant with the prices of roofing materials in Prince Edward Island, but are aware that several new roofing materials are on the market, among which we may refer to that made by the Metallic Roofing Co., Toronto, Ont.,

and the Mica Roofing Co., Hamilton, Ont., either of which will quote prices on application.

6. The Spramotor is now very largely used for whitewashing, which it does remarkably well. Outfits can be purchased at from \$8 to \$16, according to size of machine and fittings. An extra nozzle, costing 75 cents, is necessary for whitewashing. The Spramotor Co., London, Ont., will send an instructive catalogue and price list on application.

7. It is claimed that some of the disk separators will skim more closely at lower temperatures than bowl separators without disks. We are not prepared to say which kinds have the majority of superior points.

8. We believe either of these machines to be first-class in workmanship and correct in principle, and therefore capable of yielding a high percentage of successful hatches when correctly operated. A brooder is certainly necessary during cold weather, and will give best results at any season when broody hens are not procurable to cover the chickens.

9. This extraordinary case of peas wilting completely in three days is the first of the kind that has ever come to our notice. We would be pleased to receive light upon the subject from any of our readers. If peas have done well on the same farm in years previous to 1899, we would not hesitate to sow a small area the coming spring, as such a trouble is not likely to recur under ordinary circumstances.]

## WEEDS IN CLOVER SEED.

G. P. R., Northumberland Co., Ont.:—"Enclosed find three specimens of seed found in a sample of clover supplied by a prominent Canadian seedsman. Be so good as to identify them (black, grey, and brown) and state whether they are noxious and oblige."

[We find four varieties of weed seeds in the collection sent in by G. P. R., viz., Canadian thistle (*Cirsium arvense*), plantain (*Plantago lanceolata*), smartweed (*Polygonum persicaria*), and foxtail (*Setaria glauca*). Plantain, or rib grass, has become a source of great annoyance in many sections in Canada into which it has been introduced from Europe in grass and clover seeds. It gives most trouble in pastures and meadows, but need not be feared in cultivated fields. In grass fields it will multiply and take the place of the crops we wish to grow. The seeds are about the same shape as grains of wheat or rye, having a crease down one side, but are about the same size as red clover seed. They are yellowish brown in color. There were just two thistle seeds in the collection, which may account for their not being noticed by G. P. R. Canadian thistle is a bad weed that needs no description. The smartweed and foxtail seeds were sent to Prof. Lochhead, Botanist at the Agricultural College Guelph, who writes as follows: The two weed seeds you enclosed are smartweed and foxtail. The black, shining seeds are those of smartweed or lady's thumb (*Polygonum persicaria*), and grayish-brown seeds are the seeds of foxtail (*Setaria glauca*). Both of these seeds are common impurities in clover seed, and if abundant, the clover seed should be rejected; but I am of the opinion that if only a few of each can be observed the clover seed may be safely sown. Both of the above weeds are animals, and can do but little damage. Where the catch of clover is at all good, a little careful oversight will clean out any of the smartweeds or foxtails which have managed to survive the strangulation in the field of clover. The foxtail usually makes its appearance in fields after harvesting, or in root-crop fields at the head-rows or between the rows. The stalks should be carefully pulled and burned. It is quite possible that the seeds can remain dormant in the soil for several years.]

W. LOCHHEAD.]

EARLY OATS FOR MIXING WITH BARLEY.

J. B., Wellington Co., Ont.:—"Is there any variety of oats suitable to mix with the common six-rowed or the Mandscheuri barley so that the grains can be sown together for grain production?"

[Both the common six-rowed and the Mandscheuri are early varieties of barley, and it will require some very early variety of oats to mix with either one of them, or the crop will not ripen evenly. The Daubeney variety of oats is the earliest among upwards of two hundred kinds which we have grown in the experimental plots at Guelph. This variety would be suitable to sow either alone or when mixed with either of the varieties of barley here mentioned. Not only is it exceedingly early, but the yield of grain per acre is good and the grain is white, thin in the hull, and weighs over the standard per measured bushel. The straw is medium in length, and usually stands up well. The Daubeney is one of three varieties of oats used for the co-operative experiments over Ontario this year.]

C. A. ZAVITZ.

Agricultural College, Guelph, March 28th, 1900.]

## TIME TO TOP POPLARS.

W. H., Atwood, Ont.:—"Please give, through the columns of your paper, the proper time to cut the tops off poplar trees. I wish to take about 20 ft. from the top of each. Could it be done now and still not prevent the growth of the young shoots in the spring?"

[In reply to your subscriber's question, as to when is the proper time to cut the tops off poplar trees to produce the most vigorous growth of young shoots, I would suggest cutting them off between now and when growth begins, as by pruning when the tree is in a dormant or almost dormant condition its growth will not be checked as much as if it were done when it were growing thriftily.]

W. T. MACOUTN, Horticulturist.

Central Exp'l Farm, Ottawa.]

## CEMENT CURB IN WELL.

R. D. SMITH, Provencher Dist., Man.:—"I have a flowing well which I find difficult to control, as there is a wooden piping in it, and at the top a box about 3 feet square and 6 feet deep, the water rising to about 3 feet above the ground. Could a cement jacket be built around the boxing to hold the flow and stand frost? There is a good clay subsoil. If this can be done, I should like to know how to proceed."

[In reply to yours of the 15th, re inquiry of R. D. Smith: Yes, a cement jacket 18 inches thick and of the depth or height mentioned can be built on the outside of the box referred to. The work would be done as stated in your February 1st, 1900, issue, pages 64 and 165. The box referred to would require to be made tight, so as to prevent water from washing the cement concrete while in the green state or before it has set. After setting, the concrete jacket would be plastered with a covering coat of about 1/2 of an inch thick, composed of one part cement and one part fine, sharp, clean sand. D. BATTLE.

Thorold, Ont.]

## SEED-GRAIN SAMPLES.

R. H. C., Huron Co., Ont.:—"I want information as to the amount of free samples of seed grain sent out by the Model Farm at Guelph and the Experimental Farm at Ottawa—the number of different kinds and amount of each; also who to write to at either farm?"

[Elsewhere in this issue we publish a list of material to be sent out from the Guelph Experimental Farm, under the direction of the Ontario Agricultural College and Experimental Union, of which Mr. C. A. Zavitz, O. A. C., Guelph, is the Director. In our issue of Feb. 1st, 1900, page 64, there appears a letter from Prof. Wm. Saunders, Director of the Experimental Farms, setting forth the conditions under which samples of grains, etc., will be sent out from the Ottawa Farm. The distribution will consist of samples of oats, spring wheat, barley, peas, corn, and potatoes. Each sample will weigh three pounds, and will be sent only to those who apply personally. Application should be made to the Director of Experimental Farms, Ottawa, and mention should be made of the sort of grain preferred.]

RECIPE FOR CORNING BEEF.

E. S., Huron Co., Ont.:—"Can you tell me through the columns of your valuable journal what is considered a good way to corn beef in the winter or spring, so that it will keep well during the summer?"

[Cut the beef in pieces, leaving out the large bones; pack solid in a large crock or other similar vessels, with a weight on top. Pour over the beef boiling hot brine made as follows: Two gallons of water, three pounds of salt, one ounce of saltpetre, a pound of sugar, and two large spoonfuls of baking soda. After two weeks, heat and skim the brine, and repeat the process occasionally, but never put on the brine hot after the first time. If the weather is hot, it is well to add a handful of salt and soda at any time, and, like all pickling, be sure the brine covers the beef. If packed in a barrel, a large cloth should be securely tied over it in summer to secure its contents from flies. A half-barrel earthen jar is perhaps the nicest vessel one can use.]

STUMP DESTRUCTION.

S. H., Dundas Co., Ont.:—"I have some green elm stumps which I would like to get rid of as soon as possible. Have heard if I bored a hole in center of stump and put saltpetre in, and left in some months, they would then burn out. Can you tell me through the ADVOCATE if it can be done; if so, how much should be put in? Also, how deep should the hole be bored?"

[While we have heard the treatment referred to recommended, we cannot speak with authority regarding it. Perhaps some of our readers who have tried it can inform us as to its merits, and give instructions in carrying it out.]

## SUBSTITUTE FOR GLASS WANTED.

J. D., N. Westminster Co., B. C.:—"As I am making a hotbed, I wish to know if there is any substitute for glass, equally as good. If so, please let me know through your ADVOCATE where I could procure it?"

[So far as we are aware, no material has yet been produced to take the place of glass as covering for hotbeds. We know of a large number of greenhouses in operation, and glass is the only material used to let in the light and heat and keep out the cold. If any of our readers know of a material that is more satisfactory and sufficiently cheap to warrant its use, we would gladly hear from them.]

## BEEF BREEDS COMPARED.

C. F. S., New Brunswick:—"How do Aberdeen-Angus cattle compare with Shorthorns and Herefords? Do they grow as large and are they easy to feed?"

[The answer might properly be given in the one word "yes." The average Aberdeen-Angus is quite as large and as easy to feed as the average Shorthorn or Hereford of the modern and most approved type. The best in each of the three breeds are all built on the same plan.]

## BEAN GROWING.

OLD SUBSCRIBER, Middlesex Co., Ont.:—"Assume it this locality intend again going into bean cultivation, would you advise as to the best kind of seed, proper time to plant, and best mode of cultivation and harvesting?"

[See FARMER'S ADVOCATE, February 15th, 1900, page 93.]

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C., Guelph.]

RECIPE FOR TANNING DEER SKINS WANTED. R. LEAN, Labelle Co., Que.: "Can you give me recipe for tanning deer skins for Indian moccasins through the FARMER'S ADVOCATE?"

MARKETS.

FARM GOSSIP.

Oxford County.

March so far has been a very stormy month with us. Roads badly drifted, and travelling or teaming is not easy. There have been some timber buyers operating here, and a considerable quantity of square timber has been got out and shipped to the seaboard, mostly elm, but also a little of pine, oak, cherry, etc.

Eggs have been a good price until lately. Butter has also sold well, at from 20 to 25 cents. Although our cheesemaker has a butter plant, he is to start into making cheese on the 1st April. The Huron correspondent asks about a butter plant. I think it is all right and a good thing, especially when the cheese is low and dull of sale, because then the buyers make an outcry about fodder cheese, but when the price is over 10 cents there is little or no distinction.

Someone was asking in the ADVOCATE if it would be a good plan to make a cement cistern to hold rain water for pigs. I think not. I have a tub cistern 8 feet square and about 3 feet bottom, which is supplied from the roof, and I fancy it is better than a cement one underground. It is above the pigs, and the water does not require to be pumped up, and has worked satisfactorily so far.

We have all our seed grain cleaned up, ready for sowing, and are now getting the balance of the manure hauled out, and will yet have time to get the year's wood split and piled up in the woodshed, harness oiled up, etc., and other preparations made for spring work, so that there will be no delay when the season opens.

There are appearances that the hired-help problem will be a serious one, as men are reported to be scarce and wages ruling high.

Still a number of farms have been changing hands. There have been more sales of farm property than for many years past.

A large number of young store cattle are still being shipped out of the country, largely to Buffalo, and also to points in the Northwest.

P. E. Island.

The mild weather still continues. Fields are all bare; clover will stand a hard chance of wintering. Difficult to get farm work done on account of scarcity of snow all winter. Farmers are not able to get manure mud from the beds any distance to their farms, and as a consequence the P. E. Island Railway is carrying great quantities of it into the center of the country. Much of this fertilizer is being carried by rail a distance of fifty miles, and costs about \$1 a ton landed at the railway station. A first application of it pays well even at this price. Where farmers can get to the mussel beds with their teams they get a ton of it for about 20c.

The P. E. Island Dairymen's Association held their annual meeting in Charlottetown on the 8th of March. There was a large attendance of representatives from the dairy stations. There were thirty-four factories, six creameries and two skimming stations in operation during the last season. The gross average price of butter at the creameries was 19.06c, and the net average was 14.23c. The average price of milk was 59.62c per hundred pounds, and it took an average of 23.86 pounds of milk to make a pound of butter.

The gross average price of cheese for the season was 10.042c per pound, and the net average to patrons 8.11c. The net average price of milk was 7.96c per hundred pounds, and an average of 10.40 pounds of milk was required for a pound of cheese.

The total amount of milk received at all the dairy stations in 1899 was 55,605,581 pounds, the gross value \$513,342.50, and the net value \$481,039.69.

The increase in the milk supply of 1899 over 1898 amounted to 13,212,138 pounds. It will be seen by the foregoing figures that our dairy business was profitable during 1899. The average price of cheese is, I believe, as high or higher than the average of Ontario. Several new cheese factories are being built, and at least two creameries are putting in cheese plants.

Some of our factory managers are taking the course at the "Sussex Dairy School," which opened the 1st of March and will continue till April 12th. This will keep them in touch with the latest theory and practice of dairying.

Prices.—Best beef cattle, 4c. to 5c.; common, 3c. to 4c. Hogs, alive, 4c.; dressed, 6c. Hay, \$3 to \$10 per ton. Oats, 31c. Butter, creamery, 22c.; dairy, 18c. Timothy seed, 4c. per pound. Wheat, 70c. per bushel.

We have had daily communication with the mainland this winter by steamer. The ice boats have never been used. Shipping produce has been going on all winter. W. S. March 21st.

Kent County, Ont.

We had an exceedingly open winter until the 1st of March, when snow fell to a depth of nearly two feet on the level, and this, with an additional snowfall now and then, has kept us in splendid sleighing ever since. Three weeks of sleighing is something new for this locality, and it is needless to say business is rushing. Warm rains yesterday and to-day are leaving the roads bare and our fall wheat covered with a sheet of snowy ice, and to-night (19th) it is freezing quite hard again. This will prove disastrous to the wheat outlook is rather black at present. Wheat remains the same price, but firmer. Beans are strong, at \$1.40 per bushel. Coarse grains remain about the same. Potatoes vary in price from 65c. to 75c. per bushel. Butter 22c. to 25c. per lb. Eggs 15c. per dozen. Pork is advancing; \$6.00 to \$6.25 per cwt. is now paid, and live hogs bringing \$5.00 per cwt. There is strong talk of starting a pork-packing establishment in Chatham, and there is no doubt it would prove a success, as Kent and Essex are both great hog-producing counties. The company for developing the peat beds has been formed, and it is expected that work will begin as soon as spring opens. W. A. McG.

Perth County, Ont.

Since last report we have had all kinds of weather, gradually settling down to winter in real earnest, with heaps of snow and terrific winds. We are beginning to feel severely the results of the denudation of the forest, so that unless measures are taken to replant, our climate will be even more unbearable than that of the Northwest.

Auction sales have been numerous here this spring, somewhat more than the usual number of owners drifting westward, but in spite of hard weather and scarce fodder, stock has gone off briskly. Pigs, which is one of our main standbys, fluctuate with the market; but real prime stock inevitably bring paying prices. I saw a good Yorkshire grade brood sow sell lately for over \$20. Heavy horses are in brisk demand, but light drivers are in little demand. Dairy butter prices keep well up to those of the co-operative creamery, but with the latter we get more out of the milk, though many claim it robs the calves. Clover seed, which was expected to be high, is now quoted: American Red, \$6.00 per bush.; choice Canadian, \$5.50; Timothy, \$1.25 to \$1.75. To-day the sap is stirring in the maples but there are few inclined to gather it. This is an industry which is fast dying out among us. J. H. B. South Perth, March 23rd.

Chatty Stock Letter from Chicago.

Table showing current and comparative live stock prices. Columns include: prices, Extreme prices nov., Two weeks ago, 1899, 1898. Rows include: Beef cattle, Hogs, Sheep, Natives, Lams, Colorado lams.

The fat-cattle market is pretty low just now, mainly for the reason that there are so many undesirable and underfed cattle in being forced upon the market. The fine-stock market is in being forced upon the market. The following summary of the Wallace Estill dispersion sale of Aberdeen-Angus cattle, at Dexter Park Amphitheatre, Chicago, makes a remarkable record:

58 females sold for \$33,845, averaging \$583.53. 14 males sold for \$7,854, averaging \$561.00. 72 head sold for \$41,630, averaging \$579.30. Highest priced cow, \$2,800.00. Highest priced bull, \$2,100.00.

Lucia Estill, a queen mother cow with a bull calf at side, sold at \$2,800, the highest price for \$750 of any Aberdeen-Angus cow ever auctioned. The average was \$120 per head higher than the previous best sale of the year, \$62 higher than the best sale of last year, \$72 higher than the famous M. H. Cochran sale of 47 selected Angus cattle in 1893, and over \$262 per head higher than the great National Hereford Show sale last October at Kansas City.

The demand for good feeding cattle is strong. There are not a few cattle that were fed all winter that are sent back to the country. These cattle would do all right on grass, but they will not take hold and make the gain from the start that could be made from thin cattle that had been raised through.

Hogs have been selling the highest lately since 1895. A well-known packer during a conversation recently expressed the opinion that the supply of hogs would continue light for some few weeks to come, and prices rule high. He stated that the demand from the Southern States for hog products had never been better, owing to the high prices of cotton and perous times. The copper and iron regions of Michigan and Wisconsin were taking a greatly increased amount, and that the consumption of hog products was simply enormous, and while a short time ago he had an entirely different opinion, he now believed in higher prices.

Sheep prices continue to rule the highest on record for many years. There were sold for S. W. Hamilton, of Winona, Minn., 339 head of 132-lb western sheep at \$6.00 per cwt. This is the highest price for western sheep since 1893. Lams are selling very well and feeders are happy.

What England Imports.

Some striking figures of the value of agricultural imports into the United Kingdom from all countries are below given. They represent the values of the different descriptions of agricultural products for the years 1898 and 1899:

Table comparing agricultural imports for 1898 and 1899. Rows include: Cattle for food, Sheep for food, Fresh beef, Fresh mutton, Bacon, Other meats, Poultry and game, Eggs, Cheese, Butter, Margarine, Milk, Wheat, Flour, Maize, Barley, Oats, Beans, Peas, Potatoes, Onions, Apples, Vegetables, Hops, Living animals, Dead meat, Meal or flour.

The foreign sale of American flour is increasing enormously, from about 4,000,000 barrels in 1875 to over 10,000,000 barrels in 1885, and 15,000,000 barrels in 1899.

Up Goes the Price of Hogs.

Advices which we have received from Toronto are to the effect that the price of hogs will go over \$6.30 this summer, with an immediate advance to \$6.00 per cwt. There is almost a famine of hogs in England, Ireland, and Denmark, and we understand that one of the largest packing establishments in Canada recently contracted to supply English houses with the whole of its output till August next. This alone will take 8,000 weekly from the Toronto market, and from 2,000 to 3,000 purchased at the Don every week. Drovers report that there are not many hogs in the country, and that farmers are not breeding many sows owing to low prices last fall. At the present writing the advance in prices amounts to \$1.00 per cwt. since last October.

Toronto Markets.

The run of live stock at the Western cattle market was heavy and slumped very badly on Tuesday, 20th, causing great loss to the drovers. On Friday, 23rd, it barely recovered, but the supply was sufficient for the demand. Prices stronger, and all sold.

Export Cattle.—Choice export cattle sold at \$1.00 to \$1.75 per cwt. A few choice picked lots fetched \$4.85 per cwt. Light export cattle sold at \$4.25 per cwt. Mr. W. H. Dean bought a load of export cattle at from \$4.50 to \$1.87 per cwt. Messrs. Lunness & Halligan bought 50 export cattle, average 1,350 lbs. each, at \$5.00 per cwt.

Butchers' Cattle.—This class of cattle were a little firmer in tone. Several outside buyers on hand made the market a little brisker. Choice picked lots of cattle, equal in quality to export, but not so heavy, weighing 1,000 to 1,100 lbs. each, sold at from \$1.25 to \$1.50 per cwt. Mr. T. Halligan bought 15 butchers' cattle, 1,485 lbs. average, at \$2.00 per cwt. Mr. I. Murton bought 10 butchers' cattle, 975 lbs. average, at \$3.75 per cwt.

Bulls.—Heavy export bulls sold at \$4.00 to \$4.25 per cwt. Light export bulls sold at \$3.25 to \$3.60 per cwt. Mr. S. H. Reynolds, Bowmanville, bought one export bull at \$4.30, weighing 1,750 lbs.; top price for the day.

Feeders.—A few choice heavy feeders are now coming forward. Well-bred steers weighing from 1,150 lbs. to 1,200 lbs. are worth from \$3.75 to \$4.00 per cwt. Mr. John Sheridan bought 19 steers, 1,240 lbs. each, to fill vacancies in the distillery byres, at \$4.80 per cwt.

Stockers.—Mr. C. B. Shough, Ohio, N. S., bought one load of stockers, average 600 lbs. each, at \$3.75 per cwt. Yearling steers, 500 to 600 lbs. average, sold at \$3.00 to \$3.25, while black and white sold at \$2.25 to \$2.75 per cwt.

Sheep.—The market was very dull. Prices easier on all grades, at \$3.25 to \$3.75 for ewes and from \$3.00 to \$3.25 for grades. Butchers' sheep sold at from \$3.00 to \$4.00 per head. Mr. W. Dun bought 60 sheep at \$5.25 per cwt. for lambs and \$3.50 for sheep.

Lambs.—Prices easy, at \$4.50 to \$5.75 per cwt. Picked ewes and wethers sold at \$5.50 to \$6.75 per cwt. Spring lambs have a golden hoof. Mr. James Harris bought a lamb which was estimated to dress 60 lbs. at \$8.00. This was purchased by Mr. John Holderness, of the Albion Hotel, St. Lawrence Market, for \$10.00.

Calfes.—About 20 veal calves sold at \$4.00 to \$12.00 each. Mr. H. P. Kennedy, of Peterboro', was on the market to-day for the purpose of purchasing stock calves from 300 to 400 lbs. each. He is prepared to take any quantity, as he has several large contracts to fill.

Milk Cows.—The supply of milk cows light. The demand good for choice dairy cows. There were 20 on offer, at prices from \$20 to \$45 per head. Several cheese factories have started two months earlier than usual. This has stimulated the demand for dairy cows.

Hogs.—The feature of this market is the demand for breeding sows; 25c. per hundred is the advance offered. We must again remind our readers that the price is likely to be very steady for the next two weeks at the advance price. We have always paid great attention to this market, and must again enjoin the farmers to grow hogs as the best and most rapid ready money-maker on the farm. We shall see the highest price paid for hogs this summer for many years, if the present conditions hold good. Farmers are sending hogs much under weight to realize top price. We have stated that the present price is likely to hold for the next two months, so that hogs that only require a month or six weeks to finish should be forced along until they are the right weight and quality. We cannot too often impress on the mind that the accepted weights are 160 lbs. to 200 lbs., not over, and not below 90 per cwt, a rise of \$1.25 since last October. Thick fat and light at \$5.50 per cwt., sows at \$3.50, and stags at \$2.00.

Grain Market.—The receipts of grain and farm produce were light.

Wheat.—Steady; 450 bushels sold as follows: 150 bushels of Red at 69c. per bushel; 500 bushels of Goose wheat at 70c. to 71c. per bushel.

Barley.—Steady; 300 bushels sold at 45c. to 47c. per bushel. Oats.—Steady; in good demand, at from 31c. to 32c. per bushel; 700 bushels offered.

Hay.—Scarce, at 60c. per bushel. Peas.—Deliveries have been very good all the week, at prices ranging from \$11.00 to \$15.00 per ton.

Straw.—In fair supply, at from \$9.00 to \$10.00 per ton. Dressed Hogs.—Deliveries light, with prices very firm, at \$6.75 to \$7.00 per cwt. Mr. Wm. Harris, St. Lawrence Market, purchased 250 hogs at \$7.00 per cwt. An advance next week predicted.

Seeds.—Demand active and quotations as follows: Red clover, per bushel, \$3.75; Alsike clover, per bushel, \$7.00; Alsike, No. 2, per bushel, \$6.00; White clover, per bushel, \$8.00; timothy, \$1.35.

Butter was not plentiful and was quickly bought up. Choice dairy was sold at from 25c. to 30c. per lb.; other sorts at prices ranging from 20c. to 25c. per lb.

Eggs more freely offered, prices ranging from 15c. to 16c. per dozen. A heavy supply on Friday caused a further decline of 3c. per dozen; now quoted at 12c. to 15c. per dozen.

Cheese.—Stocks of cheese were never so low in the city, [all quotations for quantity are refused. Our enquiry led to the fact that the Old Country market was very strong, and we here quote the stocks of cheese held in the following years at Liverpool: February, 1895, 93,824 boxes; 1896, 94,165 boxes; 1897, 86,598; 1898, 132,164; 1899, 71,833; 1900, 41,776. This shows the position of cheese to be exceptionally strong, and buyers are looking eagerly for the new supply. Holders are asking 60 shillings for colored and 62 shillings for white. All Cheshire makes are about exhausted. Canada exports \$18,000,000 worth of cheese per year, while the United States export trade in this article only amounts to \$3,000,000.

MARKET NOTES.

Mr. John Bailey, one of our most successful cattle exporters, who has just returned from the Old Country, where he has been paying a winter's visit, reports trade in a very flourishing condition, and Canada's act in sending her sons to fight the battles of the Empire has done her more good and made her better known than all the advertising agents hitherto sent.

THE HORSE MARKET.

We recorded last November a shipment of horses by Mr. John Sheridan, of Toronto. This consignment went to Messrs. Bailey, Giller & Telfer, of Cardiff, England, who report very favorably of them, and say that although the time of year was very much against their sale, they averaged \$200 each. The class of horses mostly in demand are 17-hand cart horses for above ground work, and 14.2 in. cart horses for colliery purposes, and a 15-hand trap or "bus" horse, known in the trade as a machiner. They also state that there is a constant demand for all classes of horses in Cardiff, as it is surrounded by the largest coal fields in the world, and that one company alone use 1,000 horses per annum; but Mr. Sheridan says that horses are not too plentiful, and it is hard to buy them at anything like prices to insure a margin after expenses are paid. From now on for several weeks it will be still more difficult to secure any from farmers, as all horses are now wanted for putting in the spring crops. Buyers report considerable difficulty in securing a load at any one point, owing to the scarcity, and from our own inquiries we find the supply of desirable horses very scarce. Farmers ceased breeding horses almost entirely three years ago, and it will be two or three years hence—even longer—before those who go again into the breeding of horses will be in a position to place horses on the market for sale, and there is not the slightest doubt that England will take only two willingly, if of the right sort, any quantity offered. March 21st, 1900.



The Mutiny of the "Helen Gray."

BY GEORGE MANVILLE FENN.

CHAPTER I.

"No! No! Don't, pray don't! Man—man! I've a wife and child. Don't kill me. Help!"

I seemed to hear these words as I lay there in the hot darkness, wondering whether I was awake or whether I was dreaming, for I was stretched out in my bunk 'tween decks, but as soon as I had heard them, all, for a few moments, was as still as death.

"Dreaming!" I said to myself. Then, "Awake," I muttered through my teeth, for there came now the sound of scuffling, and a curious noise as if someone was trying to call out with a hand held over his mouth. Then there was a dull splash, and pat, pat, pat, naked feet running along the deck over my head.

But stop a moment. That is not a fair beginning. It's like jumping over a wall half way down a garden instead of going in at the gate. So I'll try again.

I, John Robertson, gentleman, tell you this story of peril and adventure on the sea.

No; wrong again.

No, no, no; that will not do. I am going too far the other way now. I was a blackguard at one time, for I ought to have known better. The fact is I went all wrong, as many another has gone before. I quarreled with my father; I thought I was cruelly ill-used because, after paying my debts twice, he refused to keep up the supplies of money that I wanted; and at last, to spite my relatives, I said that I would disgrace them all by going and enlisting. But I did not do that, for it so happened that I had done a great deal of yachting all round the Scottish and Irish coasts, and, as my tastes were marine, I went to sea instead.

My idea was to join the Royal Navy; but at the last moment I altered my mind, being scared by the thought of the strict discipline, so I did the wisest thing I ever did in my life; I got a berth below the mast on board a large barque bound for the East, saying to myself: "I should be sorry now, hugging myself with the idea that I should soon have my father and the docks begging me to come home again for my mother's and sisters' sake, and I felt as proud and pleased as could be when, two days after I had written to say what I had done, one of my messmates pointed down into the forecastle that there was a grey-headed old gentleman wanted to see me.

I smiled to myself as I went slowly up on deck in my stained, oily, second-hand canvas suit, and sticking my hairy hands well down into my pockets, I swaggered along the deck toward where my father stood near the gangway, where half-a-dozen Malays were helping to get the cargo aboard.

I expected to see the old gentleman looking careworn and with the tears of agony in his eyes; but there he stood, handsome and florid, in his glossy black coat and well-brushed hat, his gold-mounted cane in his well-gloved hand, his gold-rimmed eye-glasses hanging on his broad breast, while I looked as much like a common sailor as the time I had been on board would allow.

No; he did not fall upon my breast as I swaggered up, but said, coolly: "Ah, Jack, my lad!" and he gave me a poke or two with his cane as he might have prodded a horse or an ox to make it move so that he could examine it well. He looked like a businesslike. So you are going to be a sailor, eh?"

"Yes, sir," I said, "I am going round the world."

"Right; a nice long voyage for you. Do you good, Jack. Going to earn your living, eh? Well, I like your pride, my boy; and I will not insult you by offering you money. Thought I'd just drop in and see you before you sailed. I won't shake hands; my gloves are new. Goodbye. I dare say you'll make a decent sailor after a time."

He gave me a sharp, short nod and turned and walked away, leaving me more astonished than I ever had been before in my life.

That was my first lesson. That taught me, in my foolish young conceit, that I was of not so much consequence in the world as I thought, and on the top of it came another, for the big, burly first mate shouted at me from the other side of the deck: "Now, you, sir, why aren't you at work?"

"Because it is my watch below," I said, savagely.

"Eh? What?" roared the mate. "Look here, young fellow, that kind of thing won't do with me. I know your sort pretty well; idle, loafing scamps, who have failed in everything, and then, because they know the names of a few ropes and sheets, think they're sailors. If it's your spell below, go below; but if you expect me, confound you, you'll find you've got into the wrong box."

I thrust my hands into my pockets, after giving the mate an ugly look, which brought him close up to me, when he bent his head a little so as to look me full in the eyes before I turned off to walk to the hatch, and as I began to descend I found him close to me, still ready to look me down.

"Hold hard a moment, young fellow," he said, clapping me on the shoulder. "I daresay you think yourself a pretty big bug in your way, but you're one of the crew of the Helen Gray now, and you've got to obey."

"And if I don't?" I said, stung into speaking at last.

"I'm going to make you, boy," he cried in a loud, fierce voice. "I've tamed bigger fellows than you, and I'm going to tame you, as you shall see. Go below."

I went below. I don't think I was afraid, but he seemed to have a something about him that forced me to obey, and raging within myself I felt as if I had found my master at last.

The forecastle of a large merchant ship, with its gloom and stuffy atmosphere, is not, at the best of times, an attractive place. Now it seemed the vilest hole I had ever entered, as I threw myself down in my bunk and lay staring before me, face to face with the fact that I had made a mistake.

My musings were interrupted by the descent of one of the crew, a big, heavy, elderly man, who had so far confined his intercourse with me to a rough nod or two, and borrowing my tobacco pouch, or asking for a match in one word, "Light."

But now he came close up to where I lay, squatted down and stared in my face.

"Well, I said, trying to imitate the rough manners and customs of my companions, "know me again?"

"Oh yes; I should know you again," he said, nodding his head. "No mistaking a chap like you."

going to be messmates. We shall sleep close alongside of one another, and perhaps you'll be in my watch."

"Well, what of that?"

"I've been at sea five-and-thirty year, and I wanted to give you a bit of advice."

"Keep it till you're asked for it."

He gave me a grim smile, struck a match carefully, put it out after lighting his pipe, and went on smoking.

"You're rusty, mate, you want scraping and oiling."

"Don't try to do it now, I might kick."

"Won't do, lad. Now, look ye here: you're a chap as can speak well when you like. You've got to learn in you and that sort of thing, and you know as well as I do that soldiers and sailors has to do what they're told. You've only just joined the ship, and you've begun to make things hot for you by having a row with the first mate."

"I've had a few words with a bully."

"Same thing, young 'un, but don't call names. Stow all that. It won't do here. You cut up rough with him, and he won't have it. Why the skipper has to give way to him sometimes."

"I'll let him see that he isn't going to bully me."

"Nay, not you. He isn't such a bad sort when you come to know him. Take it a bit easy: do what he tells you, and you will be all right."

I made no reply, but lay in my narrow bunk thinking whether I had not better wait till night and play a cowardly part—has of leaving the ship as soon as it grew dark, and joining another.

"Nay, I wouldn't do that."

"Do what?" I said, feeling quite startled.

"Cut and run, mate."

"I never said anything of the kind."

"No, but you've said it. Yah! you're not made of the stuff that men are made of. You're a regular sailor as soon as you can. You do know something about it, eh?"

"Oh, yes; I've been out in a yacht in all kinds of weather."

"Ay. But a yacht isn't a barque."

"Nor a barque is not a yacht. Here, what's your name?"

"Joe, mate; Joe Stacey."

"Joe Stacey, I beg your pardon for being so rough; I was put out."

"Course you was, mate, but never mind about beggin' pardon. We don't do that sort of thing here. Have a pipe. I lit up and began to smoke."

"Skipper's just come aboard."

"Has he?"

"Yes, and brought his missus and their little gal along with 'em."

"His wife and child? What for?"

"Well, I did hear something about her having been bad, and coming a voyage to set her up again."

"Rough life for a woman."

"Oh, no. 'Sides if a man's married I don't s'pose he likes leaving his missus, and I don't s'pose his wife likes leaving 'em."

"Where are we going?"

"You asked that ere before signing for the voyage."

"Oh, yes. I remember; Singapore, Hong Kong, and Shanghai."

"That's so. And a nice voyage too. All warm weather."

"And what are we laden with?"

"General cargo. Lot of wine, beer, and spirits; and Manchester goods. There's a steam engine and waterworks, and a lot of f-a-l-l-ies they use in smashing up the stones for getting gold put here," he said, tapping the bulkhead.

"Gold?"

"Somewhere up the country, away from Singapore; and there's a whole lot of weapons—rifles and bayonets, and revolvers and bridles for one of the rajah chaps there who is going to turn his people into regular soldiers."

"Indian rajahs?"

"No; them Malay chaps like our six lascars."

I nodded as I recalled the thick-lipped, oily-eyed, dark brown Eastern sailors, and felt sorry with myself for lowering my position to meet with such a companionship necessary.

"What sort of fellows are these niggers?"

"Well, I s'pose it comes natural to an Englishman not to like a dark-skinned chap; but they ain't a bad sort. They're very good sailors in their way, and as long as you let 'em alone they hang together and don't interfere with anyone. They eat together and sleep together below yonder, and they're always civil enough; but you see the chaps won't let 'em alone. I wouldn't quarrel with one of 'em. Too fond of the knife for me."

A shout from the deck put an end to our conversation, for we had to go up; and for the rest of that day and the week following I was so hard at work that I had little time for thought and musing over my position. I used to put off all this latter till I was out in my bunk, and when I was once there Nature used to say, "No, you are too weary to think. Rest."

CHAPTER II.

"Yes, that's Portegal," said Joe to me one morning, when, having, as it were, sailed away from the rough weather and sunless skies of home, we seemed to have come down into bright sunshine and balmy air, and I was gazing at the faintly-seen far-off land, and you got to think I was once more on board a friend's yacht sailing along our western coast.

"Hallo, you sir," said the voice of the mate close behind.

My name was not mentioned, so I did not turn.

"Do you hear, you Roberts?"

I turned and faced him, looking sharply in his rough hard face.

Now then, none of your black looks, man. I was going to give you a word of praise. I expected to see you lie up like a lubber, sick as a horse."

"And I disappointed you?" he said, advancing to me, and holding one big finger up in my face. "And now, look here, John Roberts; I'm not going to speak to you any more. So take this to heart: you've got to tame down and be respectful, and—course you, why don't you mind?"

He turned round in a rage at one of the Malay sailors who had been crossing the deck hurriedly, just as a coil of thin rope was thrown down from aloft, and to avoid this the little Asiatic had made a spring with his head, and to the falling rope, and came sharply in contact with the mate, driving him in turn hard against me.

The mate, in his rage gave the Malay a heavy backhanded blow, which sent him staggering a few paces to fall heavily on the deck, from which he sprang up with the rebound of a cat; his hand was thrust into his breast and he was about to spring at his assailant.

But somehow, I hardly know how it was, he sprang into my arms, and I pined his to his side, as he stood with his hot breath on my cheek, and his wild dark eye glaring into mine.

"What's all this?" said a shrill voice. "You, Ismael, go below."

The Malay's whole manner changed. The moment before his muscles had seemed beneath my arms like throbbing steel; now as the captain's voice was heard they suddenly grew flaccid; and he smiled softly at the speaker, shrank from me, and with a humble salute slunk forward to the hatchway and went below.

"Very well done, my lad, very well done indeed," said the captain, giving me a short nod as I met his eye, and felt a kind of wonder that such a little elderly man should have been selected for the command of so big a ship. "And now look here, Denson," he said, sharply, addressing the mate, "if it had not been for his man you'd have had a knife in your ribs. You struck that lascar."

"Well, sir, the brute—"

"Yes, I saw, but it was an accident. You go forward, my man," said the captain to me, and I walked out of hearing, but I could tell that the little man was giving our big bully of a mate a severe dressing down, and I rejoiced and called myself a fool for interfering to save him.

"Won't catch me doing such a donkey's trick again," I said to myself about a quarter of an hour afterward as I leaned over the side, gazing on the distant shore. "He's a brute and a bully, and one of these days if I don't thrash him my name's not—"

"Roberts."

My name was pronounced quietly by the very man, who had come close up behind me, and as I faced round he held out his hand.

"That was very smart and plucky of you, Roberts," he said. "Thank you. Shake hands; I shan't forget it."

I gave him my hand and he grasped it hard, holding it a moment as he said, rather hurriedly: "Wife and youngsters at home, my lad. Been rather awkward if I'd had a dig from that fellow's knife."

"Well," I said to myself directly afterwards, "if that isn't disarming a man what is? How am I to thrash him now?"

My musings were cut short by a pleasant silvery voice— "Oh, mamma, look, look!"

I turned and saw a bright sunny-haired little thing standing on the poop-deck, holding the hand of a tall, graceful-looking woman, who was gazing in the direction pointed out by the child.

"Well," said Joe, who had come slowly up to my side "what do you think of the skipper's little 'un? Don't you wish you was married and had a gal like that?"

"No," I said. "A man who can't manage himself can't manage children."

"No," said Joe. "I say, though, is it true you've had another row with the mate?"

"Mr. Denson and I are the best of friends," I said, grimly.

"Nay, are you though? Wasn't there a row then?"

"Yes," I said, and I told him what had taken place.

"Knocked him over. Tried to take out a knife—eh? Rather ugly; I don't like that."

"Why?"

"Because them Malay chaps have got such bad memories."

"Then that man will soon forget it?"

"Nay, my lad, that's 't'other sort of bad memory as forgets the good that's done you. This one never forgets the ill."

"You don't think—"

"Not much, my lad. Too much trouble. Nuff to do to get through my work."

No more was said, but that incident, the conversation, and the sight of the tall, graceful woman standing by the captain with their pretty little girl seemed to be burned into my brain.

That promised to be a pleasant uneventful voyage. There were troubles on board, of course, just as there are on every merchant vessel, and I could not help seeing that the first mate, after that incident when he knocked the Malay down, seemed to be particularly severe and distant with the whole of the little party.

But they never seemed to resent it, going humbly and willingly about their work, and as soon as it was done getting together again.

"Don't seem to trust 'em, mate," Joe said to me one day. "Keeps 'em off like. Well, 'tain't no wonder when a man's drawn a knife on you. If ever I'm skipper of a ship I should like to have a crew of twenty men."

"Twenty?"

"That's the number, my lad. Five Englishmen; five Irishmen; five Scotch, and five Welsh."

"A mixture."

"Yes, and a good one. No lascars for me."

But though the Malays went quietly and obediently about their work, it was very plain to see that they were not forgiven. Captain Barton treated them roughly, and if ever there was an unpleasant job on hand Denson was sure to put it on to these men.

I did not like them, feeling full of distrust, but somehow I felt annoyed often and often, and this made me always speak civilly to them when they had, as I judged it, been put upon extra, or more roughly spoken to than they deserved. I did not want to be friends with them, but I often gave one or the other a bit of tobacco or a civil word, and it was always received with a smile and a bright look.

One day at Rio four of them had a tremendously hard job landing cargo. The heat was terrible, but they worked without a murmur, and if I had been the chief mate I should certainly have contrived that they had the watch below that night; but they did not, and it so happened that Ismael and another man always known as Dullah were in my watch.

We had sailed at sundown, and I was forward looking out ahead into the darkness, and thinking how grand the stars were. Dullah was over on the port side, and I had spoken to him and given him a bit of tobacco some time before—half-an-hour—perhaps an hour, for I had been dreaming, as it were, about home and my people, and half-mockingly thinking to myself what a change this was, and what a fool I was to come when I started round, and was going to speak, but, as I could just dimly see, the captain held up his hand before my face.

"Hold your tongue," he whispered, and then he went away from me round to the port side.

I don't know how it was, but something moved me to follow, and I was just in time to see the skipper give something dark under the bulwarks a tremendous kick, and I ran up expecting to see a knife out, for it was Dullah, but he stood with his arms folded, patiently listening while the captain called him all the nasty, untrustworthy scoundrels he could lay his tongue to.

Captain Barton went below, and I back to my place, and when all was very quiet about half-an-hour later I felt sure that the poor fellow must have gone to sleep again, and I walked softly round to find him with his arms crossed upon the bulwark, perfectly motionless.

"He's off again," I said to myself, and I laid my hand softly on his shoulder.

But there was no sudden start. The dark face was slowly turned round, and the gleaming eyes looked straight into mine.

"No sleep," he said, in a guttural whisper.

"That's right. Have a bit more 'bacco."

"Thank you, no," he said, "Sirih." He held up a brass box, and showed me that he was chewing betel nut and sirih leaf, a kind of pepper-like plant they are very fond of, and use with wet lime, chewing them for hours together.

"All right; keep awake, mate."

"Tire—much work," he said, nodding his head, and I saw his white teeth gleam as I turned away.

Now, they say that history repeats itself. It did in my adventures. For one night after we had got round the Cape and were sailing away before a gentle breeze straight for Colombo, it was my watch again, and this time there was another of the Malays instead of Dullah. He, too, had had a heavy day on deck in the hot sun doing a lot of re-stowing and hauling at a fall, for the captain had fancied that the ship was getting a bit of a list to starboard, and took advantage of a very calm day to shift some heavy cases.

Well, just as it was on that other dark night, I was leaning over the bulwarks gazing right ahead, when I suddenly said to myself: "I'm as sleepy as sleepy. The heat, I suppose. I wonder whether that Malay chap's awake."

I turned sharply round and saw a dark figure go by the binnacle light right aft.

"The skipper," I said to myself, and I knew he was coming to give a look round.

I could hear the men buzz, buzz, in the darkness, quite a low murmur, as I stepped quietly round, thinking that if the Malay was not awake the poor fellow would be in for it.

"All right," I said to myself, as I caught sight of him through the darkness, just dimly seen, with his arms on the bulwark, gazing out to sea. But at that moment a sound fell upon my ear—a low, deep, hoarse breathing.

I sprang to the man's side and caught him by the arm to give him a shake.

He uttered a quick ejaculation, and sprang from me expecting a blow, while beyond him I could see the skipper coming through the gloom.

[TO BE CONTINUED.]

## Travelling Notes.

## AUSTRALIA.

We have talked so much of cities; and there is, after all, so much similarity in all large ones, that a few words about Adelaide is all we will indulge in. The population is 100,000, and, although in importance Adelaide is not yet the equal of Sydney and Melbourne, it is making giant strides. Many consider it the prettiest of the three, and most certainly it is the cleanest. It is surrounded by fine parks, and beyond its boundaries are lovely blue hills. Wide streets, marble pavements, and fine, substantial public and private buildings, botanical gardens filled with rarest plants, many in bloom all the year round. All these combine to make Adelaide most attractive. Truly these four cities, Sydney, Melbourne, Adelaide, and Brisbane, have much to be proud of.

One great drawback in Australia is the scarcity of water. There is so little rain in summer—and summer here is, of course, so much longer than with us at home. The rain water has to be caught during winter and stored in galvanized tanks and cisterns to supply the houses the year round. Thus all houses or other buildings (at all country railway stations there are funny linen bags hung) have at their sides a big tank. This want of rain also causes the absence of green grass—and all know what a loss this is—and the storms of sand and dust, which with the high winds sweep over the cities, are dreadful. From the beginning of April till the end of October the climate, they say, is most delightful; but in January, February and March the heat is suffocating, and what wonder, with the thermometer varying from 90° to 115° in the shade. When the north wind blows, the heat is especially trying and very dry. The flies are something appalling, and they seem to have a special fondness for the backs of men's coats. They buzz about you in that aggravating style of which flies are such accomplished exponents, and everyone has to wear veils, and even men wear nets encircling the face and neck. As for the worried horses, they have regular hats and bonnets in lieu of the nets we use. All this looks very funny, but it is absolutely necessary for any kind of comfort. Notwithstanding the great heat, the flowers flourish and grain ripens and is harvested; but farming is, of course, very different to ours. A very curious contrast is afforded as you speed along, by the green hedges all over the country and the arid and desert-like appearance of the grass; then the thousands of sheep on the ranches, which reminded us of the Northwest; the immense number of rabbits skurrying into the brush and underwood, and the infinite varieties of the Eucalyptus, or gum tree, which grow here in such profusion. Another novel sight is the queer old ox teams, often numbering 10 or 12 oxen for a heavy load, and looking so picturesque; and then the black natives, not quite so attractive. All these sights are very novel and very interesting, and fill us with wonder as we observe the striking differences in each country, and yet the similarity, especially amongst the people. Without exception, *hospitality* seems to reign equally everywhere, and the kindness and attention met with in all our travels has been never-failing.

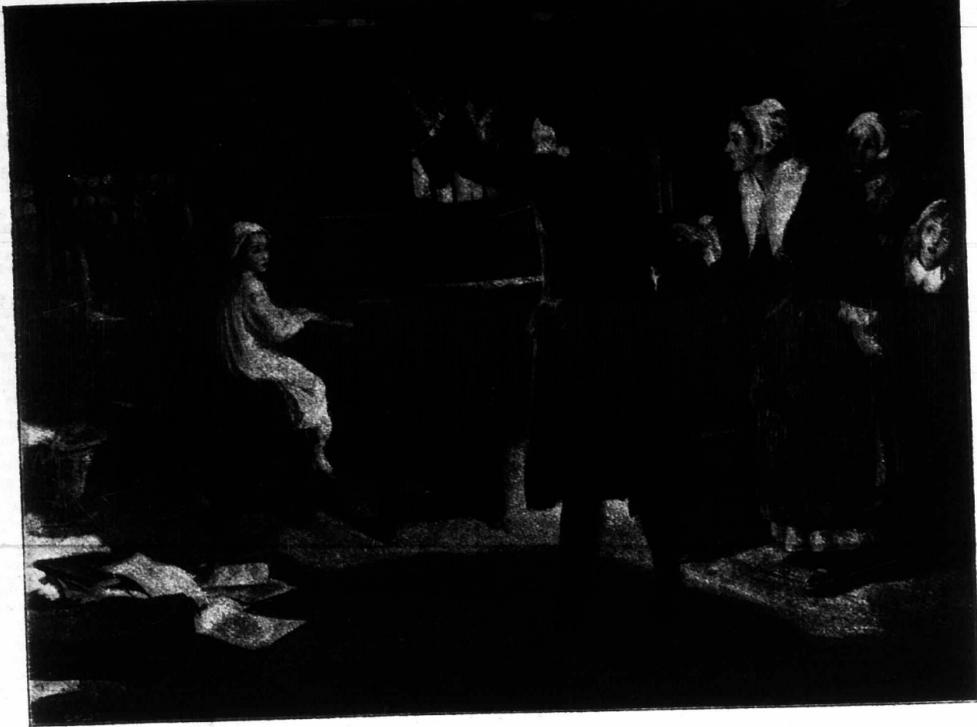
The lovely home of relatives where we now are is about 30 miles from Adelaide, in the hills, and is indeed an ideal spot. The magnificent gum trees pervade the landscape everywhere, and the lovely river where one can go cray-fishing, or sit on its banks, or lie under those grand and shading trees, drinking in a scene of unutterable richness, with the blue hills spreading far and wide. Such a scene—and in mid-winter too! Fancy our Christmas in this weather—warmth everywhere—and nowhere warmer than in our hearty and loving welcome to the far Australian home. The dear aunt and uncle, whom to know is to love, and the warm-hearted cousins, made a Christmas which will stand out bright and clear when oceans again roll between us all. We had the regulation routine Christmas—cards and Christmas services, which seemed so strange with the temperature over 100°—and then the regular old Christmas cheer; and in spite of the heat, *didn't* we enjoy that pudding! And we thought of all the dear ones at home and of those who have "gone before," and thousands of miles were bridged in thought, and outside in the garden

were blooming thousands of roses, and shrubs and vines in endless charm. Truly *such* a Christmas! Somehow we cannot help feeling at home in our sister colonies. *Four* now have we been in—Queensland, Victoria, New South Wales, and South Australia;—and what grand countries they are! At every turn in each continent we have now been in there is cause for thankfulness and pride;—the wonders of nature; the patience and energy of man; and that universal *brotherhood* which unites us.

## UNCLE TOM'S DEPARTMENT.

MY DEAR NEPHEWS AND NIECES,—

It would be quite the orthodox thing for Uncle Tom to discourse upon the war; but as every paper is bristling with war news, it would be superfluous to do so. All Canada is throbbing with exultation at the recent British victories, and testifying her joy in many ways; yet she has also cause to weep for the loss of those dear sons who have shed their blood in "darkest Africa." It is certainly laudable to be patriotic, to sing national songs and wave your country's flag; but is there any reason for the most fanatical actions that have been perpetrated in the name of patriotism, such as the burning of the effigies of Cronje and Joubert, etc.? We may do and do condemn them as enemies of our country, but we should also respect them as brave soldiers, none the less brave because they are our enemies and have been overpowered. The most patriotic men are not those who shout the loudest, else why have they not gone to take part in the fray and



HANDEL.

show their patriotism in action rather than in words?

Too cruel a thing is war. Let us talk of something else.

Ho there! my farmers and farmeresses in embryo, how many of you have your seeds started ready for transplanting next month? You girls who are planning to have a flower-bed should have pansies, pinks, petunias and all early-blooming plants peeping through the soil, or at least planted by this time. The beginning of May is early enough to sow ordinary asters; but if one wishes to have a succession of bloom it is not too soon to begin now. The pleasure to be derived from even one flower-bed can only be realized when one has made the experiment. Even then one cannot fully estimate it; every blossom from it gives pleasure to the recipient, and were it all summed up, we should consider ourselves guilty of a sin of omission if we allowed such an opportunity to slip by unused. We may each have a Flower Mission of our own, and not only "Scatter seeds of kindness," but at the same time "leave as our bequest an added beauty to the earth." True, no one of us is a very important part of the great universe, and yet humanity's total is made up of just such units as you and I; so, if each of us would only do our share, what a grand whole we should make!

Do you wish the world were better?  
Let me tell you what to do.  
Set a watch upon your actions,  
Always keep them straight and true.  
Bid your mind of selfish motives,  
Let your thoughts be clean and high;  
You can make a little Eden  
Of the sphere you occupy.

The pleasures of the many  
May be oft-times traced to one,  
As the hand that plants an acorn  
Shelters armies from the sun.

Your loving  
UNCLE TOM.

## Handel.

In a recent issue we had "St. Cecilia"—that fair musical saint of legendary fame. Here, however, is no legend—no saint—but that marvellous composer of the immortal "Messiah," George Frederic Handel. The story is related of how the sounds of the harpsichord were heard at midnight, weirdly sounding through the house, and how the family, on entering the room, found the small boy lost in on entering the room, found the small boy lost in his wonderful musical dreams, playing away, robed in his quaint little nightgown and old-fashioned cap. The artist, Margaret Dicksee, has well portrayed the amazed attitudes of the family, and the surprised, yet rapt, expression of the young musician. To look at him here and to realize the glorious genius which has ruled the realm of sacred music so long is indeed food for earnest thought. We see a little white-robed boy—who is long since gone to his rest—yet he lives, for such work as his is deathless.

## Recipes.

## DRINKS FOR THE SICK.

*Orange Whey.*—The juice of one orange to one pint of sweet milk. Heat slowly until curds form; strain and cool.

*Corn Tea.*—Parch common corn until browned through; grind and pour on water. Drink with or without milk. Excellent for nausea.

*Bran Gruel.*—Boil for half an hour one pint of wheat bran in three pints of water. Strain through a gravy strainer and add a little salt. This is a good gruel for fevers and inflammation, and makes a nice drink by thinning and adding lemon juice.

*Egg Lemonade.*—White of one egg, one tablespoon whitesugar, juice of one lemon, goblet of water; beat together. Very grateful in inflammation of lungs, stomach or bowels.

*Hot Lemonade.*—Make the same way, using hot water. Good for colds and biliousness.

*Oatmeal Tea.*—Two tablespoons raw oatmeal to one quart of cold water; two hours in a cool place, then drain off as it is wanted. Nourishing in convalescence.

*Gum Arabic Water.*—One teaspoon gum arabic, one goblet cold water; stand until it dissolves. Flavor with juice of any fruit.

*Sago Milk.*—Three tablespoonfuls of sago soaked in a cupful of cold water one hour; add three cupfuls of boiling milk; sweeten and flavor to taste. Simmer slowly a half hour. Eat warm.

## BAKED SALMON.

One whole tin of salmon, two eggs, one tablespoonful of melted butter, a cup of bread crumbs, some pepper, salt, and two or three finely-minced pickled gherkins. Drain the liquor carefully off the salmon and use it for the sauce, and pick the fish to pieces, afterward working in the butter, bread crumbs, eggs and seasoning. Lastly, put the mixture into a well-buttered pudding-bowl, and cover it tightly, and put it into a pot of boiling water, boil one hour, then take out of the pot, and stand the pudding one minute in cold water to loosen the pudding from the bowl, and then turn out on a hot dish.

The sauce is made as follows: Take a cup of melted butter, and add to it the liquor from the tin, a beaten egg, pepper, salt, some minced parsley and a minced gherkin. Boil up and pour over the pudding before serving, unless you prefer it served in a sauce-boat.

## DESTRUCTION OF ROACHES.

For the instant destruction of roaches, stir into a half-pint of hot paste a dime's worth of phosphorus, adding, when cool, a quarter the bulk of grease. This should be placed where they frequent, and they will die while eating it.

Trifles should never be allowed to discourage the ambitious. When a kangaroo is on its last legs it may still be able to do some good jumping.



The Sun's Cup.

Snug in her bed little Daffodil lay,
Dreaming she thought she heard somebody say:
"Daffodil, Daffodil, aren't you awake?
Robins their nests are beginning to make."
Daffy was lazy, so, yawning, she said:
"O, I'm so sleepy I must stay in bed."

MY DEAR CHILDREN.

You are all fond of animals, I am sure, so I am
going to tell you about some clever ones. There
were once two cats, who lived in a barn. Each cat
had a nest of kittens of about the same age, on op-

Now I will tell you about a horse that deserved
a medal. A ship had gone ashore on the rocks, and
the poor sailors could be seen clinging to parts of
the wreck. Just then a man came riding up on a
big horse. His master knew that the horse was a
splendid swimmer, so he rode him right into the
sea. The horse swam out to the wreck with his
master on his back. The man made one sailor hold
on to each of his legs, and then the horse started for
the shore. He did this seven times, and saved four-

Here is another horse story. One day a lady saw
a poor horse with a big sore place on its shoulder,
in the field next her garden. She went into the
house and got some ointment, then called the horse
to come to her. After feeding him with oats, she
put the ointment on the sore place.
Next day she heard a horse neighing, and, going
into the garden, found that it was her friend of yester-

You may have noticed, little friends,
That cats don't wash their faces
Before they eat, as children do.
In all good Christian places.
Well, years ago, a famous cat,
The pangs of hunger feeling,
Had chanced to catch a fine young mouse,
Who said as he ceased squealing:
"All genteele folks their faces wash
Before they think of eating!"
And, wishing to be thought well-bred,
Puss heeded his entreating.
But when she raised her paw to wash,
Chance for escape affording,
The sly young mouse he said good-bye,
Without respect to wording.
A feline council met that day,
And passed in solemn meeting
A law forbidding any cat
To wash till after eating.

If you don't believe that story, just watch Kitty
when she has got a nice, lively mouse between her

paws, and see whether she stops to wash before
eating it. You needn't copy her, though, for your
dinner won't run away while you are making your-
selves tidy.

Well, good-bye, chicks! You might write a letter
sometimes to—
Your old friend,
COUSIN DOROTHY.

THE QUIET HOUR.

The Triumph of Love.

"My Lord and Master, at Thy feet adoring,
I see Thee bowed beneath Thy load of woe;
For me, a sinner, is Thy life-blood pouring;
For Thee, my Saviour, scarce my tears will flow.
With taunts and scoffs they mock what seems Thy weakness;
Thou art unmoved and steadfast in Thy meekness;
When I am wronged how quickly I complain!
My Lord, My Saviour, when I see Thee wearing
Upon Thy bleeding brow the crown of thorn,
Shall I for pleasure live, or shrink from bearing
Whate'er my lot may be of pain or scorn!
O victim of Thy love! O pangs most healing!
O saving death! O wounds that I adore!
O shame most glorious! Christ, before Thee kneeling,
I pray Thee keep me Thine for evermore."

The love of God! Who can measure it? Who
can tell the length and breadth and depth and
height? We often doubt His love. When care,
sorrow or pain seem to take the sunshine out of
life, Satan is very ready with his lying suggestions
that God is harsh, unkind, unloving. When such a
thought comes to crush out the last gleam of hope,
a sufficient answer is a look at the Cross of Christ.
When the burden of sin is heavy, and we think
God cannot or will not forgive, look at that Figure
which was lifted up that all men might be drawn up
to Him. Think how tenderly he forgave those who
were roughly, heedlessly driving the nails through
His quivering flesh. Think of the royal declaration
of pardon to the repentant thief. Think how gently
He received the traitor's kiss, and how lovingly He
recalled with a look the allegiance of the Apostle
who was deliberately disowning Him. Has He
who was deliberately disowning Him. Has He
proved His love? Think of the terrible scourging
so silently endured, cutting the tender flesh to the
bone. Think of the cruel blows on the face, the
shameful spitting, the insulting mockery, accepted
so quietly. Could love be proved more unmistak-
ably than His was? Can we dare to doubt His
love for each one of us? He will not lay one un-
necessary burden on our shoulders, but if we, like
Him, must be "made perfect through suffering,"
shall we shrink back and refuse to drink of His
cup? To live a life of ease and innocent enjoyment
is pleasant, certainly, but it can hardly be called
noble. Surely we aspire to higher things than
comfort and pleasure. It is wonderful how the
Cross of Christ has changed our opinion of suffering.
Instead of dreading it and shrinking back from it in
fear, Christians in all ages have gone forward
boldly and joyfully to welcome it, considering it a
high honor to suffer with and for their Master.
His example has inspired men, women, and even
little children, "to suffer and to die."

Love inspired our Leader to triumph on the
Cross and despise the shame. He was calm, serene
and noble, revealing the grandeur of his kingly
dignity, unruffled by the tempest which raged
around. Was it any wonder that Pilate exclaimed,
"Behold your King!" Who can read the account
of their momentous interviews without realizing
the pitying attitude of the royal prisoner towards
the miserable, shifty, cowardly judge?

Love still inspires men to follow unshrinkingly
in the footsteps of their Master. As Pierson says,
"Follow the gospel of Christ as it marches down
the centuries, and what do you see? Hard hearts,
cruel with crime, that no human love could soften,
no human power impress, are broken into contrition
and love. Weak women, timid and trembling, are
fortified by it, to dare the scourge, the rack, the
stake, the cross, or face without fear the fierce
Numidian lion in the arena. Millions of martyrs,
under no compulsion but the sweet restraint of love,
welcome the agonies of torture, and from all the
grades of society come up to the Coliseum and
soak its sands with their blood, rather than utter one
word to disown or dishonor Him whom, not hav-
ing seen, they love. The world can furnish no par-
ing seen, they love. The world can furnish no par-
ing seen, they love. The world can furnish no par-

Can Christ be dead, as some would have us
believe? Could a dead man possibly inspire such
devotion in innumerable hearts? Love reaches out
to meet love. He who is the Life of the world,
reaches down into the very depths of our hearts,
and our love springs up to meet His with a living
force which overcomes all obstacles. This is the
triumph of love, the victory of the vanquished.
Love can turn pain into joy, sorrow into peace, the
cross into a throne, earth into heaven.

"Nor deem, who to that bliss aspire,
Must win their way through blood and fire.
The writhings of a wounded heart
Are fiercer than a foeman's dart.
Oft in life's stillest shade reclining,
In desolation unrejoicing,
Meek souls there are, who little dream
Their daily strife an Angel's theme.
Or that the rod they take so calm
Shall prove in Heaven a martyr's palm."

HOPE.

Puzzles.

The following prizes are offered every quarter, beginning
with months of April, July, and October: For answers to
puzzles during each quarter—1st prize, \$1.50; 2nd, \$1.00; 3rd,
75c. For original puzzles—1st, \$1.00; 2nd, 75c.; 3rd, 50c.
This column is open to all who comply with the following
rules: Puzzles must be original—that is, must not be copied
from other papers; they must be written on one side only of
paper, and sender's name signed to each puzzle; answers must
accompany all original puzzles to which you send an-
swers—the number of puzzle and date of issue is sufficient.
Partial answers will receive credit. Work intended for first
issue of any month should reach Pakenham not later than the
15th of that month. Leave envelope open, mark
than the 5th of that month. Leave envelope open, mark
"Printer's Copy" in one corner, and letter will come for one
cent. Address all work to Miss Ada Armand, Pakenham,
Ont.]

1—CONTINUED CHARADE.

1—A nickname for Edward.
1, 2—Means to arrange for publication.
1, 2, 3 is supposed to personify knowledge. (Now add sign
of possession.)
1, 2, 3, 4 tells that 1, 2, 3 is gone away. M. N.
1, 2, 3, 4, 5 names the goal of all accepted puzzles.

2—DOUBLE ACROSTIC.

1—A boy's name.
2—Against.
3—A crosy.
4—A sphere.
5—A color.
6—A planet.
7—A dale.
8—A measure.
9—A title.
Primals and finals, read downward, name two much-talked-
of places in South Africa. M. N.

3—ANACROSTIC.

Under a cruel tyrant,
But longing to be free,
After years of fighting,
Came sweet liberty.
Look on her triumphant brow,
By victory elated.
In the fight she bravely fought,
Ever the foe hated.
Ruin's there no longer now.
(The initials transposed give the answer.) ROLLY.

4—CHARADE.

Of all the lads I ever saw,
Three was the most complete.
To One his lessons was but play,
In class or at his seat.
Or if he had his wood to split,
Or mend the garden gate,
He did his Two sams cheerfully,
Though he'd to sit up late.
When Two-three on the field of life,
Where every man is fighting,
He'll be Complete and do his best—
The wrongs of others righting. ROLLY.

5—DIAMOND.

1. In diamond; 2, the total; 3, an instrument for boring
holes; 4, a country in Africa; 5, dismal; 6, to drive away; 7, in
diamond. L. B. FORCE.

6—CURTAILINGS.

Even though the x x x x x can follow and understand the
intricate plots of the novelist, Charles x x x x x, he may yet
not be able to unravel this puzzle and x x x x this sentence. F. L. S.

Answers to March 1st Puzzles.

1—s i r e n 2—n o r m a
e r e o d e o n
v r o n t e
e k o m o t o n
r i v e r a n e n t

3—
c o b
d o r i s
c o a s t e d
h o r s e t a i l
b i t t e r s
s e a r s
d i s
l

4—Ed-da.
5—J a p a n c a t e r
g u i s e p l u m p
g r a z e p i n e d Piano tuner.
C o n e y a m e n d
a l o n e s h r e d

6—Won a papa now.
7—Apparently.
8—Agape-gape-gap.

SOLVERS TO MARCH 1ST PUZZLES.

"Diana," "Rolly."

ADDITIONAL SOLVER TO FEB. 15TH PUZZLES.

M. R. G.

COUSINLY CHAT.

In order to comply with the request to occupy less space
with puzzles, we have been obliged to reduce the number pub-
lished, and henceforth will only use those of real merit. Our
list of solvers has dwindled somewhat of late, and yet the work
should not be above the ability of all our old friends. "Rally
round the flag," boys and girls, and, above all, come early. ADA A.

Only a scratch! and yet a scratch has often cost
a life. A scratch should be carefully washed with
a little Castile soap and warm water. It should
never be touched by any finger nails. If there is
any appearance of inflammation, a small bread-and-
milk poultice, or the application of some medicated
clay, will be the safest and best treatment. A
sudden and decided change in the weather or a
poor condition of the blood will often favor the
scratch and develop it as an agent for serious evil.

**DISPERSION OF THE HILLHURST STUD OF HACKNEYS!**  
 Tuesday, April 17th, 1900,  
 AT  
**Grand's Repository, Toronto, Ont.**

The entire famous Hillhurst stud of Hackneys, the oldest-established stud of the breed in America, will be sold at auction. This offering will include the prizewinning stallion, Barthorpe Performer, one of the greatest horses of the breed in the show-yard or stud; brood mares that have won honors on the tanbark, in harness and in the stud, and a superb lot of young stock, fit for any competition, and including four bay stallions of very superior excellence.

Such an offering of Hackney Horses has never before been made in America.

Sale to commence at 10 o'clock. For catalogue and full information address:  
 M. H. COCHRANE, Hillhurst Farm, Hillhurst, Quebec.

**DALGETY BROS.,**

463 King St., London, Ont.



Largest importers in Canada. Fourth consignment has just arrived in splendid condition, and includes some heavy ones. Will be on sale at Black Horse Hotel, Toronto, on and after Monday, March 19th, for ten days, and afterwards at London, Ont. Fifth consignment will arrive second week in March. Have sold more Clydesdales than all importers combined. A specially good lot of stallions and mares soon to arrive. No exorbitant prices asked.

**SMALL PROFITS AND QUICK RETURNS.**

**NOTICES.**

**Canadian Horse Show.**—The sixth annual Canadian Horse Show, under the auspices of the Canadian Horse Breeders' Association and the Country and Hunt Club of Toronto, is to be held in the Armouries of the Queen City this month. The dates fixed are April 26th, 27th and 28th, all entries to close on the 13th inst. The prize list, a liberal one, is now ready for distribution, and can be secured for the asking from Mr. Henry Wade, Parliament Buildings, Toronto. It is gratifying to see that the management have responded to the improved condition of the horse trade by adding eleven classes to the list of last year, bringing them up to 71 for this coming show. Liberal additions have been made to the premiums, many of the first prizes having been raised from \$50 to \$60, and a number of 2nd and 3rd prizes correspondingly increased. We look for a very successful show, which should not be missed by those who love the horse in his finest form. The liberal offerings should call out a ready response from breeders of high-class animals.

**Caustic Balm for Lump Jaw.**

To the Editor of the FARMER'S ADVOCATE, London and Winnipeg:  
 SIR,—In looking over your copy of March 1st, 1900, page 131, I see the article headed "Lump Jaw and Compensation." I wish to direct correspondent's attention to our ad. in your paper. We advertise a cure, and append two testimonials from prominent farmers and feeders of stock:

To THE EUREKA VET. MED. CO., London, Ont.

GENTLEMEN,—I have used the Eureka Veterinary Caustic Balm for lump jaw in cattle and on the many different ailments among my horses for the past year or two, and I find it an excellent remedy and would not be without it in my stable. I have cured two cases of lump jaw by the use of it, and know of other cases that were cured.  
 H. FARNCOMB,  
 Lot 16, con. 5, London Tp. Masonville P. O.

To THE EUREKA VET. MED. CO., London, Ont.

I have given Eureka Veterinary Caustic Balm a fair trial in lump jaw in cattle, and in every instance it has proven effectual and given entire satisfaction. The results were far beyond my expectations. JOHN GEARY,  
 Lot 13, con. 5, London Tp. Masonville P. O.  
 THE EUREKA VET. MED. CO., London, Ont.

**FARMS FOR SALE.**

Two choice farms within 1/2 mile thriving village of Belmont, C. P. R. station, telegraph, churches, school, good market; 100 acres in each. On one, good brick house, large barn and drive house, and 2 orchards; on other, excellent frame house (double), bank barn and outbuildings complete, orchard. Abundance living water on each. Suitable for stock or grain. Clay loam, in good cultivation. Will sell one or both.  
 APPLY—ROBT. WATSON, Belmont, Ont.

**FOR SALE AT REDUCED PRICES.**

- 1 No. 7 Alexandra Cream Separator.
- 1 No. 1 Alexandra Cream Separator.
- 1 Springer Cream Separator.
- 2 Springer Cream Separator Bowls.
- 1 Iron Cheese Press.
- 1 Wooden Cheese Press.

Address: BOX 524, LONDON.

**WANTED**—By April 20th, 1900, a married man, good worker, who understands farming in all its branches, also the feeding and care of dairy cattle, and is a good milker. Must be reliable, honest and trustworthy. Salary, \$200 per year; free house, garden, firewood, and a good percentage on pure-bred Ayrshire stock sold. Permanent situation to suitable person. Must have first class references. Address—  
 JOHN A. McDONALD Jr., Williamstown, Ont.  
 Scotchman preferred.

**Cheese Factory for Sale**

THE undersigned administratrix of the estate of the late Henry S. Mawlam offers for sale the cheese factory and furnishings known as the Mawlam Grove Factory, situated in the Township of Dawn, on the Sydenham River, near the village of Sutherland. Terms easy. If not sold, will rent. Good patronage to the right man. Apply to MRS. H. S. MAWLAM, Florence, or STUART, STUART, ROSS & BUCKE, her solicitors, Glencoe.

**CANCER** CURED WITHOUT KNIFE OR FLASKER. FULL PARTICULARS FREE.

F. STOTT & JURY, Bowmanville, Ont.

**SIXTH ANNUAL...**

**Canadian Horse Show**

UNDER THE JOINT AUSPICES OF

The Canadian Horse Breeders' Ass'n AND The Country and Hunt Club of Toronto,

**The Armouries, TORONTO, CANADA.**

THURSDAY, FRIDAY, SATURDAY, April 26, 27, 28, 1900.

ENTRIES CLOSE on Thursday, April 12th, 1900, and should be addressed to

HENRY WADE, Parliament Buildings, TORONTO, ONT.

**OAKLAWN FARM**

as ever, greatly excels all other establishments in the quality and numbers of its

**PERCHERONS and FRENCH COACHERS**

ON HAND: 229 STALLIONS—234 MARES Home bred and imported, including a few CHOICE SHIRES

At the Illinois, Iowa and Michigan State Fairs of 1899, Oaklawn's exhibits in 22 stallion classes won 18 first prizes. Prices and terms reasonable.

DUNHAM, FLETCHER & COLEMAN WAYNE, DU PAGE CO., ILLINOIS.

**EDWARD R. HOGATE COMPANY**

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

EDWARD R. HOGATE, 264 Arthur St., TORONTO, CAN. Bams: 84 and 86 George Streets.

**GOSSIP.**

Mr. J. M. Gardhouse, Highfield, Ont., having sold his imported bull, Prime Minister, which has been used for three seasons in his herd of Shorthorns, has purchased the Collynie-bred imported Brawith Bud bull, Guardsman—1886—, for service. Guardsman served a term in the Highfield herd some years ago and gave excellent satisfaction, siring many high-class animals, among which was the champion bull, St. Valentine, whose dam, bred in the Highfield herd, was one of the first-prize herd in the grand sweepstakes competition, open to all beef breeds, at the World's Fair at Chicago.

**DISPERSION SALE OF HACKNEYS.**

The dispersion sale of the famous Hackney stud of Hon. M. H. Cochrane, of Hillhurst, Quebec, announced in our advertising columns to take place at Grand's Repository, Toronto, at 10 o'clock, April 17th, will be the greatest event of the kind ever witnessed in Canada. This is the oldest established stud of Hackneys in America, and the sale will include, besides the great prizewinning horse, Barthorpe Performer, four bay stallions of superior merit, and a large number of brood mares and a grand lot of young stock bred direct from first-class imported ancestors. Read the advertisement and send for a catalogue if you are interested.

**THE LONDON HACKNEY SHOW.**

This, the great event of the year to English breeders of Hackneys, was held the first week in March. The senior championship for stallions went to Mr. Livesey's McKinley, a son of Garton Duke of Connaught. The junior championship for stallions was won by Mr. Buttle's Roseallan, a 3-year-old son of Rosador. The senior mare championship went to Mr. Galbraith's Rosadora, by Rosador, and the same exhibitor's Queen of the West, by Garton Duke of Connaught, was the reserve number. The 1st prize in the class for 3-year-old fillies over 15 hands, and the junior female championship, went to Welcome, by Connaught 1450, bred by Mr. J. Wilkinson Crossley, of Halifax, Yorkshire, and is a granddaughter of the well-known mare, Lady Coking, owned by Mr. Horace N. Crossley, Toronto and Rosseau, Ont., brother of Mr. J. W. Crossley above mentioned. The London Live Stock Journal says of Welcome: "This is a very charming filly, as she moves beautifully, and is tall and excellently put together, so that when she is let down she is likely to develop into a big Hackney mare of the very highest class." And in referring to her championship winning: "The great Cathedral of Welcome as a matter of course repeated her previous victory. There should be a great future for Welcome when she fills out and thickens, as even at present she is unusually big for her age, and may certainly be included amongst the best of the series of young cup winners, and a credit to her native Yorkshire."

**W. C. SHEARER'S JERSEY CATTLE, TAMWORTH SWINE, AND BARRED PLYMOUTH ROCKS.**

Mr. W. C. Shearer, whose stock and dairy farm is near Bright, Ontario, has been long and favorably known as the FARMER'S ADVOCATE. His name has become permanently associated with high-class dairy products, so much so that he is frequently visited and consulted by those whose ambitions lie in that direction, as authority upon such matters. Valuable premiums have also from time to time fallen to his lot, as a producer of high-class butter, in the larger and more important dairying competitions. The making of good butter starts with the producing, developing, and proper management of good cows, a goodly supply of which may at any time be found at his farm, chiefly Jersey and Jersey grades. Mr. Shearer is a good breeder of this breed as butter cows, and as long as he succeeds with them as he now does he is not likely to soon change his opinion.

The casual visitor may always depend upon finding a well-bred bull at the head of the herd, whose ancestry's highest recommendation is their ability to make butter, and when we called a few days ago we found as a producer of high-class butter, a bull carrying a liberal dash of St. Lambert blood in him, purchased from H. D. Ketcheson, Menie, Ont. He has proven himself a worthy sire, his stock coming strong and uniform, in possession of strong dairying indications.

Among the females our attention was attracted by the yearling heifer, Sprucedale Maid, by Chief of Elmwood 39231, and out of Pauline of Glen Duart 59507. She was purchased from her breeder, Mr. F. Dodge, Milford, Ont., and in her Mr. Shearer considers her best prize. She is a typical Jersey heifer, of solid color, having a well-developed dairying indications and a good constitution, and with her stable-mate of the same age, we think their owner has them on the reserve list. Mr. Shearer occasionally offers a limited number of choice young females from his herd, as is the case at the present season.

Among the Tamworth brood sows we saw some excellent individuals, owing their individual merit largely to their excellent ancestry, which we found true to such families as Nimrod (Imp.) and Middleton Mimulus (Imp.), which, coupled with judicious management and mating, tend to produce a race worthy of the attention of the most particular. The present stock boar, Glenside Karl, by Glenside Toby, and out of Red Bird, has given his owner much stock of a highly satisfactory type, and as Mr. Shearer disposes of his choicest young things for breeding purposes, he frequently places some really choice young things on the bargain counter, of which a few are mentioned below.

The success with which he has met in poultry rearing has frequently tempted him to launch more heavily into the poultry business, but from the fact that he only keeps a supply rather than above the accommodations provided, largely accounts for the very excellent product he turns out. Yet we have judiciously noted the strains which is placed upon his undivided attention. Mr. Shearer informed the writer that he has been in the habit of selecting the produce of the best layers, as well as true in type, and works toward a strain of superior egg-producers. The National strain is largely represented, of which a few very choice cockerels were still on hand when we called; in fact, they are priced according to their individual merit, and some of the choice of the entire season's crop over 40 are still on hand. Watch Mr. Shearer's ad.

**Cucumbers and Melons**

and all vegetables are exceedingly profitable if grown for the early market. Large yields and early maturity are certain to follow the judicious use of

**Nitrate of Soda.**

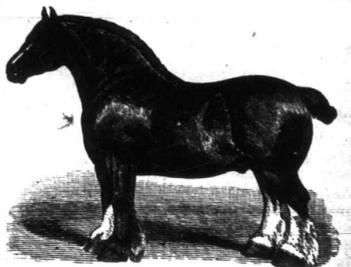
For particulars and proofs write for free book to John A. Myers, 12-R John St., New York. Nitrate for sale by fertilizer dealers everywhere.

Write at once for List of Dealers.

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



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



**Clydesdales FOR SALE.**

The largest stud of superior imported Clydesdales in Canada; 15 stallions of different ages, warranted pure, sound, and money-makers; inspection invited. These horses are not got up for show purposes, they are fed and exercised with a view to usefulness.

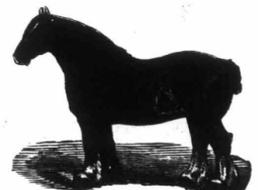
**Also 1 aged Hackney Stallion.**

**JOHN BELL,** Clydesdale Farm, Amber P. O., E. R. York, Ont. Agincourt Station, C. P. R. or G. T. R. Trains met by appointment.

**THORNCLIFFE Stock Farm**

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

**"LYON MACGREGOR."**



**Stallions and Colts**

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

**ROBT. DAVIES,** Thorncliffe Stock Farm, TORONTO.

PLEASE MENTION FARMER'S ADVOCATE.

**Peter C. Kellogg, Auctioneer,**  
has been instructed by  
**MESSRS. AYER & MCKINNEY,**  
of Meridale Farms, Meredith, Delaware Co., N. Y., to close out

**At Auction the entire Meridale Herd of Jersey Cattle** NEARLY 200 HEAD.  
**WEDNESDAY and THURSDAY, APRIL 11 and 12,**

at the Central New York Fair Grounds, ONEONTA, N. Y. (midway between Albany and Binghamton), on the Delaware & Hudson R. R.

We invite you to the sale of a **BUTTER HERD.**  
As foundation cows this herd secured five pure St. Lambert tested daughters of Stoke Pogis 3rd and ten tested daughters of his equally great brother, Stoke Pogis 5th. It also purchased notable cows that were close in blood to other great butter sources, but has always made its St. Lambert and LeClair blood a central feature of its efforts. It had two half-sisters of the great LeClair cow, Matilda 4th, of marvellous merit.

Two bulls of this herd from the start were chosen offspring of the two world-famous cows, Ida of St. Lambert and Matilda 4th, regarded by the managers as the greatest two cows of the Jersey breed, considering their dairy powers as individuals, their power to transmit dairy capacity to their descendants, and the unapproached merit of the immediate families from which they sprung.

To fix the types of these great models upon the herd has ever been the aim. How well it has been accomplished is shown by the splendid butter yields of the cows hereby offered at auction (not one of which was forced), hence indicative of what cows will do year in and year out with good treatment, no effort having been made to learn what they might do under great pressure. It has also been significantly demonstrated by cows bred here that have passed into other herds, some of them prominent. In very many instances cows of Meridale breeding have made increased tests for subsequent owners, readily demonstrating their blood inheritance when called upon to act it out. The herd has recently been subjected to the tuberculin test by Dr. Francis Bridge, Veterinarian of the Pennsylvania State Board of Agriculture for eighteen years, whose certificate of health will accompany each animal sold. There is no cow in the herd that is vicious, tricky or difficult to milk, nor an aborter. For catalogues, ready March 20, address:

**PETER C. KELLOGG, 107 John Street, New York City.**  
Parties writing to advertisers will please mention *The Farmer's Advocate.* -om

**20 - Imported Scotch Shorthorns - 20**  
2 BULLS, 1 and 2 YEARS OLD; 14 HEIFERS, 2 YEARS OLD;  
4 YEARLING HEIFERS.

THIS importation came out of quarantine on the 12th July, and representatives of many of the leading Scotch families are amongst them, including Minna, Brawith Buds, Secreta, Mysie, Beauties, Lady Maya, Lustres, etc. The home-bred herd contains Indian Statesman - 2304 - and 15 young bulls from 6 to 18 months old, and 50 cows and heifers of all ages. Registered Shropshires, yearling rams and ewes, ram lambs from imp. Flashlight. Any of the above will be sold at reasonable prices. Correspondence or a personal visit solicited. Catalogues on application.  
Burlington Junction Station and Telegraph **W. G. PETTIT & SON,**  
Office, G. T. R., within half a mile of farm. **FREEMAN, ONT.** -om

**H. CARGILL & SON,**  
CARGILL, ONTARIO.

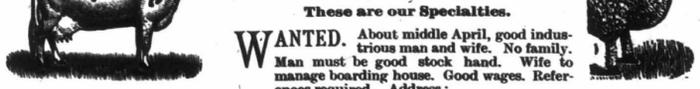
The largest herd of Imported Scotch Shorthorn Cattle in Canada.

**SEVENTY-SIX HEAD** IMPORTED DURING 1899.

13 BULLS. 63 FEMALES.

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

**If You WANT GOOD STOCK WRITE US NOW.**  
BREEDERS AND IMPORTERS OF PURE-BRED  
**AYRSHIRES, SHROPSHIRE, GUERNSEYS, and YORKSHIRES.**  
These are our Specialties.  
**WANTED.** About middle April, good industrious man and wife. No family. Man must be good stock hand. Wife to manage boarding house. Good wages. References required. Address:  
**ISALEIGH GRANGE FARM, Danville, Quebec.**  
J. N. GREENSHIELDS, PROP. -om T. D. MCCALLUM, MGR.



**FOR SALE:**  
Imported Clydesdale Stallion No. 9053.  
Bay, with both hind feet white, and strip in face. Foaled 1889. Will weigh about 2,000 lbs. Sired by Prince of Wales 673. Dam by Darnley 223; 2nd dam by Old Times 579; 3rd dam by Sir Colin 1299, etc.  
For further particulars apply to  
**O. A. COATES,**  
Bothwell, Ont.

**FOR SALE:**  
The Standard-bred Stallion, Morelight (9337).  
Record, 2.30.  
Sired by Twilight (315), by Hambletonian (10). Dam, the great brood mare, Lady Carr, by American Clay (34). Stands 16 hands; dark seal brown; weight, about 1,300 lbs. Winner of the sweepstakes at Western Fair. Price reasonable.  
**ANDREW DUNN,**  
Box 451, Ingersoll, Ont.

**ROBT. NESS & SONS, HOWICK, QUE.**  
BREEDERS AND IMPORTERS OF  
**Clydesdale Horses & Ayrshire Cattle**  
Also the leading breeds of fowls for the farmers.  
**PLEASE MENTION FARMER'S ADVOCATE.**

**ROSEDALE STOCK FARM.**  
Clyde and Shire Horses, Scotch Shorthorns, Leicester Sheep.  
One Imp. Clyde stallion, rising three years old, weighs 1,875 lbs., and is as good as he is heavy; also a Canadian-bred Shire colt, 1 year old. A few choice young bulls, 11 and 12 months old. The Dutch bull, Prime Minister, heads our herd. Can furnish a carload of young bulls at reasonable figures. My motto, "The best is none too good."  
**J. M. GARDEHOUSE, Highfield P. O. Malton, G. T. R.**

**A Few Durham Heifers** In Choice Calf.  
Two bulls; two bull calves; all of choice breeding. Berkshire boars; brood sows and sow pigs. Prices right.  
**A. J. C. SHAW & SONS,**  
THAMESVILLE, ONT.

**Galloways and Shropshires.**  
We are offering for sale at reasonable prices 8 choice Galloway cattle, bulls and heifers, including the College Gambler and his two yearling sons. Also over 100 Shropshire sheep of all ages and both sexes, including 30 shearing ewes and 5 shearing rams. Also imported ram.  
Write for what you want.  
**T. LLOYD JONES & SONS, Burford, Ont.**

**NEW 20TH CENTURY Styles, Capacities, Prices, &c.**

JANUARY 1ST, 1900.

September 1st, 1899, marked the introduction of the Improved 20th Century "Baby" or "Dairy" sizes and styles of "Alpha" or De Laval Cream Separators. These improvements denote another advance in centrifugal cream separator construction and efficiency. Great as has been the universally conceded superiority of the De Laval machines heretofore, the standard is now raised still higher. As near practical perfection as have been the De Laval Separators the past year, the latest improvements make them still better, until it is difficult to-day to perceive the possibilities of further improvement.



**New 20th Century Styles and Sizes.**

The De Laval "Baby" or Dairy Cream Separators are now made in six different sizes and styles. All are of the improved "Alpha" or "Disc" construction. The "Humming-Bird" is solely a hand machine. The Dairy Turbine is solely a steam-motor machine. All of the other sizes are capable of convenient use either by hand or power.

**SIZES, CAPACITIES, AND PRICES.**

SIZE.	Capacity, Lbs. per Hour.	Equal to Lbs. of Any Other Separator.	Price.
Humming-Bird - - - -	225	300	\$ 65.00
No. 1 Iron Stool - - - -	325	400	100.00
No. 2 Iron Stool - - - -	450	550	125.00
No. 2 High Frame - - - -	450	550	125.00
No. 3 High Frame - - - -	850	1000	200.00
Dairy Turbine - - - -	850	1000	225.00

On demand we will send a fine booklet: "KEEPING COWS FOR PROFIT."

**GENERAL AGENTS:**

**The Canadian Dairy Supply Co.,**  
-om 327 Commissioners St., MONTREAL.

**GOSSIP.**

Parties desiring a good farm should note the advt. of Mr. Robt. Watson, Belmont, Ont.

We wish to draw our readers' attention to the new advertisement of Mr. Israel Groff, in which he offers the Scotch-bred bull, Golden Robe 2038. In writing, Mr. Groff states that as he has disposed of most of his females he can sell Golden Robe. A glance at his pedigree will show the value of such a sire; in fact, very few of such bulls are for sale on this continent. Golden Robe is the sire of the 1st-prize heifer calf in 1898 and the 1st-prize yearling heifer in 1899 at the Toronto Industrial Exhibition.

Mr. A. J. C. Shaw, Thamesville, Ont., after returning from an extended tour, during about five months, through the Canadian Northwest, British Columbia, California, Colorado, Kansas, Nebraska, and other Western States, called at our office for a few moments. His observations amongst stock-feeders in the West lead him to the conclusion that the outlook for stock-breeders is particularly bright. There seems to be a real shortage of hogs, as much corn that is thrown out of feeding troughs by cattle and sheep, where they are heavily fed, is lost because hogs cannot be secured to pick it up. Corn and oats are about double the price they were last year, which is leading feeders to feed less lavishly than usual. Mr. Shaw, referring to his own herd of Shorthorns, told us he has three very good red bulls from 15 to 18 months old, sired by Earl of Buckingham, a bull bred by Messrs. Gaunt, and half-brother to the noted Nominee. He also has two others, a red and a roan, about 6 and 9 months old, that will do someone good. The dams of these bulls carry Indian Chief and Conqueror blood in liberal quantity. Mr. Shaw also spoke of a few beautiful heifers of desirable breeding that he could spare.

**MAUD S. HAS GONE.**

The world-famous mare, Maud S. (2083), the former queen of the light-horse turf, fell dead in her stall at Shulthurst, Port Chester, on March 17th, at the age of 38. Her body now lies in a little plot on the Bonner Farm at Farrytown, New York, beside the remains of Dexter, who was in his day as great as Maud S. was in her day.

**A NOTABLE HACKNEY STALLION.**

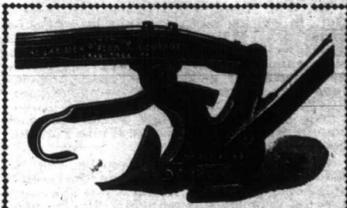
We publish in this issue an illustration of the noted Hackney stallion, Garton Duke of Connaught. He is owned by Mr. Thomas Hall, East Farm, Langton, near Malton. He is undoubtedly the most successful of living Hackney sires. At seven years old the Hackney Show proved him to be so, and last year emphasized the fact. In the produce group classes last year he headed the list with mares, and was reserve for stallions.

**A GREAT SALE OF JERSEYS IN SIGHT.**

In our advertising columns appears the announcement of the dispersion sale of the entire Jersey herd of Messrs. Ayer & McKinney at Oneonta, N. Y., on the 11th and 12th of April. The herd, comprising nearly 200 head, was founded on 15 tested daughters of Stoke Pogis 3rd and 5th, and has been carefully bred with a view to large butter production, the bulls principally used being the offspring of the great cows, Ida of St. Lambert, 30 lbs. 2½ ozs., and Matilda 4th, 21 lbs. 8½ ozs. butter in 7 days and 16,153 lbs. milk in 12 months, and we are assured that the character of the herd for high-class production has been steadily maintained. Those interested in dairy stock will do well to read the advertisement and send for a catalogue of the sale.

Seed Oats and Potatoes.—Mr. Tilman E. Bowman, Berlin, Ont., advertises Salzer's Big Four oats and leading varieties of potatoes for seed in this issue. In writing us, Mr. Bowman states that his stock are doing well, and that he has added to his swine herd a few Chester White and Large English Berkshire sows.

**LARIMER Ditching Plow**



COVERED BY PATENT IN OTTAWA FOR CANADA, AND IN WASHINGTON FOR U.S.

THE Drain Plow is at the foundation of successful farming. Nineteenth of the farming that does not pay may be attributed, in the first place, to the fact that land has not been underdrained.

Here is an implement which is laid down for less than \$20, which has turned in hundreds of dollars to farmers in all the Provinces of Canada.

More underdraining is planned for this year than ever before in the Dominion

All information by addressing  
**Scott Bros.,**  
"ELM BANK CRESCENT,"  
WILLIAMSTOWN, ONT.

**WINONA NURSERY CO.**

Offers for Spring of 1900

A full line of stock, both fruit and ornamental, at very moderate prices. No agents' commission to pay.  
Send for price list and catalogue. Dealers will find it to their interest to correspond at once with

**J. W. SMITH,**  
Manager,  
Winona, Ontario.

**NOTICES.**

**Seed Potatoes and Grain.**—Jas. Bowman, of Guelph, Ont., has for years taken advantage of the field experiments conducted on the Guelph College Farm, planting only the sorts that lead. In this way he has been able to raise big yields of high-class pure seed. In this issue he offers several varieties of seed for sale. See his advertisement.

**Red Star Binder Twine.**—Farmers and users of twine will do well to remember that the word "Manila" in binder twine is only a commercial term and is used on mixed twines. Better buy some positively known brand that you are familiar with, and that you know the makers of. This is the best guarantee you can reach for if you want to be saved trouble in the harvest fields. The Brantford Binder Twine Company's splendid "Red Star" should now be familiar to every farmer in the Dominion.

**Paris Green.**—We have been credibly informed that there is at present on the United States market about 100 tons Paris green which is off color and not up to standard specification as generally understood and as required by the Canadian Government. As this green can only be sold at a sacrifice in the United States, it is probable that some of it may be slaughtered in the Canadian market, and dealers and others would do well to be very careful to see that any Paris green they purchase bears the name of some well-known and reputable maker. Paris green is easily and often adulterated, of which there is more danger now than that it is so extensively used for spraying.

**Tolton Bros.' Flexible Harrow.**—A harrow that harrows all the ground—knoll, furrow, and level—is doing its work thoroughly as it proceeds on its way. This is a consideration worthy of more than passing notice, especially at seeding time, when men and horses are wanted in the next field. The importance of getting seed into the ground at the very earliest moment after the soil is in working condition is appealing more and more to people who observe the great advantage therefrom. Look up Tolton Bros.' advertisement in this issue, and save time and horseflesh by using their strong flexible harrow.

**GOSSIP.**

**Rock Bailey, Union, Ont.**—"I have sold my entire herd of Jerseys which I advertised in the FARMER'S ADVOCATE a short time ago, except one cow. Would advise anyone having stock, etc., for sale to put an ad. in the ADVOCATE. Wishing you continued success."

The famous Hereford cattle importer and breeder, Mr. T. L. Miller, of Beecher, Illinois, died March 15th, at the age of 83 years. Mr. Miller was a doughty champion of the Herefords, and did a great work in advocating and introducing them in the Western States. He was an able writer, and a man of great courage and perseverance.

Mr. Wm. Howe, North Bruce, in Bruce Co., Ont., in writing us to continue his advertisement, says: "My stock of Yorkshire pigs are doing well, and young litters are arriving strong and vigorous. The boars I am offering are lengthy, of good quality and first-class breeding. On account of the coming of young litters, my pens are crowded so that I will quote prices considerably below values to early enquirers for improved Large White Yorkshire boars fit for service."

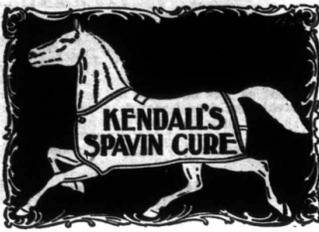
While in the vicinity of Hespeler, Ont., we made a short visit to the Grange, the comfortable home of Mr. J. P. Phin, whose Shropshire sheep have received much of Mr. Phin's personal care and attention. In the future the farm will be carried on by Mr. Phin, Jr., who also takes over the Shropshire flock. With the strict personal attention characteristic of his ancestors, and the grand facilities and favorably-adapted highlands peculiar to that section, we can reasonably look forward to the Grange being the home of one of the first Shropshire flocks in Canada. The foundation stock were largely selected from the leading English flocks and imported direct by Mr. Phin.

Mr. Henderson, of Buscot Park, is the hero of the season in English Shire horse breeding circles. For several years past Mr. Henderson's name has been brought into considerable prominence by the successes of his exhibits at the Shire Horse and other leading shows in Great Britain, and the reputation so acquired has been more than maintained this year by his carrying off, for the fourth time in succession, the challenge cup for the best horse of the breed exhibited at the Shire Horse Society's Show in London last week. His winning exhibit on this occasion was the famous stallion, Buscot Harold, who has now carried off the much-coveted "blue ribbon" of this meeting for the third year in succession. Curiously enough, the mare which won the female championship of the show last year was also champion of her sex on this occasion, none of the newcomers having been able to successfully contest her claim to that distinction. The mare in question was Dunsmore Gloaming—admittedly one of the finest specimens of her breed ever exhibited.

**GREAT SALE OF ABERDEEN-ANGUS CATTLE.**  
At the dispersion sale of the Aberdeen-Angus herd of Wallace Estill, of Estill, Mo., at Dexter Park, Chicago, March 22nd and 23rd, 58 females averaged \$583.33, 14 bulls \$361, and the whole 72 head sold made an average of \$579.30. The highest price for a bull was \$2,100, and for a cow with a bull calf at side, \$2,800. The average at this sale was \$120 higher than that of any other sale of any breed of cattle this year up to that date.

**AYRSHIRE CATTLE SALE.**  
The auction sale of the late Mr. James Johnston's herd of registered Ayrshire cattle took place on March 14th at "Robertland" Farm, Como, Que., and was largely attended by local and western breeders. Competition was keen throughout, and very satisfactory prices were realized. Several of the heifers sold at \$80 to \$105. The thirteen-year-old cow, "Nellie of Barcheskie," with a two-week-old calf, brought \$115. Among the purchasers were Messrs. Kerr Bros., of Wales, Ont.; A. Clark, of Brimston's Corners, Ont.; C. G. Glass, of Danville, Que.; Hon. Senator Owens, of Ramoth, of Petite Cote; and John Morrin, of Petite Brule.

**Don't Guess At Results.**



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

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

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

**FOR SALE:**

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

**FOR SALE:**

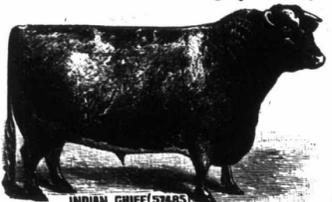
**SHORTHORN COWS, HEIFERS, and YOUNG BULLS,** descended through imported Prime Minister, on Scotch-bred cows of high dairy quality.  
**RICHARD BROWN,**  
ORONO, ONT.

**FOR SALE—3 Shorthorn Bulls**

and a few females by Indian Brave, Bold Britain, and Scotland's Fame, out of straight Scotch females.  
F. A. GARDNER, BRITANNIA, ONT.

**For Sale:** A few young Shorthorn bulls and heifers. Also Tamworth boars and sows from prize stock at Toronto and other exhibitions.  
C. LAWRENCE, Collingwood, Ont.

**ARTHUR JOHNSTON**  
Greenwood P. O. and Telegraph Office,

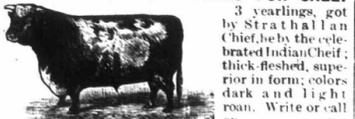


INDIAN CHIEF (57485)  
OFFERS FOR SALE, AT MODERATE PRICES,  
**13 IMPORTED and SHORTHORN BULLS**  
HOME-BRED  
**17 imported COWS and HEIFERS**  
**22 home-bred COWS and HEIFERS**  
Many of them from imported cows, and by imported bulls. Catalogues on application.  
Claremont Station, C. P. R.,  
or Pickering Station, G. T. R.

**J. & W. B. WATT,**  
Salem, Ont.,

Offer for sale the four-year-old imported Clydesdale stallion,  
Heather Bloom (10203),  
and  
Six Shorthorn Bulls  
Fit for service.  
Elora Station, C. P. R. and G. T. R.

**SCOTCH SHORTHORN BULLS FOR SALE.**



3 yearlings, got by Strathallan Chief, he is the celebrated Indian Chief, thick-fleshed, superior in form; colors dark and light roan. Write or call on  
EBEN SUTHERLAND, Bennington, Ont.  
PLEASE MENTION FARMER'S ADVOCATE.

**GOSSIP.**

Mr. C. M. Keeler, formerly of Greenbush, who advertises Holstein cattle in this issue, has purchased a farm at Lynn, Ont., four miles from the station, where he is conveniently located, and will give increased attention to the breeding and development of his already strong herd of Holsteins. It will be remembered that Mr. Keeler, some two years ago, purchased the fine herd of Messrs. Ellis Bros., of Bedford Park, including the typical and richly-bred young bull, Homestead DeKol Belle and the noted Aggie, and 18 breeding cows of some of the best families known, besides a number of choice young stock. A number of high-producing cows is embraced in the herd, a virtue which comes to them by inheritance of the highest order, some having milk records of 65 to 75 lbs. an upwards of milk daily. Representatives of the herd have won a large amount of prizes at the leading shows in Canada. The young stock shows strong breed character and quality and promise of usefulness in the dairy.

A GOOD LIST OF SALES FROM CARGILL HERD. Messrs. H. Cargill & Son, Cargill, Ont., write: "We have the following sales of Short-horns from our herd to report."

To John M. Fishbeck, Howell, Mich., bull, Loyal Member, out of Rosalind (Imp.), of which it is sufficient to say that he is a worthy son of his sire, Royal Member; and Rose of Strathallan 5th, sired by the Duthie-bred Lancaster bull, Rantin Robin (Imp.).

To Charles Fishbeck, Howell, Mich., the imported heifer, Maisie, of the good old Mayflower family of Heatherwick, sired by a son of Scottish Archer, and in calf to the Marr-bred Golden Hope, second-prize winner at the Royal Northern in 1895; and Diamond 20th, out of the Crombie-bred cow, Diamond 18th, the highest-priced cow at the sale of J. D. Wilson and sired by the Lancaster bull, Rantin Robin, bred by Mr. Duthie.

To assist his present herd bull, Golden Fame, we sold Mr. W. D. Flatt the low-down, level, good bull, Orange Chief (Imp.), sired by Orange Duke (Imp.).

To R. Mitchell & Son, Burlington, Ont., the good red bull, Prince William (Imp.), sired by the Duthie-bred Reveller (71359), a grandson of the great Star of Morning (68189).

To A. D. McGugan, of Rodney, Ont., a great, thick one with a double cross of William of Orange, and in calf to the grand bull, Count Amaranth (Imp.), also the Roan Lady heifer, Rosetta 8th (Imp.), a matron of the right sort, and in calf to the Princess Royal bull, Scottish Prince (73593).

Mr. T. H. Canfield, of Lake Park, Minnesota, has selected the following first-class animals—not a middling one in the lot—viz.: The Duthie-bred bull, Count Amaranth (Imp.) (74289), of the same family as Field Marshal Alma and other noted animals; the Butterfly cow, Blythesome Girl (Imp. in dam), bred by Mr. Duthie and sired by Pride of Morning (64546), dam by Gravesend (46161) and grand-dam by William of Orange (50694); the great, thick calf, Morning Star (Imp.), by Sittytown Prize (67389), bred by Mr. Duthie, and out of prize-winning dams; Augusta 99th (Imp.), one of the famous Inverquhomery Augusta family, noted as winners at Smithfield, and sired by the Highland Society prize-winning bull, Waverly (6872).

The best real good bull and sire of good ones, Orange Duke (Imp.), we sold to Mr. W. B. Campbell, Campbellcroft, Ont.

To Doctor Gillies, of Teeswater, a right good heifer, Rosa Bell (Imp.), a prizewinner in Scotland, and safely in calf to Scottish Victor (69537), by the famous Scottish Archer (59893), of Sittytown, by Gondolier.

To David Birrell, Greenwood, the good bull, Prince Cruickshank (Imp.) (73277), by Emperor (67008), dam by Master of the Mint (57749); also the heifer calf, Blythesome Morning, out of Blythesome Girl and sired by Royal Member (Imp.).

Royal Member (Imp.) (64711), our herd bull for a number of years, has gone to add laurels to the herd of Mr. Robert Duff, of Myrtle, Ont. The roan bull, Beauchamp (Imp.) was selected by Shantz Bros., Haysville, to head their herd of Shorthorns. He is a low-down, thick fellow, full of Cruickshank blood, and will surely do his new owners good.

To James Tolton, Walkerton, Ont., a choice red Sittytown Secret heifer, Sybella 5th, bred on the most fashionable lines, sired by Prince of Pittivie (71246) first-prize bull at Perth in 1898, and sold to South America at a long price. This heifer has been bred to our red bull, Golden Drop Victor, purchased at Mr. Duthie's sale of 1899 for 200 guineas, and of which Mr. Duthie says: "He is as good a bull as I ever bred, and I have the greatest confidence that he will make a sire of good ones."

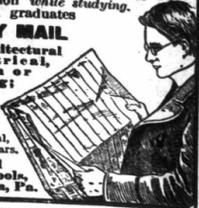
Geo. Harding & Son, Waukesha, Wisconsin, made us a flying visit, and purchased the following animals: Sylvia, same breeding as above, and bred in Scotland to Morning Pride (75113), Augusta 77th and heifer calf, Augusta 112th, and Augusta 88th, all of the famous Inverquhomery Augusta family, which has furnished more Smithfield winners than any other. Lady Miranda and heifer calf, Lady Miranda 2nd, by the good bull, Count Amaranth, a pair of good ones. Helen 30th, a red bull calf, Royal Pride, a good heifer and a grand calf, of grand quality and full of Cruickshank blood. Donside Queen, a Kinellar Claret, and bull calf, Donside Count, by Count Amaranth, another pair of good ones, with a lot of Cruickshank. Morning Maid, by the great Star of Morning, herself winner of first prize this year at Turfiff and Fyvie, and her heifer calf, Scottish Maid, by Scottish Victor, a son of Scottish Archer, out of Sittytown Victoria, by Gondolier. Claudia 2nd, a great thick red cow, in calf to Prince of Archers, another son of the renowned Scottish Archer. Lady Bell 5th, a massive roan heifer, a Kinellar Jealousy pedigree, and in calf to Count Amaranth. Lady Ann, a heifer of great scale, a Jilt pedigree, and her heifer calf, Scottish Lady, by Scottish Prince, a Princess Royal bull. Lord of Strathgogie, a Sittytown Secret bull, thick, low-down—an all-round good one that we shall read about in the future."

**A Way to Change Your Work**

Prepare for a better position without neglecting your present work. Our students advance in salary and position while studying. 150,000 students and graduates.

**TAUGHT BY MAIL**

Mechanical or Architectural Drafting; Electrical, Mechanical, Steam or Civil Engineering; Architecture; Surveying; Book-keeping; Stenography, &c.  
Established 1891. Capital, \$1,500,000. Write for circulars.  
The International Correspondence Schools, Box 99a, Scranton, Pa.



**FOR SALE: TWO CHOICE SHORTHORN BULLS.**  
om- GAVIN BARBOUR, Crosshill, Ont.

**SCOTCH SHORTHORN BULLS AND HEIFERS**

HERD ESTABLISHED IN 1872. Such sires as imported Royal George and imported Warfare have put us where we are. Imported Blue Ribbon now heads herd.

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

**SHORTHORNS**

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

**SPRINGFIELD FARM**

HERD OF Shortorns, Oxfords, and Berkshires. Young bulls and heifers on hand. Also a few choice Berkshires.  
CHAS. RANKIN, Wyebridge, Ont. SIMCOE CO.



**JOHN DRYDEN.**

BROOKLIN, ONTARIO, BREEDER OF **Scotch Shorthorns,** —AND— **Choice Shropshire Sheep.**

**SHORTHORNS AND BERKSHIRES.**

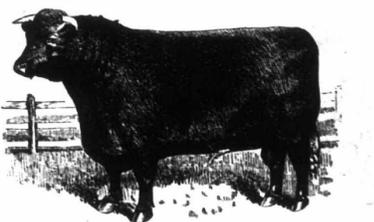
Duke of Richmond No. = 2679 = at head of herd. Four young bulls for sale—good ones, and a few cows and heifers. Young boars and sows of the very best breeding always on hand.

J. W. Hartman & Sons, Elmhedge P.O., Ont.



**W. D. FLATT,**

Hamilton, Ontario, Can., Importer and breeder of **Shorthorn Cattle.**



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

**Shortorns and Shropshires.**

I have a few promising young bulls on hand, and am booking orders for Shrop. ram lambs for fall delivery; well covered.  
**GEORGE RAIKES, — HARRIE, ONT.**

**F. BONNYCASTLE & SONS**

CAMPBELLFORD P. O., ONT., BREEDERS OF **Shortorns, Cotswolds, and Berkshires.** Have for sale cows, heifers, and heifer calves: a choice lot of ram lambs, ewe lambs, and breeding ewes; 40 Large English Berkshires, of the long bacon type, from six weeks to nine months old.

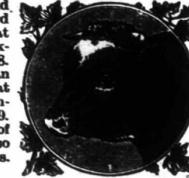


**Change Work**  
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**John Miller & Sons,**  
 BROUGHAM P. O.  
 and TELEGRAPH OFFICE,  
**OFFER FOR SALE....**  
 4 Imported Clydesdale Stallions.  
 10 Scotch-bred Shorthorn Bulls.  
 PRICES REASONABLE.  
 Claremont Stn., Pickering Stn.,  
 C.P.R. G.T.R.  
 Correspondence Invited.

**SPRING GROVE STOCK FARM**  
 Shorthorn Cattle and  
 Lincoln Sheep. Herd  
 was and sweptake at  
 Toronto Industrial Ex-  
 hibition, 1897 and 1898.  
 Herd headed by Topman  
 =17847=, champion at  
 Winnipeg, Toronto, Lon-  
 don and Ottawa, 1899.  
 High-class Shorthorns of  
 all ages for sale. Also  
 prizewinning Lincolns.  
 Apply  
**T. E. ROBSON, Wderton, Ont.**



**SPRINGBANK FARM.**  
 Shorthorn Cattle, Oxford Sheep, and Bronze Tur-  
 keys. Young bulls for sale.  
 on **JAS. TOLTON, WALKERTON, ONT.**

**SHORTHORNS.**  
 One red bull, 21 months old; one 6 months old;  
 also a number of heifers.  
**A. P. ALTON & SON,**  
 Burlington Jet Station. Appleby P.O., Ont.  
 I am prepared to offer at reasonable prices, for a short  
 time, a few very choice young registered  
**Shorthorn Bulls and Heifers**  
 in good health and fine growing condition.  
 Simcoe Co., **SAMUEL DUNLOP,**  
 Coldwater Station. Eady, Ont.

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

**HAWTHORN HERD**  
 OF DEEP-MILKING SHORTHORNS.  
 We are offering 5 young bulls for sale, of  
 first-class quality, and AI breeding.  
**Wm. Grainger & Son, Londonboro, Ont.**

**4-SHORTHORN BULLS-4**  
 For Sale.  
 From 5 to 15 months. A few young cows or  
 heifers; color red; good pedigrees.  
**JAMES BROWN, Thorold, Ont.**

**SHORTHORN BULLS AND HEIFERS**  
 FOR SALE.  
 Cruickshank and other Scotch sort, headed  
 by (imp.) Knuckle Duster. Herd has fur-  
 nished the Fat Stock Show champion three  
 out of the last five years. Correspondence  
 invited.  
 Exeter Station, G. T. R., **H. SMITH,**  
 half mile from farm. **HAY, ONT.**

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

**Scotch Shorthorns**  
 FOR SALE.  
 100 head to select from; 15  
 grand young bulls by Valkyrie  
 =21806=, and cows and heifers  
 of all ages, of the most approved  
 breeding, served by (imp.) Dia-  
 mond Jubilee =28861=, now at the head of our herd.  
**T. DOUGLAS & SONS,**  
 Strathroy Station and P. O.  
 Farm 1 mile north of the town.



**Shorthorns and Leicesters.**  
 Herd Established 1855.  
 A number of young bulls, cows and heifers for  
 sale. Herd headed by imported Christopher 28859,  
 and Duncan Stanley =16364=. Grand milking cows  
 in herd. Also a number of Leicesters of both sexes,  
 from imported foundation.  
**JAMES DOUGLAS,**  
 CALEDONIA, ONT.

**GOSSIP.**  
 A VALUABLE SHIPMENT OF SCOTCH SHORT-  
 HORNS.

Mr. W. D. Flatt, Trout Creek Farm, Hamil-  
 ton, Ontario, has says the Aberdeen Free  
 Press, just concluded, through his Scotch  
 agent, Mr. George Caird, Hartley, formerly  
 of Kinellar, the purchase of a very choice  
 lot of Scotch Shorthorns, which will compare  
 favorably with any consignment which has  
 yet left our shores for the Dominion. Canadian  
 breeders have for many years been loyal sup-  
 porters of the thick-fleshed, robust cattle bred  
 in the north of Scotland, which have been  
 found to fit in with the economical and climatic  
 conditions of the Dominion, and as the produc-  
 tion of the highest class of commercial bullocks  
 has of late been a profitable branch of the  
 business of the Canadian farmer, the demand  
 for the best class of Scotch Shorthorns is very  
 active. Mr. Campbell, in executing Mr. Flatt's  
 commission, has not been hampered with  
 regard to the price, and, having a close acquain-  
 tance with the best strains of Scotch Short-  
 horns, he has secured for his shipment a lot  
 of 54 Shorthorns from the most celebrated  
 herds in the country, which puts into posses-  
 sion of his principal a remarkably fine repre-  
 sentation of the best things which this country  
 can produce.

No fewer than 35 head, consisting of 8 cows,  
 17 one- and two-year-old heifers, 2 yearling bulls,  
 and 8 heifer and bull calves, were purchased  
 from the great "Cruickshank" herd established  
 by Mr. Philo L. Mills, Ruddington Hall,  
 Nottingham, at the shrine of "St. Duthie."  
 A large proportion of the Ruddington Hall  
 draft consists of some of the very best things  
 Mr. Mills purchased at the recent notable sales  
 in the north of Scotland, and the others are  
 chiefly from Mr. Mills' own Scotch families,  
 dashed with Collingie blood. The leading  
 champion, bull Marengo. Among the cows,  
 Glad Princess, a very good four-year-old roan,  
 with a promising bull calf at foot by Best of  
 Archers, inherits the blood of Mr. Gordon's (of  
 Newton) Star of Morning, the sire of the  
 Highland Society champion bull, Pride of  
 Morning, stock bull at Collingie. The yearling  
 of Proud March, a five-year-old roan, by  
 Pride of Morning, which is accompanied by a  
 nine-months-old heifer calf, Amaranth, by  
 Royal Chamberlain (a son of the champion  
 bull, Chamberlain), runs into the most potent  
 strains of the old Cruickshank herd—a strain  
 which among other notable things, has reduced  
 Mr. Duthie's bull Marengo, to the rank of a  
 Field Marshal. Roan Bess will be remembered  
 as the "plum" of the Newton offering, by Star  
 of Morning, and out of Bessie by Prince of  
 Fashion, which cost Mr. Mills 110 guineas as  
 a yearling. She has proved herself to be a  
 grand breeding cow, having at foot a bull calf  
 by Solferino (the sire of the best of the breed  
 going to Canada with his dam, and which is  
 certain to have a great showyard career before  
 him. He is regarded by good judges on this  
 side as quite an exceptional calf, having a very  
 sweet head, well laid shoulders, great width  
 over his back and loin, rare under line, and his  
 wonderful symmetry. He is accompanied  
 by his beautiful covering of hair. Rosalind,  
 a three-year-old with a double cross of Star  
 of Morning, is a thick-fleshed three-year-old  
 bred at Newton with a Best of Archers bull  
 calf at foot. Ruby of Douglas III., a very  
 useful breeding cow with a heavy flow of milk,  
 traces down her pedigree to the best of the  
 Auchenagathle-bred cow, Gladys, and her  
 son, as she is descended from Mr.  
 Mitchell's Gems of the Vale, and has thus a  
 cross of the great show bull, Duke of Cham-  
 burgh, while she herself was got by Cham-  
 berlain. A thick-fleshed, low-standing three-  
 year-old will be found in the beautifully bred  
 cow, Naomi's Ruth, which is the sire of the  
 (the sire of the great champion, Cornerstone),  
 and descended from the great Sittyton Clipper  
 tribe, which produced so many of the late  
 Mr. Amos Cruickshank's notable sires. As  
 she is in calf to Best of Archers, she is quite  
 good enough to be classed among the most  
 choicely bred animals in Mr. Campbell's selec-  
 tion. Among the two-year-old heifers is  
 included Cornelia, a very pretty red heifer  
 bred at Newton, by the Edinburgh champion  
 bull, Cornerstone, her dam being by Mario II.  
 (by the Royal English champion Mario).  
 Cornelia was one of the gems of Mr. Gordon's  
 sale last year; she is in calf to Marengo, and  
 is quite a class female in her own right. The  
 most potent of Scotch breeding, Lady Percy,  
 a two-year-old in calf to Best of Archers, and  
 by Marengo, and her dam, Lady Mary, by  
 Eastern Star, is descended from a great show  
 family brought to the front by Mr. M'William,  
 Stonytown, which has taken champion prizes  
 at the leading shows in the Dominion. The  
 yearling heifers include such grandly  
 bred lots as Collingie Missie, a very thick, big  
 fleshed, blocky roan of beautiful breed type.  
 She is by Nonpareil Victor, and her dam, Dal-  
 mony Missie CXXXII., by Lord Lavender,  
 and goes back to a whole bunch of notable  
 sires—William of Orange, Athabasca, and Heir  
 of Esquimaux—so that this youngster is justly  
 reckoned one of the attractions of Mr.  
 Flatt's great collection. Crescendo's Charity, by  
 Mr. John Wilson's Crescendo, dam Star of Char-  
 ity, is a well-bred yearling with a fine chest and  
 bosom, and Marengo Cambridge Gwynne, bred  
 by Marengo, represents an English strain. Belle  
 of Archers, by Lord Archer (a half-brother  
 of the champion Marengo) and from Lady Belle  
 (by Chamberlain), is a remarkably attractive  
 heifer of excellent breed type. Her dam was  
 a first-prize winner at the Nottingham Show, was  
 first for the best milking Shorthorn, and was  
 sold at a long figure to go to the Cape. Of the  
 calves which have been selected, not may be  
 made of Marengo's Ruddington Star, a Cruick-  
 shank Clipper, by Mr. Mills' great champion,  
 which shows extra promise, and Marengo's  
 Sunshine, which traces back to the old Heath-  
 ertwick Mayflowers, which are closely bred to  
 the old Sittyton blood.

In the herd of M. Leopold de Rothschild,  
 the great show four-year-old cow, Mayflower  
 IV., bred by Mr. Robert Turner, and full of  
 Collingie breeding, was obtained. She has had  
 a notable career in the showyard, being first  
 at Buckingham as a yearling, first at Exeter  
 and reserve champion, first at the Royal  
 English, first at Bedford, and first at Suffolk  
 as a two-year-old, while she won at Oxford,  
 Bedford and the Royal as a three-year-old  
 shown in the cow class. She is looking very  
 fresh, and should have further honors at her  
 call. She is accompanied by a heifer calf by

a son of Count Lavender (Mr. Willis' great stock  
 and show bull) which looks like doing credit  
 to her dam, and by Mayflower VI., a red year-  
 ling heifer, an animal of extraordinary sub-  
 stance and wealth of cover.

In the herd of Her Majesty the Queen there  
 was secured May Blossom, a beautifully-bred  
 two-year-old white heifer, by Monarch, dam  
 Maid of Honor (by Gael, the sire of the Prince  
 of Wales' 1000 guinea bull), which will be  
 exported to Canada to prove to the breeders  
 there that as good whites may be bred as come  
 from the all-reds.

From the famous herd at Dalmeny belong-  
 ing to Lord Roseberry, Mr. Campbell obtained  
 several exceptionally well-bred Shorthorns,  
 including the Auchenagathle-bred cow, Gladys,  
 full of the Cruickshank blood; Dalmeny  
 Nonpareil V., by Sittyton Seal, out of a  
 "Gravesend" dam, and going straight back to  
 one of the favorite Kinellar strains; and the  
 yearling bull, Dalmeny Primate, whose sire  
 was Scottish Sailor and his dam Vain Princess,  
 is from one of the best breeding families in the  
 Collingie herd. Dalmeny Primate is a wide,  
 massive red, with great thighs, and shows a  
 dash of character and breeding.

**5 SHORTHORN BULLS**  
 Of the most noted Scotch families, and choice in-  
 dividuals. For prices and particulars write  
**SHORE BROS.,**  
 White Oak.

**5--Shorthorn Bulls--5**  
 From 9 to 15 months. Also a few choice year-  
 ling and 2-year-old heifers, among which are  
 grand, thick-fleshed and choicely bred  
 animals, mostly solid red colors. Speak  
 quick, for they will not last long.  
**G. A. BRODIE,**  
 STOUFFVILLE STATION, BETHESDA, ONT.

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

**BONNIE BURN STOCK FARM**  
 Forty rods north of Stouffville Station, offers for sale  
 (5) fine grand young Shorthorn bulls, good breeding  
 and excellent quality, at very moderate prices.  
 Write for what you want.  
**D. H. RUSSELL, Stouffville, Ont.**

**R. & S. NICHOLSON**  
 SYLVAN P. O., PARKHILL STATION.  
 Scotch Shorthorns, Imp. and home-bred.  
 The Imp. Clipper bull, Chief of Stars, heads the herd.  
 Eight extra good 2-year-old heifers for sale, in calf to  
 Chief of Stars (72215). Inspection invited.

**Shorthorns.**  
 At easy prices, 10 good young bulls,  
 from 3 to 15 months old. Also 10  
 heifers and young cows with calf at  
 foot or served by Imp. Prince Wil-  
 liam, now at head of herd.  
**R. MITCHELL & SON,**  
 Burlington Jet Station, Nelson, Ont.



**A. D. M'GUGAN,**  
 RODNEY, ONTARIO.  
 Shorthorn Cattle and Lincoln Sheep  
 The noted sire, Abbotsford, stands at the head of our  
 herd. We have a few choice red bulls to offer; also  
 ram and ewe lambs from imported stock.

**SHORTHORNS**  
 Choice bulls ready for service, by Scottish Chief  
 =27244=, by Scottish Pride (imp.). Dam  
 Fancy's Gem, by Guardsman (imp.).  
**BERKSHIRES.**  
 Modern type, well-bred boars and sows, all ages.  
**ALEXANDER LOVE,**  
 EAGLE, ELGIN CO., ONT.

**Horse Owners! Use**  
 GOMBAULT'S  
**Caustic**  
**Balsam**  
 A Safe Speedy and Painless Cure  
 The safest, best BILLYER ever used. Takes  
 the place of all liniments for mild or severe action.  
 Removes all Bunches or Blemishes from Horses  
 and Cattle. SUPERSEDES ALL GAITERY  
 OR FIRING. Impossible to produce heat or burn.  
 Every bottle sold is warranted to give satisfaction.  
 Price \$1.50 per bottle. Sold by druggists, or  
 sent by express charges paid, with full directions  
 for its use. Send for descriptive circulars.  
**THE LAWRENCE-WILLIAMS CO., TORONTO, CAN.**



**Glover Leaf Lodge**  
 HERD OF **Shorthorns**  
 A number of choice young bulls, heifers and cows,  
 excellent milking strains. Correspondence invited.  
**R. CORLEY, Belgrave P. O., Ont., and G. T.**  
**E.; Wingham, C. P. R.**

**GUERNSEYS.**  
 This is the dairy breed for ordinary farmers.  
 Large, vigorous, and hardy, giving plenty of rich  
 milk. Several fine young bulls for sale at very  
 reasonable prices. A few heifers can be spared.  
 Address—**SYDNEY FISHER,**  
 17-7-0 ALVA FARM, KNOWLTON, P. O.

**2** Thorough-bred **Hereford Bulls** for sale—1 and  
 bred **2 years old.**  
**W. E. COLEMAN, "Oakdale Farm,"**  
 Cookstown P. O., Ont.

**F. W. STONE ESTATE,**  
 GUELPH, ONTARIO.  
 The first Hereford herd established in Canada by  
 importations in 1859 of the best prizewinners of  
 England, followed by repeated further importations,  
 including winners of first prize at Royal Agricultural  
 Show. Choice young Hereford Bulls for sale. Also  
 McDougall's Sheep Dip and Cattle Wash, fresh im-  
 ported, non-poisonous and reliable; thoroughly tested  
 by over forty years' use on farms of above estate.



**75 HEAD**  
 High-quality,  
 Early-maturing  
**Herefords**  
 Prizewinners,  
 Producers of Money-  
 makers in the  
 feed lot.  
 The blood of "Corrector," "Eureka," "Ancient  
 Briton," and "Rupert," on an "Anxiety" foundation.  
 Send for illustrated catalogue.  
**H. D. SMITH, COMPTON, QUE.**

**40 HEREFORDS**  
 Bulls, Cows, and Heifers,  
 for immediate sale.  
**Alfred Stone,**  
 5 Douglas St., GUELPH, ONT.

**Meadowbrook Jersey Herd** For sale, a splendid  
 C. C., six months old, at your own price. Thirty  
 splendid white Wyandotte hens and a few cockerels.  
**EDGAR SILCOX, SHEDDEN, ONT.**  
**\$200** Do you want a Snap? **\$200**  
 Now is your chance.  
 One good Jersey cow, 7 years old; one good Jersey  
 heifer, 3 years old; and one bull, 3 years old; or, if  
 preferred, a good yearling bull. All registered in the  
 A. J. C. C. Both cows due to calve soon (in calf to  
 Handsome Rioter, one of Mrs. E. M. Jones' best  
 bulls). All for the low price of \$200 (if taken before  
 cows drop their calves), i. e., h. cars at Chatham, or  
 will sell singly. Also young Jersey bulls, and a few  
 choice Jersey grade heifers at reasonable prices.  
**W. W. EVERITT, Chatham, Ont.**

**HIGH GROVE STOCK FARM.**  
**ROBT. TUFTS & SON, Proprietors,**  
 Tweed (Hastings Co.), Ont.  
 BREEDERS OF  
 Jerseys—The best strains of Jersey (A. J. C. C.) cattle.  
 Yorkshires—Large Improved Yorkshire swine.  
 Pure-bred and high-grade stock always for sale  
 at reasonable prices. Write for what you want.

**FOR SALE: 10 Jersey Heifers**  
 4 Jersey Bulls  
 From 3 to 12 months old, all by my imported bull,  
 Illinois Omph 34314, and all out of imported dams.  
 A rare chance to secure some of the best island  
 blood at very low prices. Address:  
**F. S. PEER,**  
 Mt. Morris, N. Y.  
**DAVID A. MACFARLANE, KESLO, P. Q.**  
 BREEDER OF  
**Ayrshire Cattle.**  
 The blood of Nellie Osborne is largely  
 represented in my herd, and combine style,  
 quality and production. A few choice  
 things for sale.

GOSSIP.

At the London Shire Horse Show sale, the highest price, 450 guineas, was paid by Mr. Towgood for Cathorpe Brenda, Mr. H. P. Taunton's 5th-prize winner in the two-year-old class, sired by Harold. The next highest figure was 300 guineas for the three-year-old mare, Real Gem, by Stroxtan Tom. The highest price for a stallion was 250 guineas for the two-year-old Birdal Calament. The three-year-old stallion, Holker Viking, by Stalmine Premier, also sold for 250 guineas. Yearling colts sold at 20 guineas to 150 guineas. Two- and three-year-olds from 40 guineas up.

THE BIRRELL SALE OF SHORTHORNS.

The auction sale of Shorthorns at Mosboro, Ont., estate of the late Mr. John E. Birrell, March 14th, was very successful, the attendance of stockmen and farmers being very large. The cattle, as a rule, were of an excellent type, the younger things especially being well fleshed and well haired, and, with few exceptions, the animals were in excellent condition. The management of the sale on the part of those responsible for the ring display and the bringing out of the cattle was execrable, and presented an object lesson which should serve as a warning to those contemplating the holding of public sales of stock. Had it not been for the fact that judicious advertising had brought together a very large company of enterprising men eager to buy cattle, and but for the commendable tact, skill and good temper of the capable and well-qualified auctioneer, Mr. Thos. Ingram, of Guelph, what resulted in an exceptionally good sale might easily have turned out a disastrous failure. Owing to the neglect to provide a roped-off ring, not more than a quarter of those present could get a glimpse of the animals when brought out for sale, and this defect was sought to be remedied by the introduction of a heavy draft horse at intervals parading around the inside of the apology for a ring, to the peril of the life and limbs of the company, and in innumerable instances, when the auctioneer had located a bidder, the charge of the heavy horse scattered the crowd so that the salesman would need the eye of an eagle to pick out his bidders again. Then the delay in bringing out the animals in succession and the hesitancy in answering questions as to dates of service, etc., tended to dampen the ardor of buyers, but the men were there for business, and were evidently disposed to make allowances, considering all the circumstances, but while all's well that ends well, it is not wise to presume too much on the good-nature of the public. The sale was notable for the uniformity of good prices, everything selling well up to its value, without any fancy prices being paid. The highest price for a female was \$260, paid by Mr. James Cowan, of Seaforth, for Crimson Gem 4th, a red 3-year-old by Imp. Glen Campbell. Mr. Flatt, of Hamilton, took the excellent roan heifer, Starlight 2nd, at \$250, and Mr. W. G. Pettit, of Freeman, the yearling Crimson Fuchsia 16th, at \$235, and the 3-year-old Aggie Ury 3rd, by War Eagle, at \$230. The roan 2-year-old bull, Prince Cruick shank, imported last year by Messrs. Carhill, a bull of fine type and excellent quality, was also taken by Mr. Pettit at \$500, and is good value for the price. Five capital yearling bulls sold at prices ranging from \$155 to \$205 each, and were cheap at the price. The 32 head sold (several calves catalogued going with their dams) averaged \$153 each, and the buyers were farmers and small breeders. The farm of 170 acres, with first-class buildings, was sold at auction to Mr. Wm. Woodley, of Fullarton, for \$10,300, and is good value for the money, being one of the most desirable farms in the Province. We append a list of the animals sold, with the address of the buyers:

- Cows and Heifers—Crimson Fuchsia 9th, 4 years; Edwin Batty, Gore Bay \$225; Fort Huron 200; Crimson Fuchsia 16th, 15 months; W. G. Pettit, Freeman 235; Crimson Gem 4th, 4 years; Jas. Cowan, Seaforth 260; Crimson Gem 7th, 3 years; R. Miller, Pickering 130; Crimson Gem 8th, 1 year; Jas. Cowan 185; Crimson Gem 9th, 9 months; Geo. Johnston, Balsam 115; Crimson Fuchsia 18th, 8 months; R. E. Johnston, Pickering 160; Crimson Fuchsia 17th, 2 years; R. E. Johnston 160; Crimson Fuchsia 15th, 16 months; C. Kearns 205; Minnie Warrior 3rd, 4 years; C. Kearns 220; Minnie Warrior 6th, 3 years; M. Shantz, Breslau 140; Minnie April 2nd, 2 years; Robert Harvey, Guelph 230; Starlight 2nd, 2 years; J. I. Flatt, Hamilton 250; Minnie Moss 2nd, 7 years; Edwin Batty 110; Minnie Moss 3rd, 1 year; John Davidson, Ashburn 185; Minnie March 3rd, 1 year; Geo. Johnston 120; Minnie Benson, 1 year; J. I. Flatt, Hamilton 170; Minnie Warrior 7th, 10 months; C. Kearns 140; Aggie Ury 3rd, 3 years; W. G. Pettit 230; Starlight, 9 years; John Bradley 140; Mayflower Maid 4th, 4 years; Robt. Miller 195; Starlight 3rd, 1 year; Geo. Johnston 170. Bulls—Prince Cruickshank (73277), imp., 1 year, 10 months; W. G. Pettit 500; Ben Mychree, 1 year; Wm. Hay, Tara 180; Montgomery, 18 months; F. R. Cook, Glenwilliams 195; Buckingham, 17 months; S. McCoub, Berwick 160; King Kenney, 17 months; Wm. Wise & Son, Clinton 205; Royal Gloster, 15 months; F. R. Cook 195; Colbert King, 15 months; John McGavan, Wellesley 155; Clan Alpine, 13 months; John Hill, Baden 180; Manicamp, 13 months; James Cowan, Seaforth 175.

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



THE NATIONAL FARM Cream Separator

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

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

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

MESSRS. CAMPBELL & GLENN, 381 TALBOT ST., LONDON, ONT., Agents for the Counties of Middlesex and West.

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

Deschenes Jersey Herd. HEADED BY IDA'S ROTTER OF ST. LAMBERT 47570. 4 young bulls fit for service—registered. Also Tamworth swine from diploma herd, Canada Central Fair, Ottawa, 1898. R. & W. CONROY, DESCHENES MILLS, QUEBEC.

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

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

FOR SALE: THE 43 MOS. HOLSTEIN BULL Sir Pietertje Burkey DeKol His dam, Helena DeKol's DeKol, tested officially 362 lbs. 10 1/2 ozs. milk and 12 lbs. 7 ozs. butter in 7 days as a 2-year-old. Also Sir Pietertje Pride, calved last March. Both bulls in prime breeding form. Maggie Keys and other good ones in the herd. Correspondence solicited. A. D. FOSTER, HOLLOWAY, ONT.

MAPLE HILL HOLSTEIN-FRIESIANS Three Yearling Heifers, sired by Colanthus Abbecker 2nd, and in calf to Daisy Teake's King (brother to Daisy Meake's Queen, the great test and show cow). Three Bull Calves, sired by De Kol 2nd's Paul De Kol Duke, the great butter-bred bull; dams, the fine show cows, Lady Akkrum 2nd, Cornelia Artis, and Madge Merton. G. W. CLEMONS, St. George, Ont.

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

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

Maple Grove Holsteins of all ages, of the very richest breeding and finest individuality, at prices within the reach of all. High class bulls a specialty. For prices and description, write H. A. BOLLEET, Cassel, Ont.

WE WANT TO SELL A FEW Holstein Heifers, coming 2 years old or a few young Cows. THEY are of the richest and finest breeding, and largest producing strains, fine individuals, and bred to as good bulls as there are living. We have a few bull calves and yearling bulls also for sale. HENRY STEVENS & SONS, LACONA, OSWEGO CO., N. Y.

I now offer a 2-year-old HOLSTEIN BULL Dam Daisy Banks, winner of Toronto milk test, 1898 and 1899. She has given as high as 81 lbs. milk in one day. A fine bull in every respect, and guaranteed a sure stock-getter. Also a few young bulls and heifer calves. GEO. RICE, Currie's Crossing, Oxford Co., Ont. BROOKBANK FINE STOCK FARM.

RIDGEDALE HOLSTEIN-FRIESIANS For Sale: One yearling bull, also three bull calves, all sired by "Father Tensen," and whose dams are granddaughters of "Aaltje Poch 1th," the champion milk and butter cow at the London, Ont., Dairy Show, in December, 1899. Shipping stations: Port Perry, G.T.R. Myrtle, C.P.R. R. W. WALKER, Utica P. O., Ontario.

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

Holstein Bull Calves of 1900 for Sale.

OUT of such cows as Pietertje, Hartog DeKol, Belle Burke, Mechtilds, Inka Darkness 3rd's Jesse Dedekert's 3rd DeKol, and Panarista Pauline, the latter a granddaughter of the world-famed Pauline Paul. Write for prices and breeding. J. A. GASKEY, MADOC, ONT.

Ayrshire Cattle and Berkshire Pigs.

The bull Tom Brown and the heifer White Floss, winners of sweepstakes at World's Fair, were bred from this herd. Young stock for sale. Also Leicester sheep & Berkshire swine. D. BENNING & SON, 5-1-y-o Glenhurst Farm, Williamstown, Ont.

WM. WYLIE, 228 BLEURY ST., MON-TREAL, OR HOWICK, P.Q.

Breeder of high-class Ayrshires. Young stock always for sale; bred from the choicest strains procurable. Breeding stock selected from the most fashionable strains and prize-winning stock of the day. Farm located at Howick, Que. 5-1-y-o



AYRSHIRES FOR SALE.

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

Choice Ayrshires

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

Ayrshire Bull Calves of 1899

One bull 5 months and young calves 2 to 3 weeks, from some of our best imported cows. Will sell at reasonable prices. Address: ROBT. HUNTER, Manager to W. W. Ogilvie, LACHINE RAPIDS, QUE.

Maple Cliff Dairy and Stock Farm

Ayrshires and Tamworths for Sale: 1 yearling and 5 fall calves, and a number of heifers. Five Tamworth boars, fit for service, and 40 fall pigs.

R. Reid & Co., - Hintonburg, Ontario.

\$11.-Registered Ayrshires-\$11.

Calves coming now in the herd of 30 high-producing registered Ayrshires (either sex): 3 days to 1 week old, \$11.00; over that age, \$1.00 per week extra. All sired by Norman McLeod -1594-. Also yearling bull from same sire and a famous dam. Address—om

J. A. James, Nilestown, Ontario.

KEEP THE BOYS ON THE FARM BY sending them to Meadowside Farm, Carleton Place, to see J. Yuill & Sons' stock. Eighty-four Ayrshires, second to none in the world for milk production. Thirty-two Shropshire ewes and two rams which are from prize-winning stock. Fourteen Berkshires of the bacon type; and a grand flock of B. P. Rocks. Also two good Collie pups, 4 weeks old. J. YUILL & SONS, Props., Carleton Place, om

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

Also a fine lot of calves, sired by Dewey, bred by Wm. Stewart & Son, Menie. F. W. TAYLOR, Wellman's Corners, Ont.

4 AYRSHIRE BULLS 4

Sired by Beauty-Style of Auchenbrain (imp.), whose dam gave 73 lbs. milk in one day, and out of high producing dams. -om R. S. BROOKS, Brantford, Ont. Formerly T. Brooks & Son.

Choice Ayrshires, Barred Rocks and Eggs.

4 FINE BULLS fit for service. Bull calves, and heifers. A few Barred Rock cockerels. Eggs for hatching from choice matings in Barred Rocks, at \$2 per 15; incubator eggs, \$4 per 100; Cayuga duck eggs, \$1 per 111. JAS. McCORMACK & SON, -om ROCKTON, ONTARIO.



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

EUROPEAN ADVERTISEMENTS.

KENT OR ROMNEY MARSH Sheep.

ANNUAL RAM SALE

The annual show and sale of registered Kent or Romney Marsh Rams, consisting of selected specimens from leading flocks of the breed, will be held at ASHFORD, KENT, ENGLAND, On Friday, September 28th, 1900.

J. E. CASSWELL, Laughton, Folkingham, Lincolnshire, breeder of Lincoln Long-wooled Sheep, Flock No. 46.

W. W. Chapman, Secretary of the National Sheep Breeders' Association, Secretary of the Kent or Romney Marsh Sheep Breeders' Association, and late Secretary of the Southdown Sheep Society.

Pedigree Live Stock Agent, Exporter and Shipper. All kinds of registered stock personally selected and exported on commission; quotations given, and all enquiries answered.

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

HENRY DUDDING, RIBY GROVE, STALLINGBOROUGH, LINCOLN, ENGLAND. Breeder of Lincoln Long-wooled Sheep and Shorthorn cattle.

Oxford Down Sheep Flock Established 19 Years. Have a few ewes of different ages for sale, in lamb to imported ram.

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

Queenston Cement

FOR WALLS AND FLOORS.



WRITE us before designing and laying out farm buildings. State number and kind of stock to be kept, and give size of basement floor, showing how to use to advantage the room at your disposal.

Isaac Usher & Son, QUEENSTON, ONT.

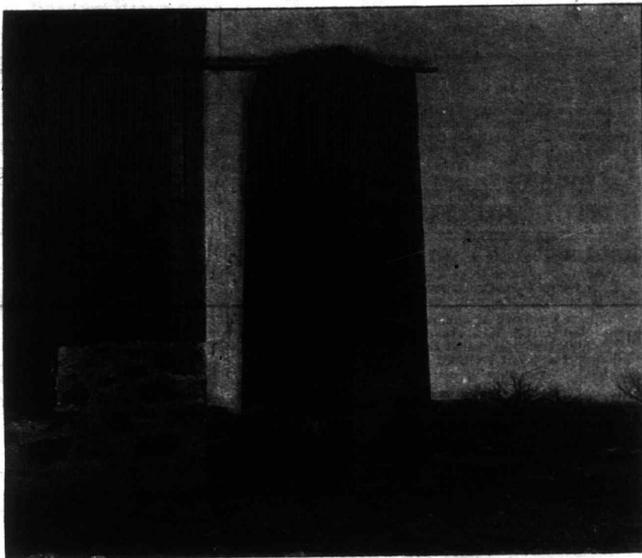
Proprietors Queenston Heights Stock Farm.

Correspondence with Shorthorn breeders solicited.

THIS IS A CEMENT SILO BUILT ON

THE FARM OF John Louve, Harpley, Ont.

It is hexagonal—that is, 6 corners—and is 10 feet across each way, inside measurement, and is 30 feet high.



READ WHAT MR. JOHN LOUVE SAYS ABOUT THOROLD CEMENT:

ESTATE OF JOHN BATTLE, THOROLD, ONT.: DEAR SIR,—I have this summer built a silo 30 feet high by 10 feet across inside—six corners. It was built under the instructions of A. E. Hodgert, your travelling agent and instructor, who understands his business thoroughly.

Estate of John Battle, Thorold, Ontario.

NOTICES.

Champion Binders.—In our issue of March 15th we called attention to the fact that the "Champion" binders, mowers and reapers manufactured by the Warder, Bushnell & Glessner Co., of Springfield, Ohio, were about to be introduced into Manitoba and the Northwest.

Steel Land Roller.—To farm without a land roller is to suffer a loss that could easily be saved, and to use a hard-running, frail roller is anything but satisfactory.

The Farmers' Binder Twine Co., Limited, Brantford, are out with their prices on binder twine for the harvest of 1900.

Am booking orders for Choice Ayrshire and Holstein-Friesian Spring Calves, At \$12.00 each, from deep-milking strains. Breeding stock all registered.

H. GEORGE & SONS, Crampton, Ont. For Sale: 4 Ayrshire Bulls Descended through White Prince, Orphan Boy, and Jack the Lad of Maple Grove 1233; females, upon Princess of Menie 537 and Jess 2405 foundation.

5 Ayrshire Bulls 5 Fit for service this spring, by Victor of Maplecliff, and out of Snowball, Strawberry, and other noted dams, tracing through Tom Brown and such sires.

DONALD CUMMINGS, LANCASTER, ONT. Bissell's Steel Roller.



STEEL DRUMS, well riveted. Fellos in all the ends. Heavy wrought spokes. Double nuts on every spoke.

T. E. BISSELL, FERGUS, ONT.

EUROPEAN ADVERTISEMENTS.

LINCOLN LONG-WOOL SHEEP BREEDERS' ASSOCIATION.

Lincoln Ram Sales, 1900.

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

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

On view the afternoon before the day of sale.

STEPHEN UPTON, SECRETARY,

ST. BENEDICT'S SQUARE, LINCOLN, ENG. 19th FEBRUARY, 1900.

HAMPSHIRE DOWN SHEEP.

SPLENDID MUTTON, GOOD WOOL, GREAT WEIGHT.

THIS HIGHLY VALUABLE

English Breed of Sheep

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

JAMES E. RAWLENCE, SECRETARY HAMPSHIRE DOWNS SHEEP BREEDERS' ASSOCIATION, SALISBURY, ENGLAND.

FAMOUS ALL OVER THE WORLD. ALFRED MANSELL & CO., LIVE STOCK AGENTS AND EXPORTERS, SHREWSBURY.

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

FOUNDED 1866

Calves of Sale.

ie, Hartog DeKol, lide, Inka Dark- e's 3rd DeKol, and ter a granddaughter o Paul. Write for

MADOC, ONT.

Berkshire Pigs.

the heifer White es at World's Fair, Young stock for Berkshire swine.

G & SON, Williamstown, Ont.

EURY ST., MON- DR HOWICK, P.Q.

at Howick, Que.

OR SALE.

or themselves. Six, ombined. Six young (imp.), dam Primrose (imp.), dam Primrose (imp.), dam Primrose (imp.). Five of their Toronto, London, and No culls sold.

DINNOCK FARM, BELLEVUE, QUE.

rshires

ize-bull at Toronto for sale. Choice

: L. Brahmas, Buff s, B. F. Rocks, from articulars write at Run Stock Farm, Co.

es of 1899

calves 2 to 3 weeks, d cows. Will sell at

ENTER, CHINE RAPIDS, QUE.

nd Stock Farm

rths for Sale:

alves, and a e Tamworth d 40 fall pigs.

onburg, Ontario.

rshires-Sil.

herd of 30 high-shires (either sex) over that age, \$1.00 by Norman McLeod rom same sire and a om

own, Ontario.

N THE FARM

side Farm, Carleton ons' stock. Eighty- in the world for milk shire ewes and two ng stock. Fourteen and a grand flock of ie pups, 1 weeks old. Carleton Place.

ire bull and r sale.

y Dewey, bred by

's Corners, Ont.

BULLS 4

henbrain (imp.), in one day, and -om

Brantford, Ont. & Son.

rshires, and Eggs.

ck & SON, TARIO.

x Ayrshire bulls, nging from 5 months 1 year past. Also a hghbred fowls, and om

N, MENIE, ONT.

**THE WILKINSON PLOUGH CO., LTD.,**  
**TORONTO, CANADA.**

**Summer Hill Herd**  
HEADQUARTERS FOR THE IDEAL BACON HOG.

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

**D. C. FLATT, MILLGROVE, ONT.**

**FAIRVIEW SHROPSHIRE RAMS.**  
From the greatest winning flock in Canada. Excellent rams to head flocks offered. Good individuals by leading winners. Different combinations of "Newton Lord," "Fair Star," "Montford Dreamer," and the \$1200 "Ruddington Eclipse" blood freely found in the offering. The four most famous Shropshire rams known. Blood will tell! It pays well to have the best. **JOHN CAMPBELL, Woodville, Ont., Can.**



To Farmers, Stock Dealers and Wool Growers:  
For Sheep, Cattle and Horses.  
**Liecestershire Tick and Vermin Destroyer**  
It effectually destroys Ticks, Lice, Worms or Grub, to which sheep, horses and cattle are subject, and enables the animals to thrive. It will be found far superior to other preparations used for the similar purpose. The proprietors will guarantee perfect success when used according to directions, as will be found on each box. It prevents scurf and scab, and renders the wool bright and clear. It is put up in tin boxes, price 30 cents each. One box is sufficient for twenty ordinary-sized sheep. It only requires to be tried to prove itself all that is claimed for it. Sold by druggists and grocers. Manufactured by **G. C. BRIGGS & SON, 31 King Street West, Hamilton, Ont.**

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

PLEASE MENTION FARMER'S ADVOCATE.

**Berkshires and Tamworths**  
My herd has Varna Duke and Manor Lad (2nd-prize 6-months boar at Toronto, '99) at head, with equally well-bred sows. My Tamworths have the blood of imported Nimrod, Middleton Mimulus, and O. A. C. 110 (the silver medal sow at London in '98), her son Parkhill Prince, and Nimrod imp. at the head. Write for what you want.  
**W. I. TUMELTY, Madoc, Ont.**

**Large English Berkshires.**  
HERD headed by two imported first-prize boars. Young boars and sows from imp. prize-winning sires and dams.  
**H. BENNETT & SON, St. Williams, Ont.**

**ENGLISH BERKSHIRES.**  
FOR SALE: Two 3-year-old boars, both first-class stock-getters; one yearling boar by (imp.) British Flag, and a few choice Shorthorn heifer calves. Orders booked for spring pigs.  
**JOHN RACEY, Jr., Lennoxville, Que.**

**SNELGROVE BERKSHIRES AND COTSWOLDS.**  
We have several young boars fit for service, of choice quality. We have a grand lot of sows to farrow in April or May, and will be prepared to supply pairs or trios not akin. Now is the time to order. Our Cotswolds are of the highest class. Can supply yearling rams and yearling ewes. Write for prices.  
**SNELL & LYONS, SNELGROVE, ONT.**

**Yorkshire Boars**  
WEIGHING 200 LBS. AT \$10.00.  
We have a few of those 200-pound boars which we are offering for \$10 each. Also brood sows and younger stock. A choice A. J. C. C. Jersey cow, due to calve in April, for \$50.  
**W. R. BOWMAN, MT. FOREST.**

PLEASE MENTION FARMER'S ADVOCATE.

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

"I hereby certify that I have drawn, by my own hand, ten samples of the  
**St. Lawrence Sugar Refining Co.'s**  
EXTRA STANDARD GRANULATED SUGAR, indiscriminately taken from ten lots of about 150 barrels each. I have analyzed same and find them uniformly to contain:  
**99.99 to 100** per cent. of pure Cane Sugar, with no impurities whatever."  
(Signed) **JOHN BAKER EDWARDS, Ph. D., D.O.L.,**  
Prof. of Chemistry and Public Analyst, Montreal.

**We lead, others follow.**

**Oak Lodge** Yorkshires have a special type of their own, and are acknowledged to be the highest class of breeds on foot and for dressed carcasses at Provincial Winter Show. Won all herd prizes offered at the largest Canadian exhibitions. Improve the quality of your pigs by securing some of Oak Lodge blood. Quality! quality! quality! motto. All stock fully guaranteed.  
**Brethour & Saunders, Burford, Ont., Can.**

**April Offering: Yorkshires, Shorthorns**  
A number of Improved Yorkshire boars ready for service, of the bacon type; also sows ready to breed, not akin. A number of spring pigs ready for immediate shipment, the get of an imported boar, and from show sows. Pairs supplied not akin. Also four choice Shorthorn bulls of Scotch breeding, of the fleshy, early-maturing sort. Address:  
**H. J. DAVIS, BOX 290, WOODSTOCK, ONT.**

**Maple Grove Yorkshires, Tamworths**  
The home of the winners. Figs of all ages, of the large bacon type. Sired by such boars as O. G. Commodore 4th (the unbeaten Yorkshire), and Rob Roy (1st prize Tamworth at Toronto). Dams sired by imported boars. Write for particulars.  
**T. J. COLE, BOWMANVILLE, ONT.**

PLEASE MENTION FARMER'S ADVOCATE.

**YORKSHIRES AND HOLSTEINS:**  
Boars and sows, not kin, from 2 to 6 months, from prizewinners at Toronto and local shows. A 3-year-old bull, of the Tirania family; and young stock at reasonable prices.  
**R. HONEY, Warkworth, Ont.**

**Yorkshires, Berkshires, and Shorthorns.**  
In Yorkshires: one boar one year, July, 1899; sows safe in pig by imp. boar; sows ready to breed. In Berkshires: one June, 1899, boar; sows ready to breed; and booking orders for young pigs, both breeds, ready to ship in May. One bull eleven months; young calves, both sex. Write  
**JAS. A. RUSSELL, Precious Corners, Ont.**

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

**Springridge Poland-Chinas**  
Now offering the 2-year-old sire, Blackmoore, and a few of his young females, and booking orders for young stock from the royally-bred Goldbug, lately added to the herd.  
**WM. J. DUCK, MORPETH, ONT.**

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

PLEASE MENTION FARMER'S ADVOCATE.

GOSSIP.

James Douglas, Caledonia, Ont.:—"Short-horns are doing well and a good demand for them. We have a few choice bulls left yet and a number of heifers. Our imported bull is doing fine, and will make a hard bull to beat if put in show fix."

In the footlines accompanying the illustration in our issue of March 15th, page 161, of the Holstein cow, Belle Korndyke, a typographical error made the date of the official test in which she won first prize as 1889, whereas it should read 1896-9, and 180 per cent. butter-fat should, of course, have read 80 per cent.

Mr. E. R. Hogate, of Toronto, is in the Old Country for another importation of heavy draft stallions. Several Shire stallions and a few Yorkshire Coach horses have been secured and shipped. He has also purchased the well-bred Clydesdale horse, Lord Mayor 10338, from Mr. A. McIntyre, Woodnam Ferris, Essex. He is by Prince of Ord 7156, a grandson of Prince of Wales and of Jean of Bogleshole 13470 by Darnley.

W. & H. Jones, Mount Elgin, Ont., write:—"We have had no trouble to dispose of all the Poland-China sows in pig we had to spare, and could have sold lots more had we had them. We have yet four good boars about seven months old, extra long, deep fellows, and we have three litters of pigs this month—27 in all. Our young pigs never came stronger than they have this spring. We have enjoyed a good season, for which we must give the ADVOCATE much credit, as it is the only paper that we ever used that ever gave us satisfaction, for which please accept our many thanks."

SHROPSHIRE FOR CANADA.

Messrs. Alfred Mansell & Co. despatched, on March 3rd, per SS. Lake Huron, from Liverpool, a choice consignment of 32 in-lamb Shropshire ewes, on account of Mr. Bradshaw, of Canada, selected from the flock of Mr. Richard Thomas, Mrs. John Everett and Mr. J. T. Nickels, sired by well-known high-class rams and served by high-class sires of distinguished repute.

SNELGROVE PLYMOUTH ROCKS.

Mr. W. J. Campbell, Snelgrove, Ont., advertises in this issue "eggs for hatching" from his fine flock of "Barred Rocks." The growing importance of the poultry business and the acknowledged excellence of this utility breed should induce very many farmers to improve their stock of fowls, and the cheapest way to do this is by ordering a setting of eggs from a reliable breeder. The Snelgrove flock has worthily secured a good reputation, and is kept up to date by the introduction of new blood from the best known sources.

SHORTHORNS SELL HIGH IN IOWA.

At the dispersion sale of the Shorthorn herd of J. R. Crawford & Sons, Newton, Ia., March 8th, some high prices were made. The light roan six-year-old cow, Gwendoline 5th, by Knight of the Thistle, topping the sale at \$1,100. F. A. Edwards, Webster, Ia., was the buyer. Glen Nonpareil, a red six-year-old cow, sold for \$920; Bashful 4th, a red three-year-old, for \$915, and a dozen other females, ranging from \$300 to \$325 each. The red three-year-old bull, Victor Baron, by Baron Cruickshank, brought \$925, and went to H. D. Parsons, Newton, Ia. Secret Valentine, a roan yearling bull by St. Valentine, went to Riley & Greenwood, Albion, Nebraska, at \$855. Thirteen bulls brought an average of \$282, 42 females an average of \$431, and the 55 head sold averaged \$338.63.

On March 6th and 7th, C. S. Barclay sold 97 head of Shorthorns at West Liberty, Iowa. In this offering were 20 head which were a part of the herd of A. & G. Davidson, Monticello, Ia., sons of Mr. Jas. H. Davidson, Balsam, Ont., recently purchased by Mr. Barclay. These were superior animals and in the good condition which the Davidsons always keep their stock, and they made the grand average price of \$368.80, the two cows, Duchesses of Gloster 28th and 31st, bringing \$550 and \$600, respectively, and Golden Bud 2nd, a red two-year-old bred by Hon. John Dryden, sired by Rovenue, topped the sale at \$625. The highest price for a bull at this sale was \$390, for the red Grand Baron, but five others sold at prices ranging from \$300 to \$335. The 97 head sold at this sale brought an average of \$199.55.

A NOTABLE IMPORTATION OF YORKSHIRES.

From the Aberdeen Free Press of recent date we quote: "Mr. D. C. Flatt, of Summer Hill Stock Farm, Millgrove, Ontario, Canada, whose famous herd of Yorkshire swine is the largest in that country, has been on a tour through England and Scotland in search of the choicest specimens of Large Yorkshires he could obtain. He purchased a number of the prize 'Royal' winners of 1899, and several which were in training for the forthcoming 'Royal' Show at York; in fact, he bought nothing but strictly first-class stock, which will form a valuable addition to his famous herd at Summer Hill. His purchases were drawn from the stocks of Mr. Philo L. Mills; Mr. Daybell, Nottingham; the Queen, and the Earl of Roseberry, and include several notably fine specimens of both boars and sows, which only a high price could have tempted the owners to part with. This important consignment of high-class stock, which will leave Glasgow Feb. 3rd, per the Donaldson liner, Concordia, for St. John, testifies to the great business enterprise of Mr. Flatt, and will be a valuable acquisition to the stock of pigs of bacon type in Canada." Mr. Flatt writes us that he confidently believes this selection of Yorkshires is the most valuable importation ever made to Canada, among the number being a young boar from the herd of Mr. D. R. Daybell, which cost \$200, his sire being a very noted getter, being the sire of over 40 first-prize winners in Britain last year. There are also in the lot some very choice sows, bred to the best boars in England, and due to farrow in April. Such an importation, added to the already large and strong herd at Summer Hill, will place Mr. Flatt in a good position to supply the great demand which is sure to be experienced this spring in sympathy with the rapidly-rising prices for hogs of bacon type in the market at all points in Canada. Mr. Flatt also selected and imported for Mr. Thomas Casdale, Concord, Ont., a fine Berkshire sow from the herd of Her Majesty the Queen at the Windsor Shaw Farm.

We want YOUR name. YOU want our new catalogue. YOU also want our Threshing Machinery. WE want YOUR trade.

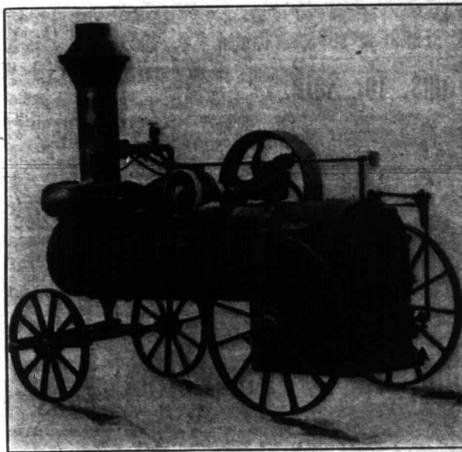


In this age of progress be up-to-date.

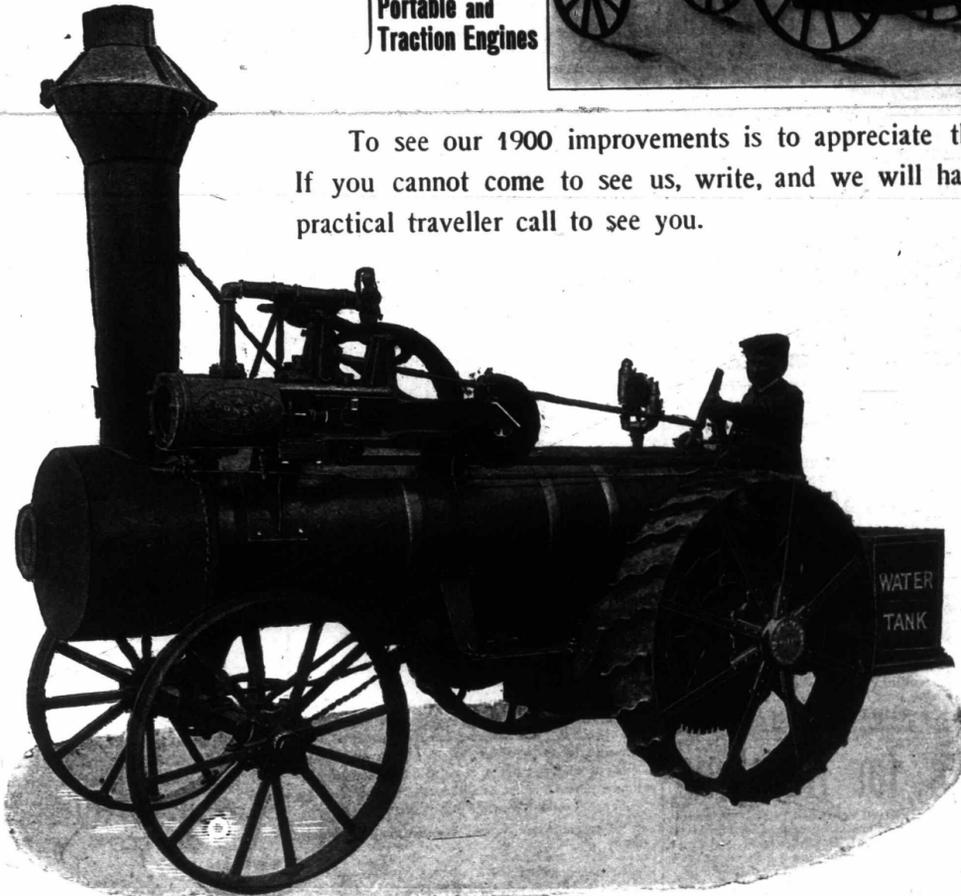
HOW?

BY USING

THE WHITE New Challenge Thresher and New high-speed Portable and Traction Engines



To see our 1900 improvements is to appreciate them. If you cannot come to see us, write, and we will have a practical traveller call to see you.



THE GEO. WHITE & SONS CO., Limited, LONDON, ONT.



Vertical text on the left margin including 'sis.', '8, 1895.', 'en samples of', 'Co.'s', 'nately taken', 'nd find them', 'with', 'O.L.', 'Montreal.', 'OLSTEINS:', 'om 2 to 6', 'at Toronto', 'old bull, of', 'ng stock at.', 'arkworth, Ont.', 'Shorthorns.', 'ar one year, July', 'big by imp. boar:', 'In Berkshires:', 'sows ready to', 'orders for young', 'y to ship in May.', 'has: young calves,', 'o-', 'Corners, Ont.', 'HERD', 'orkshires.', 'for quick sale.', 'k at reasonable', 'E.', 'RTH BRUCE.', 'd-Chinas', 'ETH, ONT.', 'ND-CHINAS', 'g the same lines', 'ES,', 'ELGIN, ONT.'

**DUROC-JERSEY SWINE.**

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

**REGISTERED CHESTER WHITE PIGS,**  
Eight weeks old, at \$5.00 each. Prizewinning  
Shorthorn and Jersey bull calves. Prices reasonable.  
**F. BIRDSALL & SON, -o BIRDSALL, ONT**

**Spring Holsteins, Tamworths, and B. Rocks**

Two (2) very choice De-  
Kok calves, male and female.  
Six (6) sows, 6 mos. old, by  
Whitacre Crystal, (Imp.),  
Royal winner, and British  
King (Imp.), first prize,  
Toronto, 1899. Also young  
pigs, pairs and trios, not akin,  
of above boars. Four B.  
Rock cockerels. Eggs for hatch-  
ing, \$1.00 per setting.  
All stock of best quality.  
**A. C. Halliman, New Dundee, Waterloo Co.**



One hundred Tamworth and Improved Chester  
White Spring Pigs of a true bacon type, our herd  
having won the best prizes offered at the leading  
exhibitions throughout Ontario and Quebec for the  
past ten years. Stock for exhibition purposes a  
specialty. We pay express charges between stations,  
and guarantee safe arrival of all stock shipped. Pairs  
furnished not akin. Write for prices.  
**H. GEORGE & SONS, Crampton P.O., Ont.**

**Tams. for Sale.**

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

Tamworth boar, 12 mos. old, winner of 1st  
prize at Toronto, under 6 mos., just fall. Price, \$35.  
Tamworth boar, 6 mos. old,  
same breed as above, weigh-  
ing 300 lbs. Price, \$15.  
15 young Yorkshire boars  
and sows, nearly 4 mos. old,  
Each, \$11.  
We are now prepared to book orders for young  
Tamworth spring pigs, from Toronto prizewinning  
stock. All stock registered.  
**COLWILL BROS., Newcastle, Ont.**

**Chatham Tamworths**

1 two-year-old boar, and  
some splendid pigs 3  
months old, by White-  
acre Lad (Imp.), and by  
the old show boar, Sam-  
bo; also some good pigs,  
fit to wear. These are  
extra choice ones. For full particulars write:  
**J. H. SIMONTON, Box 304, CHATHAM, ONT.**

**TAMWORTHS AND COTSWOLDS.**

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

**TAMWORTHS.**

Boars and sows from Am-  
ber Luther sows and Can-  
nadian Diamond 2nd (im-  
ported), ready to mate.  
**J. C. NICHOL, -o HUBREY P.O., ONT.**

**20 Tamworth Sows and Boars**

From two to eight months, at from \$5.00 to \$10.00  
each, from prizewinning stock. Also 5 farm-bred  
Collie pups, at \$2.00 each.  
**D. J. GIBSON,**  
BOWMANVILLE, ONT.

**THE SWEEPSTAKES HERD OF '99.**

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

**Eggs for Hatching**

From a pen of 30 Barred Plymouth Rock hens, selected  
for their perfect color, large eggs, and persistent  
laying qualities. Mated with a National cock, an AI  
bird of medium color. Price per 13, \$1.50, or two  
settings for \$2.00.  
**W. C. SHEARER, BRIGHT, ONT.**

**EGGS FOR HATCHING**

Barred P. Rocks  
and Golden Wyandottes, \$1.00 per setting. A few choice cockerels  
left. on **James Rowe, Avon, Ont.**

**SEEDS for 25c.**

Any 12 Varieties—Regular 5 cent Packages—Money Refunded if not Satisfactory.

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| <b>VEGETABLES.</b><br>(Order by Number.)<br>1—Beet, Eclipse, Round.<br>2—Beet, Egyptian, Flat-round.<br>3—Cabbage, Wimmingslett.<br>4—Cabbage, Fottler's Brunswick.<br>5—Carrot, Half-long, Scarlet.<br>6—Carrot, Oxheart, or Guerande.<br>7—Cucumber, Chicago Pickling.<br>8—Cucumber, Long Green.<br>9—Celery, Golden Self-Blanching.<br>10—Herbs, Sage.<br>11—Herbs, Savory.<br>12—Herbs, Marjoram.<br>13—Lettuce, Nonpareil (Cabbage).<br>14—Lettuce, Denver Market<br>(Curled).<br>15—Musk Melon, Extra Early.<br>16—Water Melon, Early Canada.<br>17—Onion, Large Red, Wethers-<br>field.<br>18—Onion, Yellow Globe, Danvers.<br>19—Parsnip, Hollow Crown.<br>20—Radish, French Breakfast.<br>21—Radish, Rosy Gem, White<br>Tipped.<br>22—Squash, Hubbard.<br>23—Tomato, Extra Early Atlantic.<br>24—Tomato, Dwarf Champion. | <b>FLOWERS.</b><br>25—Asters, Mixed.<br>26—Mignonette, Sweet.<br>27—Pansy, Mixed.<br>28—Petunia, Mixed.<br>29—Nasturtiums, Tall Mixed.<br>30—Sweet Peas, Fine Mixed.<br>31—Wild Flower, Garden Mixed. |
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**NO. 1—BEST ECLIPSE.**  
**FREE** Providing this coupon is CUT OUT and  
sent to us with an order for 12 packets,  
we will include 1 packet New Giant Yellow Sweet  
Sultan—Price 5c—FREE OF CHARGE TO "AD-  
VOCATE" READERS.

**WM. RENNIE, TORONTO. BY MAIL, POSTPAID. ORDER TO-DAY.**

**Sprucedale Poultry Yards.** Eggs for  
hatching. value this season. Barred Plymouth Rocks, White  
Plymouth Rocks, and White Wyandottes. Choice  
exhibition-bred stock. \$1.00 per setting. Some  
excellent male birds to sell. -o A. Hill, Wyoming, Ont.

**Snelgrove Poultry Yard.**  
Barred Rocks exclusively. "Eggs for Hatching"  
from "Canada's Business Hens." Better than ever,  
having added \$20 worth of new blood to my flock  
this season. Eggs, \$1 per setting; 3 settings, \$2.  
**W. J. CAMPBELL, Snelgrove P. O., Ont.**

**BARRED PLYMOUTH ROCKS.**  
\$50 silver cup and gold medal winners at the  
"Ontario," Peterboro, 1900. More prizes than any  
four breeders at Toronto, London and Ottawa Fairs,  
1899. Blood will tell.  
**EGGS \$2.00 and \$3.00 per 15.**  
**\$3.50 and \$5.00 per 30.**

**ASKIN POULTRY YARDS, London.**  
**GEO. W. MILLER, PROP.**

**KNAPP STRAIN S. C. WHITE LEGHORNS.**  
The greatest egg producers. Eggs from a fine pen,  
headed by a first-prize cockerel mated with prize  
females, at \$1.00 per setting.  
**W. O. BURGESS, Queenston, Ontario.**

**For sale:** Guinea pigs. Eggs from prizewin-  
ning Barred, White and Buff Rocks,  
Silver, Golden, Buff and Black Wyandottes, \$1.00  
per setting. -o H. S. Rank, Plattsville, Ont.

**EGGS** From Plymouth Rocks, Wyandottes,  
Leghorns, Brahmas, Cochins, Lang-  
shans, B. Minorcas, Spanish, S. Durk-  
ings, Houdans, B. R. Fife and Indian  
Game, Hamburgs, Red Caps, Bantams,  
Pekin, Rouen, Aylesbury ducks, at \$1  
per 13. **R. J. & A. Laurie, Wolferton, Ont. -o**

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

**Built for Business!**  
That's the idea. There's nothing fancy; nothing  
foolish about them; just  
straight, practical, last-  
ing, honest goods. The



**GYPHERS . . . INCUBATORS**  
are positively warranted  
to last TEN YEARS,  
without repairs, and are  
guaranteed to **OUT-HATCH**, during three trials,  
any other make of incubator on the market—bar none.  
**THIS, OR YOUR MONEY BACK.** Used ex-  
clusively at Experimental Farms, Guelph and Ottawa;  
also six American Experimental Stations. Daniels,  
the universal provider in the Poultry Supply busi-  
ness, has the sole agency for the Gyphers Incubators  
and Brooders for Canada. Our list of Poultry Sup-  
plies are too numerous to mention here, but just  
drop us a line and state what you require. We  
handle nothing but the best. Satisfaction every  
time, or money refunded. Mention **ADVOCATE**.  
**C. J. Daniels, 221 River St., Toronto, Ont.**

**DES MOINES INCUBATOR Co**

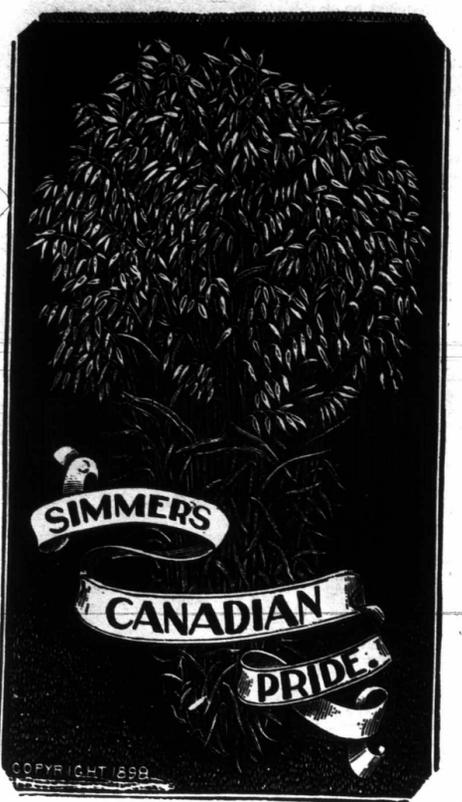
The **BEST** and the **CHEAPEST**.

**95 Per Cent.** Hatches are often reported by  
those who use these incubators.  
One reason for this record is absolute uniformity of  
temperature in egg chamber; correct instructions  
for operating; has fireproof lamp. A great mistake  
it would be to purchase an incubator or brooder  
without first getting a copy of our 148-page cata-  
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"THE POULTER'S GUIDE" (new edition) 15 cents by  
mail.

**O. ROLLAND,**  
373 St. Paul St., MONTREAL.  
Sole Agent for the Dominion.

**A Grand New Oat**



**SIMMERS' CANADIAN PRIDE.**  
**NOTE**—We have had  
grown for us only a limited  
stock of this variety. We  
would therefore request  
customers desirous of se-  
curing seed to order early.

**SIMMERS' Canadian Pride**  
**OAT** is without a blemish,  
—and we predict for it the most  
wonderful run that any oat has  
ever had. Now, we know that  
this is a strong statement, but  
we know also that this oat will  
back up anything and everything  
that we can say in its favor. To  
our mind it is the only absolutely  
perfect oat of to-day—perfect in  
all respects—perfect in growth, in  
vigor, in yield, and quality. This  
is certainly the greatest oat we  
have ever seen, and we think the  
many years that we have spent  
in originating and producing  
farm seeds entitle us to this  
opinion.

Canadian Pride Oat is a very  
plump, heavy variety, but all  
the same time having thin hulls.  
All the heavy varieties that we  
have heretofore seen have had  
such thick, hard hulls as to be  
almost valueless for feeding pur-  
poses. We are glad, therefore,  
to be able to offer this "Canadian  
Pride" Oat, which combines  
hardness, vigor and productive-  
ness with heavy grain and the  
best of feeding qualities. The  
oats are white, and have good  
large kernels. They weigh forty  
pounds to the measured bushel.  
It is a branching variety, with  
very stiff straw of vigorous  
growth, free from smut and rust.  
The stooking qualities of the oats  
are remarkable. It should not  
be sown too thick, using but 1 1/2  
measured bushels per acre.  
**PRICE**—Lb., 20c.; 3lb., 50c.,  
postpaid; by express or freight—  
peck, 40c.; bush., \$1.20; two  
bush., \$2.30; five bush., \$6.50;  
ten bush., \$10.50. Cotton  
bags included.

**J. A. SIMMERS,**  
Seeds, Bulbs and Plants. **TORONTO, ONTARIO.**

**Cheese & Butter**

Makers of these articles, in many  
instances, do not pay the necessary  
attention to the quality of the Salt  
they use. Some people think that  
"Salt is Salt," and it does not mat-  
ter where it comes from or who  
makes it. This is a great mistake,  
for it is essential that to produce  
the best Butter or Cheese nothing  
but the purest salt should be used.  
The number of prizes obtained by  
users of Coleman's or Rice's Dairy  
Salt at the various exhibitions is  
conclusive proof that these brands  
of salt stand unrivalled.

FOR PRICES, ETC., ADDRESS  
**R. & J. RANSFORD**  
CLINTON, ONT.

Established 1863.  
**FOR SALE.**

A few choice birds, including Golden and Silver  
Wyandottes, Barred and White Rocks, Bronze  
turkeys and Pekin ducks. All bred from imported  
stock. Also have some 2-year-old peafowl.  
**James Lenton, Park Farm, Oshawa, Ont**

**Aylmer Sprayer**



**Our Offer :**  
IT is now universally ac-  
knowledged by the  
fruit-growing communi-  
ty that the Aylmer Spray-  
er leads. During the past  
two years the Aylmer has  
won first place at every  
contest at which it was  
shown, receiving the  
Jubilee Diploma at Toron-  
to Industrial Exhibition;  
also first place at St.  
Petersburg, Russia, and  
other exhibitions.  
The General Public not being in a position  
to select the best spraying pump, we make the follow-  
ing offer: If you are a responsible party, we will  
ship you the Aylmer Sprayer to thoroughly test in  
competition with any other known make, and if the  
Aylmer is not found the most satisfactory, it may be  
returned at our expense, thus giving you the oppor-  
tunity to judge from actual experience which is the  
best sprayer manufactured, no matter what anyone  
tells you. Agents wanted. Mention this paper. -o  
**AYLMER IRON WORKS, Aylmer, Ont.**

**T**WO hundred bushels of Potatoes remove eighty pounds of "actual" Potash from the soil. One thousand pounds of a fertilizer containing 8% "actual" Potash will supply just the amount needed. If there is a deficiency of Potash, there will be a falling-off in the crop.

We have some valuable books telling about composition, use and value of fertilizers for various crops. They are sent free.

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

**Grafts**— Apples: Spies, Kings, Baldwins, Greenings, etc. PLUMS, CHERRIES, PEARS, ETC.

**Plants**— Strawberry, raspberry canes, and blackberry.  
Regular, 50 cts. to \$1.00, but before April 5th for 25 cts. per doz. (postpaid).  
Write at once for large orders on time.

E. E. HARTLEY,  
Fruit Grower. o Box 175, Milton, Ont.

**Salzer's Big Four Oats.**

AS EARLY AS BARLEY, YIELDS WELL,  
WEIGHS 42 PER BUSHEL.

Wilson's First Choice and Great Divide Potatoes.

PRICES REASONABLE. o T. E. Bowman, Berlin, Ont.

**PURE SEED POTATOES.**

Beauty of Hebron and Great Divide.

BOTH of these varieties have done well in O.A.C. Experiments. Price per bag 55 CTS., bags free. This price is F. O. B. Guelph, C.P.R. and G. T. R. Bags weigh 30 lbs. Can give Beauty of Hebron by carload if order is in soon. We have still some Daubeney oats (60 cts. per bus.) and Mandscheuri barley (50 cts. per bus.).

James Bowman, Guelph, Ont.

**Trees**

FOR LAWN, GARDEN OR ORCHARD.

ORNAMENTALS, EVER-GREENS, SHRUBS, ROSES, ETC.

OUR illustrated priced catalogue explains it all. Free to buyers. We deal direct with the planters. No agents.

A fine lot of seed potatoes: Boves, Sir Walter, R. Peerless, E. Harvest, Carman Nos. 1 and 3, and others, at 40c. pk., \$1.00 pr. bush., \$3.00 pr. bbl. = 200 lbs. Also eggs for hatching: Barred and White P. Rocks, S. L. and Golden Wyandottes, B. Leghorn, \$1.00 pr. 13. Eggs from imported White Wyandottes at \$1.50 pr. 13 at the Central Nursery.



A. G. Hull & Son, St. Catharines, Ont.

ESTABLISHED 1866.

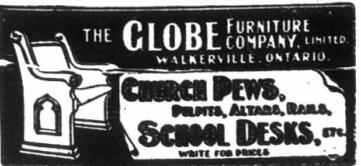
**GEORGE KEITH**

for sure-growing

**SEEDS**

Finest Quality. Send for Catalogue.

124 KING STREET E., TORONTO.



**"Canada's Greatest Seed House"**



**NEW SEED OATS**

THAT WILL MAKE THE FARM PAY.

NEW IMPROVED "LIGOWO" OAT

THE HEAVIEST CROPPER KNOWN  
Yielded 100 bush. 20 lbs. per acre at Brandon Experimental Farm in 1899.

The Improved "Ligowo" Oat is a large, plump, white variety, with a branching head and stiff straw, a vigorous grower, very prolific, and exceedingly early. It has been grown and tested at all the Experimental Farms, and has given as a result of four years' trial an average crop of 64 BUSH., 6 LBS. PER ACRE. With such favorable results as above reported by the Dominion Experimental Farms, we were induced to procure a supply of seed stock from the original source in France, and now offer for the first time the Improved Ligowo Oats grown from imported stock. Price per lb., 25c.; 5 lbs. for \$1 (post-paid); 1/4 bush., \$1.25; bush., \$3.00; 5 bush. lots and over, \$1.90 per bush.; bags, 20c. each extra.

**NEW "SENSATION" OAT**

Very large Grain, Best Quality, Strong Straw

It is impossible to over-estimate the good qualities of this New White Branching Oat. It has been grown in this vicinity the past year with extraordinary results. The grain is of good size, the hulls are thin, and the kernel is the largest in proportion to the size of the oat we have yet seen.

making it the best variety grown for feeding and milling purposes. The Sensation stools out well, and the straw is very strong, and does not lodge, even when others with a less weight of head go down. It is a very vigorous grower, quite noticeably so when seen growing beside other varieties. It is bound to take a leading place, and will, no doubt, become a very popular variety. Price per lb., 15c.; 4 lbs., 50c. (post-paid); bush., \$1; 5 bush. lots, 95c. per bush.; 10 bush. lots and over, 90c. per bush.; bags, 20c. each extra.

**IMPROVED "AMERICAN" OAT**

This splendid oat has already proved itself to be entitled to rank among the very first and best varieties. It is a heavy growing strong strawed variety, and is of such vigorous constitution as to be almost proof against rust and other diseases. The grain is large, white, thin hulled, and in every respect first-class. Price per bush., 70c.; 5 bush. lots and over, 70c. per bush.; 10 bush. lots and over, 65c.; bags, 20c. each extra.

**SELECTED "BLACK TARTARIAN" OAT**

It is extremely hardy, grows with vigor and rapidly, stands well, and adapts itself to almost any soil. Grain very black, large and plump. Our seed is grown from imported stock. Price per bush., 70c.; 5 bush. lots, 65c. per bush.; 10 bush. lots and over, 60c. per bush.; bags, 20c. each extra.

**STOCKS** of these new and improved oats are limited; order early and avoid disappointment. The bushel prices are for shipment from Toronto.

You can get Steele, Briggs' Famous Garden and Flower Seeds from your Resident Merchant, or send for them direct. THE BEST SEEDS THAT GROW.

A Handsome Illustrated 112 Page Catalogue Free, send for one to-day.

**The Steele, Briggs Seed Co., LIMITED**  
TORONTO, Ont.

**GOSSIP.**

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

ALEX. HUME & CO.'S AYRSHIRES.

With each succeeding generation of Ayrshire cattle in the hands of Mr. Alex. Hume, near Menie, Ont., may be found greater uniformity and increasing quality, which can only follow judicious mating and careful development. When we called at the farm early in January, we found a long string of matrons doing service (30 in all), and while they are a splendid lot, we feel that we cannot pass without making a few remarks regarding some individuals: Eva of Barcheskie 2505, by Craigs of Kyle and out of Eva 2nd of Orchardton, was bred by Mr. W. P. Gilmore in Scotland, and is a cow of which any owner may well feel proud, as she carries in her veins the blood of many of Scotland's best families. Three of her daughters are now in the herd, and carry sufficient dairying indications in their make-up

to justify high hopes for their future. We also saw about a dozen three- and four-year-old daughters of White Chief of St. Annes, which are due to calve in the spring, and upwards of 20 head of youngsters by the same sire, all showing the best Ayrshire characteristics, with their beautiful glossy and well-marked skins of finest texture, indicating superior quality and vigorous digestive and assimilating qualities. Much careful study has been given the subject of judicious mating and the selection of proper sires. White Chief of St. Annes has done much valuable service in this herd, and one cannot but be impressed by the uniformity of his progeny, which, no doubt, traces to his strength of breeding. His dam, White Floss, was one of the highest Canadian producers, winning wherever shown from her babyhood, from the World's Fair, Chicago, until the present, and we understand she is considered one of the greatest show cows in the United States at the present day, depending, no doubt, largely upon her wonderful constitution—a feature so strongly sought in the Ayrshire cow in the herd of her breeder. Glencalm 3rd

(Imp.) also proved himself one of the best sires, and did much valuable service to the breed in this country. We also saw the young bull, Caspian of St. Annes (Imp.), and in him we feel that Mr. Hume has an impressive sire, having sufficient size and a robust constitution, with strong masculine characteristics. Mr. Hume informed us that he has found a ready demand for all salable stock. A few choice fall calves were on hand when we called, and his advertisement in this issue mentions some nice ones of younger age. Parties requiring really choice and well-bred Ayrshires will do well to watch his offerings and act quickly, for they are not the kind that hang long in the market.

In Yorkshires, Mr. Hume has shown rare judgment in making his foundation selections from the noted Haskett family, and as three or four brood sows are kept on hand, he is seldom without young stuff to fill orders. When we called we saw some choice young boars and sows ready for shipment, in which no mistake can be made in their purchase. Watch Mr. Hume's offerings.

ADDRESS **Belleville Business College**  
**BELLEVILLE, ONTARIO.**  
 FOUR WELL-EQUIPPED DEPARTMENTS.

**SPRING TERM**

Begins Monday, April 2nd.  
**Central Business College, Toronto.**  
 Twelve regular teachers. Sixty typewriting machines. Splendid equipment. Costs no more for a course here than in a small, half-equipped school. No vacations. Work runs right along through July and August. Write for catalogue.

W. H. SHAW, PRINCIPAL.

SPRING TERM OPENS APRIL 2nd.

**CENTRAL Business College**  
 STRATFORD, ONTARIO.

A school that enjoys a large patronage, has large staff of expert teachers, gives superior training, and produces best results. Write for our prospectus.

W. J. ELLIOTT, Principal.

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

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

**NORTHERN Business College**  
 C. A. FLEMING, PRINCIPAL,  
 OWEN SOUND, ONT.

Spring Term begins April 17th, 1900.

**FARMERS, ATTENTION!**  
**Cement Stables, Walls, Floors, ETC.,**

Built on short notice by an expert cement mechanic. Work done anywhere in Ontario or Manitoba.  
 Address: **ROBERT TAGGART,**  
 Box 616, Woodstock, Ont.

**Persianic Sheep Dip and Animal Wash.**  
 A NON-POISONOUS LIQUID "DIP."  
 Kills Ticks. Kills Red Lice. Heals Wounds.  
 Greatly Improves quality of WOOL.  
 For Horses, Cattle, and Pigs.  
 Removes all insects. Thoroughly cleanses the skin.

Leading "STOCKMEN" endorse it as the CHEAPEST and most EFFECTIVE "Dip" on the market.  
 SOLD BY ALL DRUGGISTS, 50 cents PER QT. CAN.  
 Special rates in larger quantities.

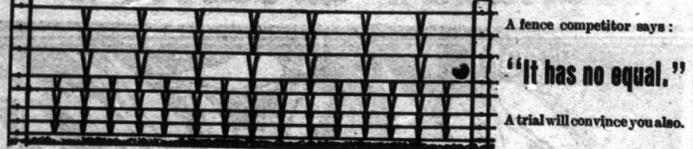
MADE ONLY BY  
**The Pickhardt Renfrew Co. LIMITED,**  
 STOUFFVILLE, ONT.



ROCK SALT for horses and cattle. Per 100 lbs., 70c., or 500 lbs., \$3.00, Toronto. Cash with the order. Also in car lots.  
 Toronto Salt Works, Toronto.

SEE MENTION FARMER'S ADVOCATE.

**Strathy's "HINGE" Stay Field Fence and SINGLE POLE Gates "THE 20TH CENTURY FENCE."**



A fence competitor says: "It has no equal." A trial will convince you also.  
 The product of years of practical experience, careful study and experiment under the hardest climatic conditions of heavy snow and severe frost in winter and high temperature in summer, with a variation of 150 degrees. Our Spring Post meets perfectly the requirements and overcomes all the difficulties of contraction and expansion, under a variation of 180 degrees of temperature, and has besides a reserve capacity of as much more to provide for great strain and to automatically take up the stretch in the wires. Our "Hinge" Stays so act, when under pressure of snow or other weight, that when the weight is removed the fence springs back to place, with Stays unbent and fence unimpaired. A system all our own and unlike any other. We use heavy wires—high-carbon spring-steel wire of highest quality—but our system is cheaper and the completed cost less than any other fence. Write for full particulars, and state fully your requirements.

**STRATHY & CO., WELLAND, ONT.**  
 Agents of ability wanted in every part of Canada.



**Awards.**  
 THE Spramotor Co. desire to caution intending purchasers of spraying apparatus against the misrepresentations of a certain concern in Canada who claim to have won a contest against the Spramotor in Manchester, England, and St. Petersburg, Russia, when no such contest took place. The only contest ever held was under the auspices of the Board of Control of the Fruit Experimental Stations of Ontario, which was held at Grimsby, April 1st and 2nd, 1897, at which the Spramotor was awarded first place against the best America could produce.  
**THE SPRAMOTOR CO.** will forfeit \$100 to the Red Cross Fund if a superior award has been granted to any spraying machine other than the Spramotor, anywhere in the world where the Spramotor was exhibited.  
 Over 100 medals and first awards have been granted the Spramotor since 1895.  
 Used by the San Jose Scale Commission, Ontario Government, during the winter of 1899 and 1900.  
**Certificate of Official Award.**  
 This is to certify that at the contest of Spraying Apparatus held at Grimsby under the auspices of the Board of Control of the Fruit Experimental Stations of Ontario, in which there were eleven contestants, the Spramotor, made by the Spramotor Co., of London, Ont., was awarded first place.

Send for our 32-page copyrighted treatise and catalogue for 1900, which is free. We pay the postage. Agents wanted. Address—  
**Spramotor Co., 68-70 King St., London, Can.**  
 Mention this publication.

**BOYS FOR FARM HELP.**

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

**THE "ROB ROY" MINES.**

Since last issue of this paper we have received most encouraging news from our Superintendent, who tells us that our men have struck a four foot lead of ore carrying grey copper. This grey copper is the mineral which is making the Lardeau so famous, as it carries such immense values in silver. If you would like to invest some money in a good safe concern, we would be glad to send you full particulars, and, if feasible, show you the samples of ore sent with Superintendent's letter. We hope soon to get ore in large enough quantities to warrant us in withdrawing our stock.

**THE SCOTTISH-CANADIAN MINING & DEV. CO.**  
 of B. C., Limited. (Non-assessable.)  
 Phone 1090.  
 207 Dundas Street, London.  
 A. E. WELCH, Managing Director.

**BINDER TWINE**

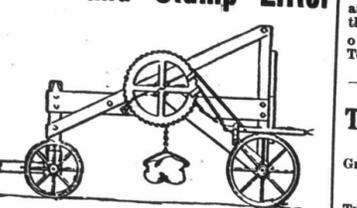
The man that don't realize the importance of sustaining this co-operative twine movement with his patronage and influence is little better than a



**FARMERS' CO-OPERATIVE BINDER TWINE COMPANY, Limited, Brantford,** with its thousands of stockholders, is again ahead in the great Binder Twine race for the harvest of 1900. Competition defied. Red Star (magnificent), 12c.; Blue Star, 11c.; Standard, 10c. Mill running full tilt. Raw material bought right. See our farmer agents at once. Farmers, you would have paid 16c to 20c a pound this coming season for twine had it not been for the existence of this Co-operative Company. Opposition—"Buy us you can't. Lease us you cannot. Crush us if you can. We hold you at defiance so long as the farmers are loyal to their trust." Order early, this is your last warning.

**JOSEPH STRATFORD,** GENERAL MANAGER.

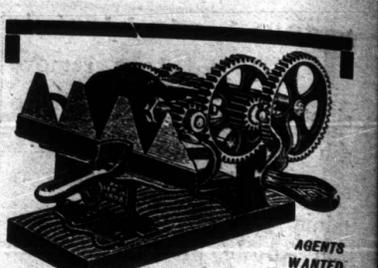
**LEMIRE Stone and Stump Lifter**



Has an 18,000-lb. Lifting Capacity, which is Unequaled.  
 It lifts stones and deposits them 5 feet high in fences. Clear your land for reapers and mowers at a small cost, and build durable fences of the stones and stumps. The lever lifts and holds the stone in position for removal. Stone can be laid just where you want it. One man can raise a stone one team cannot draw, and do it quick and easy. Agricultural societies and farmers' clubs are buying them for sections. Price moderate.  
 For particulars write—  
**COPP BROS., LIMITED,** HAMILTON, ONT.  
 A. LEMIRE, PROPRIETOR, Wotton, Que.  
 At all the leading exhibitions.

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

PLEASE MENTION FARMER'S ADVOCATE.



**The Gem Sickle and Tool Grinder.**

In the hands of a boy alone will sharpen any moving-machine knife made in ten minutes, and do it right. A grindstone and two men won't do it in an hour—not right. It will grind anything that can be ground on a grindstone, and many things that can't, and do it quicker, easier, and better. It's fitted with stones that cut, and on which you can't spoil the temper of your knives or tools. It's made by emery-wheel people—people who furnish emery wheels, corundum stones and grinding machinery to manufacturers—people who ought to know how. There's not room here to tell its good points—it has too many. Catalogue free—it tells the rest. With one stone each for tools, sickles and saws, it sells at \$7.50, and it's worth more. Address:

**CHICAGO WHEEL & MFG. CO.,** 225-259 York Street, LONDON, ONT.

FACTORY: 39-45 W. Randolph St., Chicago.

BRANCHES: Brandon, Man.; Moose Jaw, Assa.; Calgary, Alta.; Vancouver, B. C.; Portland, Ore.; San Francisco, Cal.; Denver, Dallas, New Orleans, Memphis, Atlanta, Richmond, Omaha, Albany, Augusta.

AGENTS: London, Eng.; Vienna, Odessa, Buenos Aires, Hamburg, Paris, Melbourne, Cape Town.



**BINDER TWINE.**—The time for receiving orders from farmers for Binder Twine manufactured at Kingston Penitentiary has been extended to 1st May next. Further particulars on application to J. M. PLATT, Warden of Penitentiary, Kingston.

**BINDER TWINE.**

FARMERS who wish to be supplied with binder twine from the Central Prison are requested to send to "The Warden, Central Prison, Toronto," before the 1st June next, their names and addresses, together with a statement of the probable quantity required in each case.  
 On the 1st June the Inspector of Prisons will fix the price to farmers for their own use, which price will be based on the market price of the hemp used, the cost of manufacturing, etc., and will, on the date mentioned, advertise the same.  
 After the public announcement of prices, those farmers whose applications have been received, and who notify the warden of the Central Prison as to the number of bales required, whether one or more, and give directions where to ship, will be supplied at the advertised price and terms.

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

**FREEMAN'S Three-Ply Ready Roofing**

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

**THE W. A. FREEMAN CO.,** 57 Ferguson Ave., South, Hamilton, Ontario:  
 Gentlemen,—Nine years ago I purchased from you a large quantity of material known as Freeman's Ready Roofing, with which I roofed the north half of my barn and two sheds, 66x20 each. This year we re-painted this roof and found it in excellent condition. A single roof put on part of the barn two years before was badly in need of repair. I shall hereafter use your ready roofing on all my out-buildings.  
 Yours truly,  
 (Signed) F. W. HONOR.

**FAMILY KNITTER!**

Will do all knitting required in a family, homespun or factory yarn. SIMPLEST KNITTER ON THE MARKET.  
 We guarantee every machine to do good work. Agents wanted. Write for particulars.

PRICE, \$5.00.  
**DUNDAS KNITTING MACHINE CO.,** DUNDAS, ONTARIO.

**STAY AT HOTEL LELAND**

The Leading Hotel of the West.

ALL MODERN CONVENIENCES. RATES, \$2 TO \$4 PER DAY. BUS SERVICE ALL TRAINS.

**W. D. DOUGLAS, Prop., Winnipeg, Man.**

### Why Pay \$50 More



No. 1—Piano-body Top Buggy, \$36—as good as sells for \$25 more.

for a Surrey than is actually necessary? If you buy a job as good from a dealer or agent, he will charge you about that amount in commission. Buy from our factory and save it. We are the only manufacturers selling direct to the consumers in Canada exclusively. WE HAVE NO AGENTS. Select one from our large line of vehicles, and harness, which we ship for examination, guaranteeing safe delivery. You take no risk. We can save you money. Don't buy a vehicle or harness until you get our free illustrated catalogue.



No. 20—Carriage, 2 full-back seats, \$18—as good as sells for \$20 more.

**INTERNATIONAL CARRIAGE CO.**  
Canadian Branch, Brighton, Ont.

### MICA ROOFING

USE MICA ROOFING on all your Buildings.

IT IS CHEAPER THAN SHINGLES.

WATERPROOF. FIREPROOF.

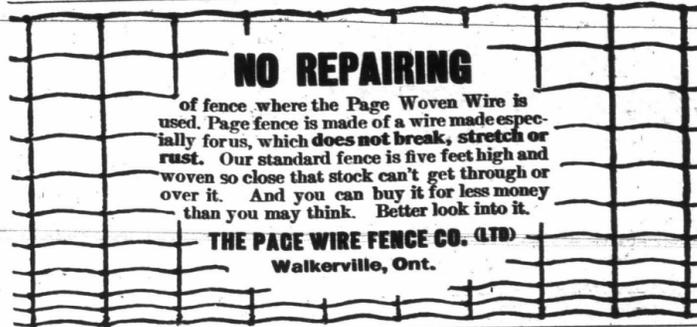


USE MICA PAINT to Repair Leaky Roofs.

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

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

**HAMILTON MICA ROOFING CO.,** OFFICE: **HAMILTON, ONT.**  
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### NO REPAIRING

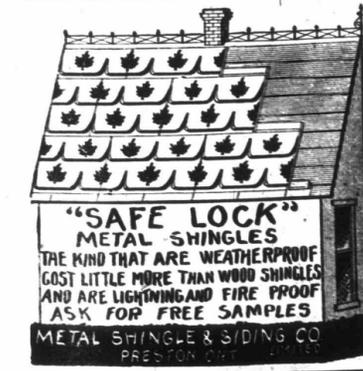
of fence where the Page Woven Wire is used. Page fence is made of a wire made especially for us, which does not break, stretch or rust. Our standard fence is five feet high and woven so close that stock can't get through or over it. And you can buy it for less money than you may think. Better look into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

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



### FENCE MACHINE

The GEM still holds the record—120 rods 10-wire fence in 10 hours. Price, \$5.00. Coiled Spring and other wire for sale in any quantity. Write—**McGregor, Banwell & Co., WINDSOR, ONT.**

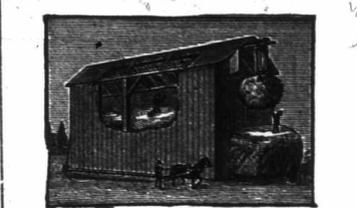


**"SAFE LOCK" METAL SHINGLES**  
THE KIND THAT ARE WEATHERPROOF COST LITTLE MORE THAN WOOD SHINGLES AND ARE LIGHTNING AND FIRE PROOF  
ASK FOR FREE SAMPLES  
**METAL SHINGLE & SIDING CO.**

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

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

### BUCHANAN'S (Malleable Improved) PITCHING MACHINE

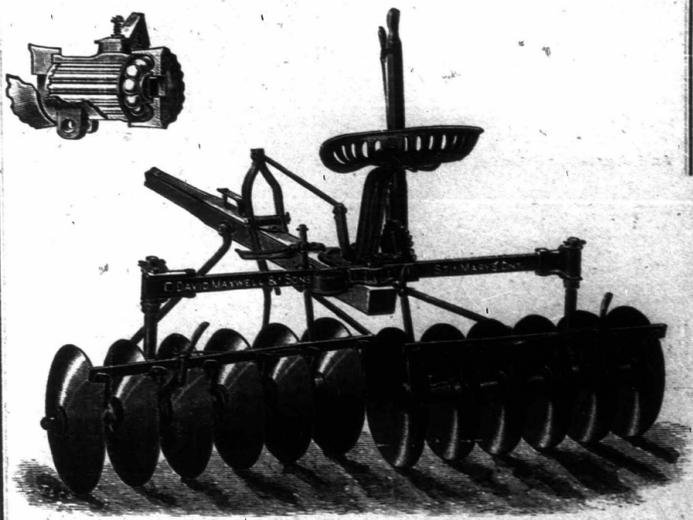


For unloading hay and all kinds of loose grain.  
Unloads on either side of barn floor without changing car. No climbing necessary. Malleable Iron Cars. Steel Forks. Knot Passing Pulleys. Will work on stacks as well as in barns. Satisfaction guaranteed.



**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, Can.**

### Maxwell Disc Harrow



The "BEST," not the "cheapest." The only harrow with Combined Ball and Roller Bearings. The only harrow with Patent Adjustable Cleaner. No expense has been spared on the cost of manufacturing, and the Maxwell Disc is what we claim—the best produced.

**DAVID MAXWELL & SONS.,**  
St. Mary's, Ontario.

### BINDER FARMER'S TWINE

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

Farmers! Don't be taken in. There is none "just as good." These twines will not bunch at the knotter, and a Binder will run all day without stoppage, thus saving time, annoyance and a "lot o' cussin'."  
We pack our twine in bags of the size of ordinary grain bags, and we are not ashamed to put our name upon it. Don't take any other.

**CONSUMERS' CORDAGE CO.**  
Limited.

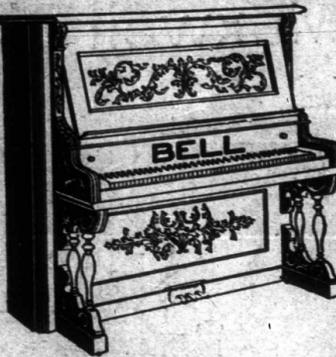
**MONTREAL.**  
PLEASE MENTION FARMER'S ADVOCATE.

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

# Bell Piano

And there is no better to be had.

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



Built to last a lifetime.

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

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House, Barn, Roof, Bridge, Wagon, Implement, Coach

Paints Ready for Use.

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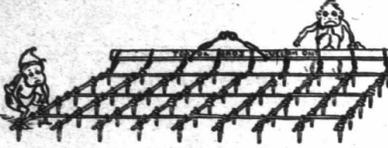
for Carriages, Implements, Wagons. Interior and Exterior Finish.

WHEN PURCHASING PAINTS OR VARNISHES, SEE THAT THE PACKAGES BEAR THE NAME OF

**The Canada Paint Co., Ltd.,** MONTREAL AND TORONTO.

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