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VOL. XXXVII. LONDON, ONTARIO. MARCH 15, 1902. WINNIPEG, MANITOBA. No. 546

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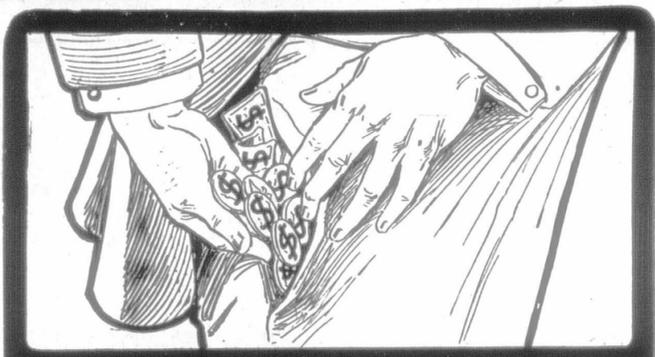
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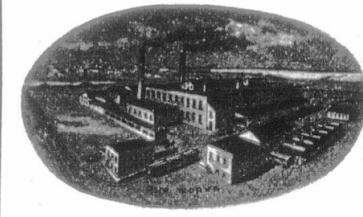
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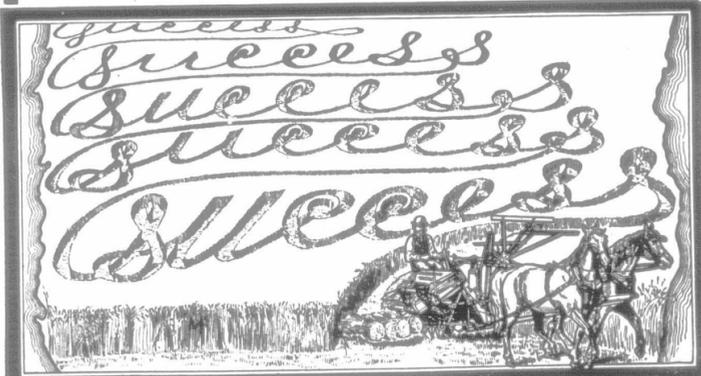
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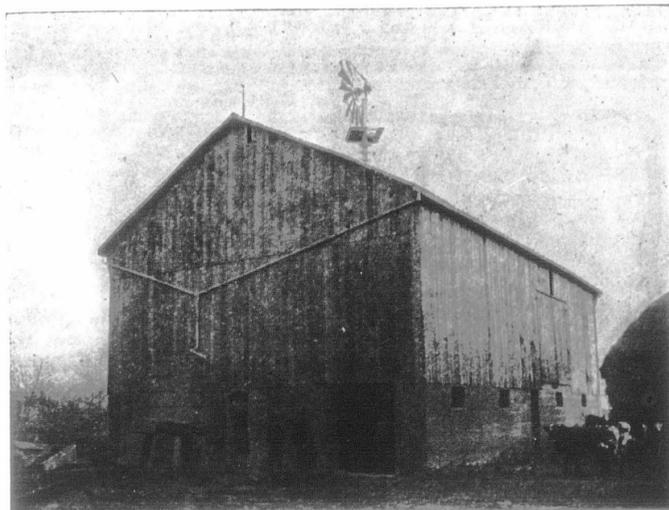
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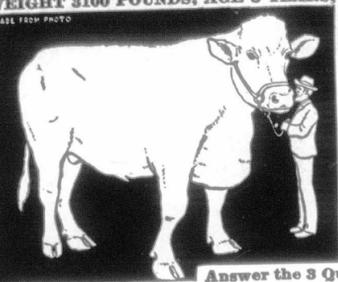
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The Farmer's Advocate

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"PERSEVERE AND SUCCEED."

VOL. XXXVII.

LONDON, ONT., AND WINNIPEG, MAN., MARCH 15, 1902.

No. 546

EDITORIAL.

What is Nature Study?

Sir Wm. C. Macdonald's munificent gift of \$125,000 for the establishment of a school for the training of public-school teachers in nature-study and domestic science, at Guelph, Ont., has already been discussed in its general bearings in recent issues of the "Farmer's Advocate." We have drawn public attention to several important considerations arising in connection with the relation of the proposed institution to the present academic and normal training of our teachers. The domestic-science aspect of the subject is tolerably clear in the public mind, but "nature-study" is as yet but seen as through a glass darkly. We are pleased to see "The Nature-study Idea" presented at some length recently in *Country Life in America* (under the editorship of Prof. L. H. Bailey, of Cornell University). He points out that there is a rapidly-growing feeling that people must live closer to nature, and we must, therefore, begin with the child. Hence the effort to teach nature-love by nature-study. Attention is called to two or three fundamental misconceptions of what nature-study is or should be.

Fundamentally, says this writer, nature-study is seeing what one looks at and drawing proper conclusions from what one sees; and thereby the learner comes into personal relation and sympathy with the object. It is not the teaching of science, not the systematic pursuit of a logical body of principles. Its object is to broaden the child's horizon, not primarily to teach him how to widen the boundaries of human knowledge. It is not the teaching of botany or entomology or geology, but of plants, insects and fields. Many persons who are teaching under the name of nature-study are merely teaching and interpreting elementary science.

Again, nature-study is studying things and the reason of things, not about things. It is not reading from books. Nature-readers may be of the greatest use, if they are made incidental and secondary features of the instruction. The child should first see the thing. It should then think about the thing. Having a concrete impression, it may now go to the book to widen its knowledge and sympathies.

Yet again, nature-study is not the teaching of facts for the sake of the facts. We must begin with the fact, to be sure, but the lesson is not the fact, but the significance of the fact. It is not necessary that the fact have direct practical value to the daily life; for the object is the effort to train the mind and the sympathies. It is a common notion that when the subject matter is insects, the child should be taught the life-histories of injurious insects and how to destroy the pests. Now, nature-study may be equally valuable whether the subject is the codling moth or the ant; but to confine the child's attention to insects which are injurious to man is to give him a distorted and untrue view of nature. Children should be interested more in seeing things live than in killing them. Yet we would not directly emphasize the injunction, "Thou shalt not kill." Nature-study is not recommended for the explicit teaching of morals. We prefer to have the child become so much interested in living things that it has no desire to kill. It is true that we must fight insects, but this is a matter of later practice, not of education. It should be an application of knowledge, not a means of acquiring it.

We Should Cultivate Feeling.—We have a right to a poetic interpretation of nature. The child comes to know nature through its imagination and feeling and sympathy. Notice the intent and sympathetic face as the child watches the ant carrying its grains of sand, and pictures to itself the home and the bed and the kitchen and the sisters and the school which compose the little ant's life. What is the brook saying as it rolls over the pebbles? Why is the wind so sorrowful as it moans on the house-corners in the dull November days? There are elves whispering in the trees, and there are chariots of fire rolling on the long, low clouds at twilight. Wherever it may look, the young mind is impressed with the mystery of the unknown. The child looks out to nature with great eyes of wonder.

Two factors determine the proper subjects for nature-study: First, the subject must be that in which the teacher or parent is interested and of which he has knowledge; second, the subject must be one that is common and that can be easily

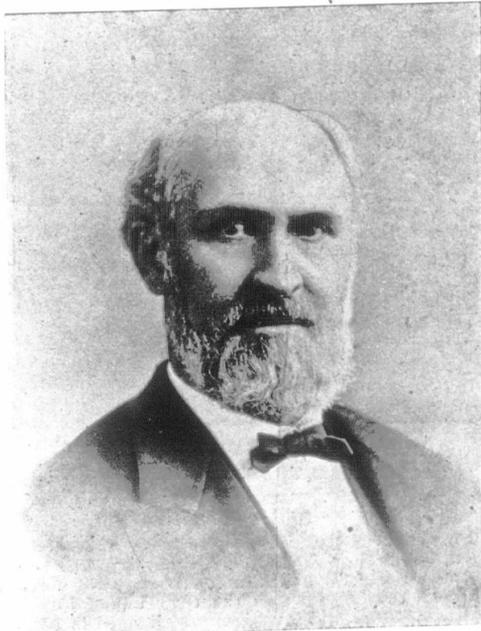
It should not be forced to learn the names of the parts of the flower. Such technical subjects are likely to be beyond the child's realm. They are exotic things to the beginner. They are translations of the knowledge of grown-up investigators. Pollen and stamens are not near and dear to the child.

There are three factors in the teaching of nature-study: (1) the fact, (2) the reason for the fact, (3) the interrogation left in the mind of the learner. It is impossible to find a natural-history object from which these three factors cannot be drawn. For example, a twig or branch may be at hand on a February day. Let the teacher or parent ask the child what it sees. The reply will discover the first factor in the teaching—the fact. However, not every fact is significant to the teacher or to the particular child. It remains for the teacher to pick out the fact or answer that is most significant. The questioner should know what is significant, and he should keep the point clearly before him. A child says that the twig is long; that it is brown; that it is crooked; that it is from an apple tree; that it has several unlike branchlets or parts. Now, this last reply may appeal to the teacher as the most significant fact. Stop the questioning and open the second epoch in the instruction—the reason why no two parts are alike. As before, from the responses the significant reason may be developed: It is because no two parts have lived under exactly the same conditions. One had more room or more sunlight, and it grew larger. The third epoch follows naturally: Are there any two objects in nature exactly alike? Let the child think about it.

It is a common mistake to attempt to teach too much at every exercise, and the parent or teacher is also appalled at the amount of information which he must have. Suppose that one teaches two hundred and fifty days in the year. Start out with the determination to drop into the child's mind two hundred and fifty suggestions about nature. One suggestion is sufficient for a day. Five minutes a day of nature-study may be preferable to an hour, but make it quick and sharp. Let it be designed to develop the observation and reasoning powers, and not to give mere information. Spirit counts for more than knowledge.

What may be the results of nature-study teaching? Its legitimate result is education—the development of mental power, the opening of the eyes and the mind, the civilizing of the individual. As with all education, its central purpose is to make the individual happy; for happiness is pleasant thinking. The happiness of the ignorant man is, largely the thoughts born of physical pleasures; that of the educated man is the thoughts born of intellectual pleasures. One way to lessen evil-doing is to interest the coming generation in dandelions.

Nature-study not only educates, but it educates nature-ward; and nature is ever our companion, whether we will or no. Even though we are determined to shut ourselves in an office, nature sends her messengers. The light, the dark, the moon, the cloud, the rain, the wind, the falling leaf, the fly, the bird,—they are all ours. Nature-love tends towards naturalness, and towards simplicity of living. It tends countryward. If one is to be happy, he must be in sympathy with common things. Few of us can travel. We must know the things at home. No person should depend wholly on another person for his happiness.



SIR WILLIAM C. MACDONALD.

seen and appreciated by the child, and that is nearest and dearest to his life. The tendency is to go too far afield for the subject-matter. If the subject-matter is of such kind that the child can collect the objects, the results will be the better. With children, begin with naked-eye objects. As the child matures and becomes interested, the simple microscope may be introduced now and then. Children of twelve years and more may carry a pocket lens; but the best place to use this lens is in the field. The best nature-study observation is that which is done out of doors, but some of it can be made from material brought into the home or the school-room. The subject should be vital.

It is a sound pedagogical principle that the child should not be taught those things which are necessarily foreign to the sphere of its life and experiences. It should not have mere dilutions of science. Usually the young child cannot understand the subject of cross-pollination of flowers,

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THE LEADING AGRICULTURAL JOURNAL IN THE
DOMINION.

PUBLISHED SEMI-MONTHLY BY
THE WILLIAM WELD COMPANY (LIMITED).

TWO DISTINCT PUBLICATIONS—EASTERN AND WESTERN.

EASTERN OFFICE:
CARLING STREET, LONDON, ONT.

WESTERN OFFICE:
McINTYRE BLOCK, MAIN STREET, WINNIPEG.

LONDON (ENGLAND) OFFICE:
W. W. CHAPMAN, Agent, Fitzalan House, Strand,
London, W. C., England.

JOHN WELD, MANAGER.

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Shutting Out Scrub Horses.

Cable despatches from Pretoria, South Africa, state that the supply of army horses is lamentably short of the demand, and scarcely a single column can place its full mounted strength in the field. The demand for Canadian remounts, which our farmers have demonstrated their capacity to produce successfully, is therefore likely to continue brisk. Fancy driving or saddle horses and heavy drafters bring good prices, so that horse-breeding is once more on a profitable basis. The horseless-carriage fad, of which horsemen were once apprehensive, failed to materialize, and the bicycle craze is already rapidly dying out. We question if ever the outlook for horse-breeding was better than at the present time, good brood mares being about all that is needed to fill the bill of our special requirements, stallions being imported in fairly satisfactory numbers from Great Britain. The one menace to the industry in Canada to-day is the flood of undersized trash, sometimes called bronchos, from the far Western States, which our absurdly low customs tariff allows to pour into the country. They are not only small, but, as a general rule, vicious and intractable, and used as brood mares will most certainly perpetuate their bad qualities, inflicting untold injuries, from which our horse interests will never altogether recover. Every member of the Dominion Parliament now assembled at Ottawa will see that something must be done to preserve this great industry from this plague introduced by Western speculators. Under reciprocal arrangements, properly pedigreed horses for breeding purposes pass duty free between the U. S. and Canada, but on all others the Canadian tariff is 20 per cent. Of late years, a good many of this Western horse truck has been simply shot and turned into sausage or fertilizer to make room for the more profitable cattle on the ranges, so that they are picked up at \$5 or \$10 per head and run into Canada at a mere bagatelle in the way of duty. The United States, on the other hand, impose a duty of \$30 per head on Canadian horses up to \$150 in value, and over that valuation charge 25 per cent. ad valorem. This is an altogether jug-handled sort of an arrangement, and the Canadian horse tariff cannot be rearranged any too soon if the industry is not to be destroyed. Such horses are not wanted at all in

this country, but if their importation cannot be prohibited entirely, the levying of a \$30 duty would have a wholesome restraining effect, and being simply adopting the American rate, our neighbors cannot surely complain. Our tariff is not like the laws of the Medes and Persians—unchangeable. It is an instrument for raising revenue and promoting our industries by going either up or down, as circumstances may determine. For instance, we admit corn free because to the farmer it is a necessary raw material for our main reliance—stock-feeding—just as iron is to a manufacturer. Then, since we do not want our horse-breeding interests damaged beyond repair, why not shut out the little Western scrub by the plan suggested above?

The Late Thos. A. Browne.

We give in this issue an excellent portrait of the late Thomas A. Browne, whose death, on Feb. 20th, was announced in the last issue of the "Farmer's Advocate." He was born in London, Ont., on May 26th, 1853, being a son of the late ex-Ald. Thos. Browne. As secretary for many years of the Western Fair and of the Ontario Poultry Association he developed great executive ability, and for the last three years of his life he proved to be a most efficient postmaster in the London office. For his many qualities, frank and genial disposition, as well as for his business capacity, he was a most highly esteemed citizen, whose death was a great loss to London, to the Methodist Church, of which he was a member, and to his family.



Photo by Frank Cooper, London.

THE LATE THOMAS A. BROWNE.

Rural School Centralization.

A writer in the Forum, referring to a subject which has been discussed recently in several issues of the "Farmer's Advocate," cites a case of centralizing rural schools in the township of Buffalo Center in Iowa. The system was changed in 1895. For the year ending September, 1894, the township maintained six district schools for six months, with an average daily attendance of 90; for the year ending September, 1900, eight teachers were employed nine months; average daily attendance was 290. In 1894 the total expenditure for all school purposes was \$5.03 per pupil per month; in 1900 it was but \$2.31. Not only has this centralization given rural children a graded school in charge of well-qualified teachers, with a school year increased fifty per cent., and at much less cost, but it has made the pupils more punctual, has brought the attendance from 90 to 290, and has had a tendency to hold the larger boys in school. Speaking generally of the benefits of consolidation, the writer says: "Though they would be unwilling to admit it, many rural taxpayers would more readily adopt a plan to lessen the expense of schools than one to improve them. But when the same plan improves the schools, lowers the tax rate, and raises the value of real estate, the taxpayer ought to support it. In a large number of cases, outlying farms that had been left because parents wanted better school advantages, have been re-occupied—at an increased valuation—since the consolidation of schools has been accomplished. Land has sold more readily and at higher prices. Parents who intended to leave the country for the city have often been retained because the city's best blessing was brought within their reach."

HORSES.

The Mare and Her Foal.

As the season in which the majority of mares give birth to their young is approaching, a few words regarding this important function may not be out of place. As the period of gestation nears its termination, the prospective dam should be carefully looked after. She should be liberally fed on good clean, wholesome food, it being remembered that she has not only herself to nourish, but also an almost fully-developed fetus; and while it is not well that breeding mares be very fat, they should be in good condition; hence, the amount of food given should be greater than for an unpregnant mare doing the same amount of work. As regards working the breeding mares, experience teaches us that the mare that has done regular work or got regular exercise during pregnancy produces a stronger foal than the one that has been pampered and has spent the months of gestation in idleness. The work should be regular, and light; work that requires excessive muscular or respiratory exertion should be avoided. If she be of the lighter breeds, and we expect to produce a foal that will be fast at any gait, I think it is good practice to allow her to go short pieces, say one-eighth of a mile or less, at top speed occasionally, as there is little doubt that the habits of the dam during pregnancy are to a certain extent inherited by the progeny, and short spurts of speed have no evil effect on the dam until the advanced stages of gestation. It may be asked then, if breeding draft mares, why not ask them to occasionally move very heavy loads during pregnancy? This is dangerous, as the excessive muscular exertion has a tendency to produce abortion. In addition to good food in proper quantities, and regular exercise, the mare should have free access to water of first-class quality. As the period of parturition approaches, the work or exercise should be decreased, but not entirely suspended. I have known brood mares on farms to be worked on the plow or other farm implement until symptoms of immediate parturition were shown, and then to be unhitched and give birth to a foal in the field, and in an hour or two the little thing follow its dam to the stable. Still, I do not consider this good practice. For at least a few days before parturition, she should not be asked to perform steady work, but should have regular exercise in the yard or lot. She should be carefully watched. There is a somewhat popular opinion (I might say superstition) that it is unlucky to watch a mare when about to foal, but, fortunately, this idea is gradually becoming unpopular, and there are many reasons why it is wise to keep careful watch. This is the most critical period in the life of the offspring, and often also of the dam, and a little carelessness on the part of the owner or attendant now may be followed by the loss of one or both. If the act (which is essentially a physiological act) be performed in a normal manner, no extraneous interference is needed, but, unfortunately, it is not seldom that conditions are such that human aid is required. Obstacles which are removable, or malpresentations which may be rectified, may present themselves to retard or totally prevent delivery. The fetus may be born in unruptured membranes, and if not relieved will suffocate; the umbilical cord may not become disconnected; the dam may be lying so close to the wall or other obstruction that delivery cannot take place, or she may be vicious and lack maternal instinct, and, if not prevented, injure or destroy her foal. In fact, there are many reasons why she should be watched. For at least a few weeks before she is expected to foal she should have a nice clean, roomy box stall, in which there are no mangers or boxes. The stall should be regularly cleaned and a little slacked lime scattered on the floor every day and clean litter given. As the symptoms of approaching parturition (such as the abdomen becoming more pendulous, and as a consequence a falling down of the muscles of the croup and back; often the appearance of a little inspissated colostrum, generally called wax, on the teats; a swelling of the vulva, and particularly an uneasiness and a more or less excited and anxious expression) appear she should be carefully watched. The person to whom she is intrusted should be one of good judgment, and the greater his knowledge of the function about to take place the better. Certain preparation should be made. He should have at hand a knife and a piece of strong soft cord, in case he might be required to ligature and sever the umbilical cord, and he should also have a small bottle of a solution of corrosive sublimate 1 part, water 500 parts. If the mare be nervous, as is sometimes noticed in prinipara (mares producing their first foal), and the presence of an attendant appears to irritate or increase the nervousness, he should keep well out of sight, but at the same time be able to see what is going on. He should not be too quick to interfere, should

allow nature a reasonable chance, but if the labor pains be well marked and severe for some time and still no visible progress is being made towards delivery, he must ascertain what the obstacle is. If she lie too close to the wall, he must move her or force her to rise. If the birth be easy and the foal be born inclosed in the membranes, he must open them with his knife and relieve it. In this case and often when the membranes are ruptured, the umbilical cord will still be intact, and he should tie it tightly with a strong soft cord, about an inch below the abdomen, and cut it off about an inch below that. If the mare be exhausted she will probably lie for some time after delivery, and in such cases the attendant should remove all mucus from the nostrils and mouth of the little animal and rub his body well with cloths or wisps of straw, and continue rubbing until it is dry or the dam rises and performs the maternal functions of licking it. If it be weakly and not able to rise and take nourishment in the course of an hour at most, he should assist it. In a case where delivery is not taking place he should endeavor to ascertain the cause, and if his skill be such that he can remove the obstacle or rectify the malpresentation, he should do so as soon as possible; but if he cannot do this, he should go or send for an obstetrician without delay, for a little delay or unskillful interference may produce complications that will prove fatal to offspring or dam, or perhaps to both; while prompt and skillful interference may result in saving both and in most cases at least the dam. If the mare be vicious with her colt, it is good practice to dust a little chop or salt on it; and where this has failed, I have found that in many cases a little brandy sprinkled over the colt and rubbed on the lips and nostrils of the dam has had the desired effect. But if all devices fail, she should be tied or held by an assistant, a twitch applied to her nose and forced to allow the colt to suck; she must be carefully watched and prevented from injuring the colt, and forced to nurse it frequently, say every half hour, for a few times, when she will generally get over her viciousness; if not, the foal will have to be removed and raised by hand. Shortly after a foal is born it is good practice to dress the navel string and opening with the solution of corrosive sublimate, already referred to, and this should be done four or five times daily until the parts are healed. This treatment is to prevent the entrance into the circulation of the germ that produces that fatal disease known as joint or navel ill. The colt should also be watched in order to see whether the excretions are normal. If urine be not passed in a reasonable time, a small catheter should be passed, as there is sometimes a false membrane occluding the entrance to the bladder, and this must be broken down. If feces be not passed, the finger should be oiled and carefully inserted into the rectum and the lumps of meconium removed, then a little oil or warm soap-suds should be injected. This should be done every few hours until the feces become yellow. Many colts are lost from retention of the meconium (the contents of the intestines at birth), which exists in lumps of a black, somewhat tarry substance, often so large that they cannot be forced out of the rectum. The administration of oil or any purgative in these cases is very dangerous, for while purgatives liquify the contents of the anterior intestines, they have practically no effect upon those of the rectum, and hence are very hurtful in these cases, and often cause death. The administration of purgatives should, if possible, be avoided in young animals, and the meconium (when not spontaneously expelled) be removed by the finger and injections. The attention to the dam will depend upon complications arising as the result of parturition. As a rule, all she will require is a warm feed of bran or chop, and exclusion from drafts for a few days, in addition to ordinary care.

J. H. REED, V. S.

The Hackney in Scotland.

Hackney breeding has made considerable progress in Scotland during the past twelve years. The harness department at the principal shows is, perhaps, the most attractive of all to the visitors, and much enthusiasm is always manifested when the driving begins. The Scottish Committee of the Hackney Horse Society has spent a deal of money in bringing this state of matters into being, and it is not surprising that those who have been so long nursing the business now feel that it might walk alone. At a recent meeting of the executive it was decided that the subsidies this year at the principal shows would not go beyond the payment of the expenses of a qualified judge from the South. This resolution is taken not because there are no good Hackney judges in Scotland, but in order to leave each one of them free to exhibit if he is so minded. The committee will also try to give some prizes on certain conditions at county shows. This has been in contemplation for some time, and it is a wise step, as it will bring the objects of the committee to bear on classification at these shows.—(Scottish Farmer.

Horse Judging Again.

To the Editor "Farmer's Advocate":

Sir,—In your issue of Feb. 1st I note a reply to my communication of Jan. 2nd regarding the judging of Clyde horses. Mr. Innes appears to have misapprehended the spirit of my former letter. I have no wish seriously to reflect on Mr. Innes' judgment, but am rather desirous of obtaining information on a most important branch of the live-stock industry. I do not claim to "know it all," as he flippantly accuses me, but I am anxious to know more than I do. I pointed out, in my first letter, the requisites of a Clyde horse as far as I know. Mr. Innes gave his decision in entirely different lines, and I simply asked, in my own imperfect way, for information to myself and through your educative paper to the public.

A judge in the show-ring is a public official for the time being, and his conduct is certainly open to legitimate criticism. That being the case, every man performing such an important function should be able to give a reason for the faith that is in him. If he does a public act, it should be from and upon principle, and not upon haphazard methods or grounds. I would not for one moment infer that Mr. Innes does not give his opinions from principle, and all I desire to know is what constitutes the superiority of his contentions.

Mr. Innes has not in his letter given that information. He has given us plenty of language, but no argument; he is full of words, but lamentably short of reason. There are three courses open to the man who has no argument: He can ridicule, he can set up a side issue, he can use profane language. The latter we know he will not do, but he has availed himself very fully of the first two. He says, "Any schoolboy ought to know that an animal of fair average size of the

2,050 pounds; Royal Cairnton, 3 years, 1,985 pounds; Prince Punctual, 2 years, 1,640 pounds; Prince Handsome, 1 year, 1,460 pounds. In the female class, Minuet 2nd, weighing 1,900 pounds; Cherry Startle, three-year-old, weighed 1,740 pounds; while the winning pair of draft geldings weighed: Donald, 2,170 pounds; Gallant, 2,200 pounds. These facts speak for themselves.

I need scarcely particularize the pretty little remark, that before beginning to educate or dictate to England and Scotland how to judge horses, I should study the A B C book on horse lore and read up. Neither is it necessary that I should point out the playful assumption of superior knowledge that dictated the happy allusion to warm weather and my being able to crawl out from under the barn to show myself in daylight. This much I will say in conclusion, Mr. Editor, that it appears to me most deplorable that one who has been chosen to the important position of judge should have nothing better to offer in reply to honorable criticism of his conduct than silly twaddle and contemptible slang, which would not be creditable to his favorite schoolboy.

Middlesex County.

E. J.

Benefits of the Horse Show.

The horse shows seem to offer the same stimulus to the harness race that has been given to the others. The horse show, as it is conducted, becomes an object lesson to the people of cities who use horses as to the proper appointments and the right type of a horse that should go with them.

Two or three successful horse shows in a city are usually sufficient to start the improvement. It leads some one who has a preference for horses of this kind to invest in an unusually attractive pair, which, in turn, stimulates the emulation of

other lovers of horses and in the course of a year or so the character of the equipages of the city become markedly changed for the better. This has been noticed in a great many cases, and invariably follows properly-conducted shows.

While these results, at first consideration, do not seem to have direct application to the horse industry of our farmers, yet they materially stimulate the production of a high-class harness horse throughout the country. These horses which have come to the city as a result of the horse show have been secured by the dealers, who have spent some time in training and mannering them for city use. The dealers, in turn, have bought them from the farmers, and it seems reasonable to suppose that with the

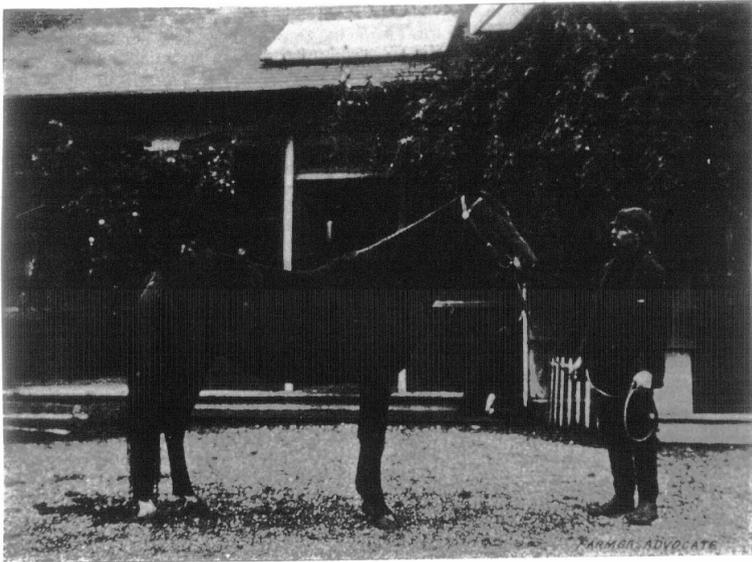
increasing demand for this type of horse there must follow a better price.

To raise the harness horse up to the point where he is ready to go into the dealer's hands will require the best knowledge of a horseman, and consequently it will never be produced too numerous. Owing to the obstacles in the way of producing such a horse, and the unusual difficulties in preparing it for the market, this production will never be the work of the general farmer; but there are a great many who are fond of horses and have the facilities to produce them of this type at a large profit.

If one situated in this way will observe some care in the selection of mares, seeing that they have the high and knee-folding action of the coach horse, together with the fulness of type which is desirable, and breed such a mare to a horse possessing the same characteristics, there is very little uncertainty about the colt developing into a horse suitable for harness work.

When ready for market such a horse may be sold quicker and often with more profit than one of any other type. With the general run of farmers draft horses are without question the most profitable, but where mares of the kind mentioned have been secured and bred to stallions possessing the characteristics described, there certainly is a very large field for profitable production by those having inclinations in this direction.—(The Homestead.

Rider and Driver, New York, says if the breeders of trotting horses do not abandon the phantom of trying to produce speed exclusively, the harness-horse field will be occupied by the Hackney men.



DAISY.
Three-year-old ranch-bred filly, winner of sweepstakes as best mare any age at Provincial Exhibition, Victoria, B. C., 1901.
OWNED BY W. W. ZOUNG, SIDNEY, B. C.

breed, of quality, can win over a brute with a little more weight but with legs that would take a long blade to cut through what they call skin, and they hardly know when they reach the bone because it is not much harder than the hide." Certainly, every schoolboy ought to know that, but was that the class of horse we had in discussion? I like to see a horse with good legs and feet as well as any one, but size will always be an important factor in a draft horse. It does seem as if Mr. Innes had introduced this neat little passage about the schoolboy as a weak support of a fad of his own, and in defiance of the principles laid down by all acknowledged authority on Clyde horses. If weight, form, muscle, bone, action and hair could not be obtained without the legs that would take a long knife to cut through, then his opinion might be taken. We are pleased to know, however, that the efforts of breeders have been crowned with success in so far that they have been able to give all these important qualities to the Clyde horse without those points "that any schoolboy should know."

It is considered by most breeders that size and weight are, and always will be, important factors in a Clyde horse, and an animal without these will not realize the highest price, no matter what his other qualities may be.

In support of my contention that weight has been and is an important factor in the plan of our best breeders, permit me to say that at the late Glasgow Show, held on Feb. 6th, 1902, Hiawatha won the Cawdor Cup for the fourth time; sired by Prince Robert, one of the largest horses in Scotland, each weighing over a ton. At the late International Show held in Chicago, in the aged class, Prince William, 4 years, weighed

Teething in Young Horses.

Soon after the colt's birth, teething troubles start, although in the majority of cases of only minor importance. Animals have what are known as milk or colt or temporary teeth, and a permanent set. The coming-in of the permanents is when the trouble starts. The permanent grinders (molars) push up from below and force the crowns off. Many of these crowns are found in the feed-boxes of young horses; sometimes, however, the crowns (milk teeth) are not shed as they should be, food gathers underneath, or the sharp edges press the gums, with the result that the colt refuses to feed, slobbers badly, the feed-box in many cases being "mussed up," and he has a bad breath. The usual period for this to happen is during the second, third and fourth years of the colt's life. When such symptoms appear, soft mashes should take the place of hard grain, the veterinarian should be consulted and dilatory crowns removed. If this is done, the improvement noticed by the owner will be almost magical. The grinders (molars) are the teeth usually affected, the nippers rarely so. Changes, however, occur in those teeth during colthood, by means of which the observant are able to tell the animals' age: At three years the center pairs of temporary nippers are changed for the larger and permanent ones; at four, the pairs next the center ones are exchanged, and at five years old the corner permanent appear, at which time the horse is said to have a full mouth and has arrived at maturity.

Hackney Action.

The two engravings of horses in harness on page 209 are from photos by Mr. A. H. Godfrey, Secretary of the American Hackney Horse Society, who writes us, by way of comment on Lord Tom Noddy, that "when the Hackney lifts the knee the hind leg is thrust forward under the body," and concerning the American trotting-bred stallion "converted" to heavy harness, "when the knee is elevated the hind leg is drawn up behind."

STOCK.

Bacon Type vs. Thick Fat.

To the Editor "Farmer's Advocate":

Much has been written in regard to the bacon industry and the type of animal best suited for the requirements of the trade, but much of this good advice has fallen short of the mark or failed in its good effect, as shown by the large percentage of non-select hogs that are still being marketed, to the detriment of the business and to the disadvantage of the breeder and feeder of select hogs of the proper type.

We are of opinion that the packer and the drover are to quite an extent responsible for this state of affairs, as we have repeatedly seen, during the past year, buyers paying top prices for pigs that were nothing but a lump of fat. Of course, they were within the weight, 160 to 200 lbs., but so short and fat, and had been so forced, that we would wager a new hat they were as soft as July butter. Now, what we want to come at is, were these select bacon hogs and suitable for the British market? The drover pronounced them such by paying the highest price, and thus discriminating against the feeder of what we would call the true bacon hog.

We were much pleased to see that at least one packing house had come out fairly and squarely and announced which breed they thought most suitable for the production of the very best export bacon. We believe this is a step in the right direction, and much preferable to the custom hitherto adopted of beating about the bush, for fear of treading on the toes of some breeder of the short, thick type above referred to.

What we would like to see is some system of graded prices, whereby the breeder of the proper type would be paid the advance over the thick fats which the superiority of their products warrant. We are well aware that such a system is supposed to be in use, but it doesn't seem to work in this locality at least, or probably this particular drover has not received the punishment which is supposed to be meted out to the buyer of this class of stock.

As a matter of fact, the man who continues to raise hogs of the short, thick type is not looking far into the future, but he gets the same price for his products as does the other, who raises a more expensive article, which the packers, judges, institute workers and agricultural press unite in telling us is more valuable. Truly, there is something wrong somewhere, but whose is the fault?

Hastings Co., Ont.

Our Scottish Letter.

PERTH AND ABERDEEN BULL SALES.

The bull-sale season is on, and already we have had several notable events of that nature. The trade in good bulls is better perhaps than it has been for several years, and indifferent ones are not wanted. At the same time, it is a clear lesson from what has transpired that many breeders have not yet learned that all male animals are not well designed to perpetuate their species. The trade for Shorthorns at Aberdeen, for Aberdeen-Angus bulls at Perth, and for Highland bulls at Oban, plainly taught this common lesson. There was a good demand for the better bulls, but those who had spent money in feeding the secondary animals were plainly taught that good bullocks were more profitable than secondary bulls. The ambition to be in the front rank of breeders not infrequently issues in being kept well in rear, and there is nothing more evident in this country than the great leeway requiring to be made up before the ordinary commercial stock of the country can be nearly like what it ought to be. In spite of all that has been done to improve stock and the great prices which foreign and colonial buyers are prepared to pay for breeding animals, there is as great need as ever there was for the distribution of high-class bulls throughout the country. A tour in the districts where small farms or crofts abound reveals many inferior animals. This is mainly due to the use of indifferent sires, but the scanty feeding of calves on small farms has also something to do with it. It cannot be too often urged that any male animal is not good enough to put to crofters' cows. If there was greater enthusiasm amongst the smaller farmers and a keener desire to learn the points of good animals, they would not be so easily satisfied as they are. Unfortunately, the smaller farmer has no money to spend on attending shows, so that he seldom sees what a really good animal of any breed is like, and when a good one comes across his path he fails to recognize it. The conclusion of the whole matter is that there is abundant room for levelling-up in all breeds, if the commercial stock of this country is to be like what it ought to be.

The great Shorthorn-bull sale of the season is due next week at Perth. Meantime a sale has been held at Aberdeen, at which several of the northern breeders had forward stock. The highest price recorded was £45 3s. Deeside Hero, bred by Mr. Adam Baads, Aboyne. The average price of 134 Shorthorn bulls sold that day was £22 7s. 5d. The most extensive exposé was Mr. Francis Simmers, Whiteside, Alford, who sold eleven got by the Duthie bull, Count St. Clair, at an average of £28 11s. 9d. Several of the best bulls from some of the lots were withdrawn unsold. This was distinctly a crossing-sire sale. The bulls exposed were nearly all bought for crossing purposes, and fancy animals were at a discount. The characteristic Cruickshank type was much in evidence, and the varied coloring could not but be remarked. What length of time may elapse before the preponderating color amongst Aberdeen Shorthorns will be roan does not appear. The fancy buyer likes roans, and the nearer the approach is to such the better will it be for commercial stock. White bulls, which are so popular in the Cumberland sales, are at quite a discount in Aberdeenshire. The reason of this, of course, is that they are not wanted to the same extent for crossing with blackskins to produce blue-grays. In Cumberland, a white bull is invaluable for this purpose. The blue-gray is in great demand, and nothing produces him with so great certainty as the mating of a Galloway cow with a white Shorthorn bull.

The great event this week has been the Perth sale of A.-A. bulls. It has again been a signal triumph for Ballindalloch bulls and Erica blood. Sir George Macpherson Grant got an average of £154 7s. for eight young bulls. One of these, named Eviator, drew £378, his buyer being Colonel Smith Grant, of Auchorachan. Two years ago another Ballindalloch bull, named Echador, went at the same price to Mr. W. S. Ferguson, Pictstonhill. Three hundred and seven bulls were sold in the one day, at an average price of £27 1s. 11d. The second-best herd average was made by a tenant farmer, Mr. A. MacLaren, Auchnaguie, Ballinbrig, who got £63 14s. for three. Mr. Chalmers, of Aldbar, Buchin, who has one of the oldest herds in the country, came third, with an average of £58 9s. 8d. for five. One of his lot, named Elmslie, the winner of second prize, went to Sir George Macpherson Grant at £220 10s. Several of the best bulls in the breed to-day have been bred at Aldbar, notably Delamere, a rare-quality bull with a brilliant showyard record, which, after doing splendid service at Auchnaguie, last year went to Ballindalloch. The Earl of Strathmore, Glamis, who has an extra good herd, exposed no fewer than ten, for which he made the splendid average of £42 apiece. Why Ballindalloch should so completely overshadow all his competitors seems hard to understand. Rightly or wrongly, the public believe in Sir George Macpherson Grant's stock and back them all the time. On the following day the Aberdeen A.-A. bull sale took place, and considering that no ani-

mal shown made more than the double figures, the average of £22 15s. 3d. for 229 bulls indicated a steady selling trade.

On the same day as the Aberdeen Show and sale, Mr. Corson was selling Highland bulls at Oban. Except that too many bull stirks (or yearlings) were offered, with the result that not more than one-half of them found purchasers, the sale was a pretty fair one, and good prices were obtained for the better-class animals. The highest price was £122, paid by Mr. Bullough, of Fasnacloch, for the third-prize two-year-old bull. The leader in the same class, also brindled, made £110, and the one that divided them, which, curiously enough, was also brindled, made £70. These three are ideal specimens of the best type of beef-producing cattle. Mr. Blair, of Melfort, owned the bull which made £110, but the one which made £122 pleased fully as well amongst breeders. He has a wonderful amount of breed character, and being well haired—always an important consideration when looking at Highlanders—he was thought to be worth the money. The average price of the Highland bulls of all ages at Oban this year was £26 4s. 6d. Twenty-two aged bulls made £28 15s. 2d.; 32 two-year-old bulls made £28 1s. 10d.; and 20 bull stirks went at £20 9s. Highland cattle are a little longer in coming to maturity than the finer breeds, and most men prefer a two-year-old when purchasing.

"SCOTLAND YET."

The Curing of Meats.

In some districts beef rings have been organized by the farmers, who thus ensure themselves fresh meat during the warm weather, and, in addition, give variety to their diet. Among the farmers, however, are large numbers who are not in a beef ring or who prefer the cured meats for summer. To such people the recipes for curing beef and pork given below will be of interest:

An old-fashioned recipe for curing beef calls for eight pounds of salt, two ounces soda, one ounce saltpetre and five pounds of brown sugar to four gallons of soft water. This is supposed to be sufficient for 100 pounds of beef.

A part of the salt and sugar is mixed together and used to rub each piece of the meat as it is put into the barrel. Before packing the meat, cover the bottom of the barrel with a layer of salt. The remainder of the salt and sugar is added to the water with the other ingredients, and poured scalding hot over the meat. Place a board with a weight on top of it to hold meat under the brine.

There is a difference between corned and pickled beef that is not generally recognized. Corned beef is ready for use at the end of five days, but pickled beef may remain in the brine for three weeks or as many months.

If you wish to dry part of the beef, remove it from the brine at the end of three weeks, place it in a tub, cover it with water, and let it remain over night. Smoke it for a few days, then hang it from the ceiling over the kitchen stove until dry. Cover it with a loose bag made of cheese cloth or mosquito netting to protect it from dust and flies. When dried, sprinkle with black pepper, tie in a paper bag, and keep in a cool, dark place.

The plan adopted by one of the great American firms in the curing of their hams is as follows: The hams are placed in a large tray of fine salt, then the flesh side is sprinkled with finely-ground crude saltpetre until the hams are as white as though covered with a moderate frost, or, say four to five ozs. of saltpetre to 100 pounds of green hams. After applying the saltpetre, immediately salt with the fine salt, covering well the entire surface. Now pack the hams in bulk, but not in piles more than three feet high. In ordinary weather the hams should remain thus for three days. Then break bulk and re-salt. The hams thus salted and re-salted should remain in salt, in bulk, one day for each and every pound each ham weighs—that is, a ten-pound ham should remain ten days, and in such proportion of time for larger and smaller sizes. Next wash with tepid water until the hams are thoroughly cleaned, and, after partially drying, rub the entire surface with finely-ground pepper. Then the hams should be hung in the smoke-house, and this important operation begun. The smoking should be very gradually and slowly done. After the hams are cured and smoked, they should be re-peppered to guard against vermin, and then bagged. These hams are improved with age, and are in perfection when one year old.

The Result of Good Management Plus Good Stock.

At the 7th annual meeting of the Canadian Land & Ranch Co., Ltd., held at Winchster House, E. C., on January 25th, 1902, a dividend of 10 per cent. was declared, also a bonus of 10 per cent. upon the subscribed capital of the company for the year ending Oct. 31st, 1901. In addition, £2,000 (\$10,000) was placed to the reserve. The headquarters of this ranch are at Crane Lake, Assa. Mr. D. H. Andrews, well known to many of our Western stockmen, is the manager for the company in Canada.

Phases of Western Sheep Husbandry.

BY J. M'CAIG.

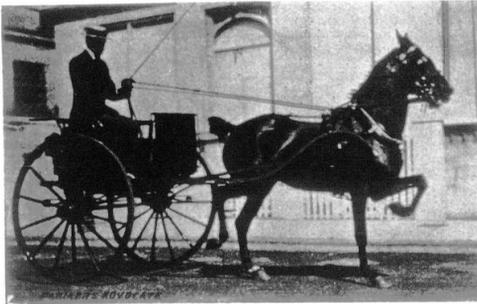
There are some reasons to think that the sheep breeders of Eastern Canada are not deriving as much profit from their business as they naturally should. Sheep-raising in the West offers a wide contrast to sheep-raising in the East. In the West, where animals have to range over long distances each day, often under hard conditions and in very large numbers, there is a plain tendency to deterioration in size. In the East, on the other hand, the number of animals kept by an individual breeder is small, the feeding arrangements and quality and variety of food are as favorable as the art of man and the fertile cultivated areas can make them. The result is that the Eastern sheep possesses much greater size, sappiness and rotundity of carcass than the Western.

Though there is this wide difference in these opposite ends of the Dominion, sheep-keeping in the East and sheep-keeping in the West are closely interdependent. They are complementary. The foundation stuff—that is, the she stuff—of the Western ranges is necessarily Merino. Sheep for range purposes could not be obtained as cheaply or as easily from the East as they could from over the line, and the heavy English breeds, so distinctly the product of intensive treatment, could not be safely set down into range conditions and thrive. The Merino, on the other hand, is by nature the best range sheep grown. It thrives well in large bands, can travel long distances daily, and can stand hard conditions. The straight Merino, however, is not suited to our business. Owing to the large increase in mutton consumption, the English breeds have made a considerable invasion on the territory of the Merino. The supply of medium and coarse wools has become relatively large and the price has consequently fallen. The price of wools of all grades has likewise fallen to such an extent that all over America wool can be regarded as only a by-product. It is especially the case, too, that in the more northerly latitudes meat production ranks above wool production. It is generally conceded that moderate warmth is favorable to the production of fine wool, while, contrariwise, a considerable degree of cold induces vigorous appetite, gross and heavy feeding, and, consequently, high flesh-forming properties. Besides this, the American duty lowers the price of our wool. So there are both circumstantial and natural reasons why sheep-husbandry in Canada should lean strongly to the mutton side. In spite of all that may be said by fanciers of the Merino, or indeed by fanciers of any other breed, about its being the best sheep for all purposes living, Merino mutton is not the best mutton; hence, sheep-breeding in the West is the process of transformation of the Merino ewe stock into stuff of better mutton qualities. It is this necessary transformation that opens up the profitable field for the breeder of males of the English breeds. Suitable males cannot be grown under range conditions, and these are imported to the Territories from Ontario and Manitoba. As this has been the general practice since sheep-ranching began in the West, it seems almost unnecessary to refer to these conditions or to emphasize their necessity and suitability.

Special circumstances make it desirable to stir up Eastern breeders. The wool market is not particularly bad over the line at present, and sheep business generally is prospering; but low prices of wool about shearing time made a lot of the fellows who banked mostly on wool anxious to sell. The attractions of the Canadian Northwest as a bountiful grazing country set some of them looking for markets over here, with the result that several bands were contracted for and delivered to Maple Creek and other parts of the Territories. In Southern Alberta itself between thirty and forty thousand sheep were brought in by one capitalist. The chief point of interest and importance is that these importations were not limited to ewe stuff, but included several bunches of rams. These rams were in most cases Rambouillets, which, of course, possess the best fleshing qualities of any of the Merino families, but are yet distinctly wool sheep. There were, however, some straight Delaines, quite small in carcass and so yolk in fleece as to be unsuited to stand the occasional cold dips of our climate. These rams have been brought in partly because they can be bought cheap and partly because it was desired to increase the returns from the fleeces of the range sheep by giving additional weight to the fleece. As our market for wool is not too good, and it would be still only grade wool, and as there is practically no classification of wools in the Canadian market, it is difficult to see how the introduction of these rams is going to be a benefit even on the wool side, while on the mutton side they must be a distinct injury. Much adroit talking and writing has assisted in the introduction of these sheep. Our mutton market is a good one to date and is worth taking care of, and for this reason we should dip liberally into Eastern flocks to maintain and improve these mutton qualities.

It is not to be presumed, however, that the use of rams of the English breeds with simply a

beginning of Merino she stuff, with continuous weeding of the weakest, solves the problem of breeding for the rancher. The first cross with almost any two breeds of sheep is generally satisfactory. The product of the Oxford or Shrop. male with the Merino ewe gives a fine, strong sheep of good size and that yields a fleece bearing a good weight, from the influence of the Merino mother. The character of the fleece, however, is an external or framework feature of sheep econ-



AMERICAN TROTTER-BRED STALLION "CONVERTED" TO HEAVY HARNESS.

omy that is principally determined by the ram. Fleece properties are a matter of breeding, principally, and when the second pure-bred mutton ram is crossed with the half-bred ewe of the first cross, the weight and character of the fleece are assimilated to those of the ram—that is, the fleece becomes lighter from the smaller secretion of yolk of the English breeds, and it likewise becomes opener or less dense. While this assimilation of the flock to mutton standard is going on, it is found, too, that the weight of carcass is decreasing. It is quite to be expected that the moulding of the highly-cultured English sheep to range conditions leads to very rapid and distinct deterioration, and a third or fourth cross—that is, a seven-eighth of fifteen-sixteenth mutton grade—is not the same shearer or weigher that the sappy sire is. Besides this, the sheep that has become so closely approximate to the mutton type in a number of characteristics is not as good range sheep as the original she stuff or even as the first cross ewes. The valuable ranging habits of the Merino have been eliminated by frequent weakening and diluting of the Merino blood. There is no doubt but that the Merino is the best sheep in the world for running in large bunches. Its instincts are strongly gregarious from the beginning and its habits and character are fixed by two thousand years of breeding in a straight line. This property of being a good herd sheep was forcibly brought to the writer's notice while following a little drive of six hundred ewes. They were generally about a seven-eighths Merino grade, but there were a few well-marked individuals, on the other hand, that were perhaps three-quarters Shrop. or Oxford, and these were always trailing or straying wide of the bunch.

To sum up, the Merino has properties that the rancher needs, and the English breeds have other properties that are equally indispensable. We want the good herding qualities of the Merino and the capacity to stand scant and sometimes hard conditions, but we also want the fleshing qualities of the English breeds, so that it seems as though sheep-ranching means continuous cross-breeding. Now, crossing successfully is a rather limited game. The first cross is good: there



E. D. JORDAN'S HACKNEY, "LORD TOM NODDY."

seems to be an energy in the offspring, from the novelty, so to speak, of a somewhat contrasted coupling; but after the first cross, the good of cross-breeding is not so evident, and indiscriminate mixing generally leads to the perpetuation of bad rather than good qualities. It is a dangerous experiment in unskilled hands.

In connection with the discussion of the subject of the use of wool as against mutton rams, it is interesting to remember what is generally thought to be the respective influence of the male and female in determining the character of the

offspring. The external features and generally the size are thought to be contributed by the male, while the nervous organization and disposition are contributed by the female. In this view we have the strongest argument for the mutton ram as against the wool ram. The mutton ram gives to the offspring his size and weight, while the disposition, at least (we shall say, to be definite, the herding habit) in the first cross, is conferred by the mother, so the first cross for many reasons should be a good one. If, on the other hand, the Merino ram is used, he confers indeed by his prepotency his yolk fleece and larger shearing surface, his flat, slabby sides and his want of rotundity and capacity to keep a nice fleshy top. These properties may be stated more boldly than probably the Rambouillet deserves, but the stronger contrast will make plain the essential differences in the two methods. It seems, then, that the range she stuff must be kept supplied at the bottom of the scale and that the Merino cannot be safely eliminated nor a range breed of mutton blood made to order in three or four years.

About the ram trade. It is safe to say that if the facilities were a little better, more Eastern rams would be bought at good or even high prices than are now bought in the Territories. The express companies could stand some interviewing too. There is absolutely no chance to send a sheep by express from Ontario to the N.-W. Territories. It costs about ten dollars a hundred from Ontario to Alberta, and even a ram lamb at six or eight months old would not ship under two hundred pounds, which would make the cost twenty dollars. The arrangements of the Live Stock Associations, by which cars are made up from individual shipments and the cost equitably divided, are good, but the shipments are not made at times that can possibly be suitable to everybody. Express is a good way to ship individual sheep of good type. It is safe and quick and can be used any time. It would be a good matter for the commissioners to take up or for the Sheep Breeders' Association to deal with.

Profitable Pork Production.

If you will allow me, I will explain some points in my article on pork production, in your Jan. 15th issue, which Mr. F. Van De Bogart, in your Feb. 15th, seems to experience some difficulty in swallowing as hard facts.

First, I may say Mr. Van De Bogart seems to be in the habit of rushing to exceedingly hasty conclusions. So far from being a "capper for a pork-packing factory," I am a farmer's son, have spent the whole of my working life on the farm, have been managing 100 acres for the last two years, and am not connected in any way with any packing house or butcher in Canada.

Now for his objections. He says my estimate of \$1.50 for sow's keep is swallowed up in oats. Well, as the sow ate 5½ bushels, and oats here averaged 27c., that statement is exactly correct. The clover chaff I admit I overlooked, but Mr. Van De Bogart greatly overestimates the sow's appetite. A pailful and a half per day was all I could get her to eat, and a tightly-filled pailful weighs about 1½ lbs. Therefore, the cost of clover, at \$6 per ton, was about 70c. As to the time spent in feeding, I think it was fully repaid by the manure, which Mr. Van De Bogart will kindly observe I did not reckon either. The small amount of sweet milk fed was only what was left of one cow's milk after feeding her calf and supplying the house, and would otherwise have been wasted.

Now, I will not pretend that I have ever counted what it cost me per bushel to raise mangels. I reckoned them at the valuation given by Mr. W. J. Whaley, of Dereham Centre, Ont., in the Farmers' Institute Report for 1899-1900, page 94. That five cents per bushel is an exceedingly liberal valuation is proved by the experiments conducted at Ottawa, given in the Experimental Farm Report for 1900, page 87. There is given a detailed statement of the labor, etc., expended on a crop of mangels which cost when stored, 2.88 cents per bushel. This crop yielded 1,000 bushels per acre, and mine only 700 bushels, but I did not spend nearly as much labor upon them.

Mr. Van De Bogart wishes to know how I got my brood sow. Well, to be quite frank with him, I bought her. I paid \$9 for her after she had weaned her first litter, and as I could have sold her for \$12 to \$15 any time since, I don't think much need be said about her cost. However, if he wishes to be very particular, the interest on \$9, at 10 per cent., for 6 months is 45 cents, which would increase cost of pigs 4½ cents apiece.

Now, be it far from me to question the truth of Mr. Van De Bogart's statement that he cannot raise pigs at less than 5 cents per pound, but if he really wishes to know how it is done, let him look up the Experimental Farm Report for 1900, pages 92 and 95, and the Farmers' Institute Report for 1899-1900, page 97, and he will read how they can produce a pound of pork at a cost ranging from 1.8 cents to 2.6 cents. May he profit thereby.

F. W. WRENSHALL.
Grey Co., Ont.

Argentine Ports Reopened.

British breeders are jubilant over the announcement of the decision arrived at by the Argentine Republic, conveyed in a cablegram from Buenos Ayres under date of Feb. 17th, that in view of a statement by the British Legation that foot-and-mouth disease has disappeared from the United Kingdom, a decree has been issued reopening the Argentine ports to cattle coming from Great Britain. Although the word "cattle" is used in the despatch, it is presumed that sheep are also included in the removal of the prohibition. The announcement has been received with much gratification, especially by breeders of Shorthorn cattle and Lincoln sheep, who, previous to the imposition of the embargo, were finding their most liberal buyers among the South Americans, and will now look for a renewal of their patronage. What is good for British breeders in this proclamation will probably not be so favorable to North American importers and breeders, who will doubtless find competition for the best animals more keen than it has been in the past year or two, and will likely have to pay higher prices for such as they want. It is probable that the action of the Argentine Government now announced will induce the British Board of Agriculture to take an early opportunity of removing the restrictions on the importation into the Old Country of cattle and sheep from the Argentine for slaughter at the ports of landing, and while it is scarcely likely that the business will assume the proportions that it did previous to the closing of the ports, owing to the successful establishment and expansion of freezing companies, and the fairly satisfactory shipment of frozen or chilled meats, yet the competition to be met by the stock-growers of this country will doubtless be greater than of late, and in order to holding our own in the British market we shall need to pay more attention to the quality of our exports.

FARM.

Stone versus Wooden Silos.

We have frequently had enquiries as to the suitability of stone or brick as material for building silos, and, as a result of our reading and observation, have always declined to give any encouragement to their use for this purpose. We believe, from what we have been informed, that a round or an octagon concrete silo made perfectly smooth on the inside makes a completely satisfactory silo, and it has the additional virtue of being practically indestructible. A wooden stave silo, however, the staves being dressed on the inside, will keep silage in as perfect condition as any, and is probably the cheapest, as far as first cost is concerned. The only question is in respect to its endurance. On this subject we are favorably impressed by the following answer by Prof. I. P. Roberts, of Cornell University Experiment Station, to a query addressed to the Country Gentleman:

"I am led from my own experience to conclude that neither stone nor brick silos preserve ensilage as well as wooden ones do. Some twenty years since, we built a double grout silo, each compartment 11 by 14 feet and 28 feet high. It was supposed to be the fifth silo built in the United States. It was certainly air-tight on the sides and bottom. It did not preserve the ensilage satisfactorily. Some five years since, the dividing wall was removed and an oval wooden silo of two-inch beveled staves was erected inside of the grout walls. This wooden structure is a great improvement over the square grout silos. Why?"

"The weight of the material and the carbonic acid gas developed pressed the heated air toward the point of least resistance. This point was in the corners and at the sides, where, by reason of friction in settling, the material was not as compact as in other parts of the silo. The heated air was forced to the walls; they absorbed a portion of the heat, and hence the temperature of the material along the sides was not raised and kept high enough. All these conditions accelerated the egress and ingress of air at the surface and at the corners and sides. Mold and decay was the natural result. Wood is a poor conductor while stone is a good conductor of heat.

"The circular silo, with planed material placed vertically, offers the least possible resistance to settling evenly. The wood does not rob the material of the inevitable and necessary heat soon after the silo is filled; therefore the material is kept alike from center to circumference. It is not positively necessary to cement the bottom, and ensilage should never be deep enough to require a drain to carry off liquid."

The Tile Drain's Soliloquy.

Here I am, resting
In quiet and peace,
At last,
Yes, and doing more good
Lying still in the ground,
Saying nothing,
Than in all my existence
Before.
I'm fragmentary, 'tis true,
But not broken;
Made up of joints of burnt clay
Called tiles;
Yet I am one
Drain.
I've been talked about in the papers,
And at conventions;
Aye, even roasted.
But care I for that, do you think?
Not I.
Why should I?
I'm faithfully doing my duty.
With no one to hinder
Or help me;
I'm content.
"Still waters run deep."
Yes—just four feet
In this bit of soil
Where I am.
Do they think of me now
At the factory,
I wonder,
Where the man with the patent
Kiln
Made it hot for me,
Thumped me soundly
And said,
"That's a good tile;
Has the right ring,
And the color,
Etc., etc."
Does he care for me now?
I guess not!
He's selling kilns,
And I—
Am draining land,
And making my owner richer
Each year.
I've found my work,
And I'm going to
Stick to it.
I suppose some men
Still talk about me
As they always have talked,
And say
I cause drouths,
And floods in the Ohio valley
And elsewhere.
Of course!
For nothing of that kind occurred
Before I got in
My work.
Oh, no!
But they'll understand
What I'm doing
Sometime.
I'm a Twentieth Century drain,
And am doing business
According to lately
Revised laws of
Soil physics;
And getting along all right,
Too.
The tilemakers likewise.
Time once saw me proud,
With few friends, and
Choice,
But now, many
Know me
And speak well of me.
One is always well spoken of
After he's buried,
I know,
But it's true, with me,
That I do more good
Under the ground than
Above.
Far more.
—Clayton Melville, in The Drainage Journal.

Thermometers for Farmers.

One of the useful articles which should be in the possession of every stock-breeder is a clinical thermometer. This delicate little instrument may be obtained for \$1.50 to \$2. The temperature of farm animals is averaged at 100 degrees Fahrenheit by most persons. The following temperatures will, however, show the variation in different animals: In the horse, while in health and at rest, the normal temperature is 100 degrees Fahr., in cattle 102 degrees, in the pig 102.5 degrees, and in the sheep 103 degrees. Any material variation from these figures should always be regarded as indicative of constitutional disturbance. When the temperature in either of the animals referred to is more than a degree above or below the figures given it may be taken as a certain indication that the health of the animal is not what it ought to be. With regard to the method of using the clinical thermometer, we quote from Hopkins' "Veterinary Elements": "The temperature of animals is usually taken in the rectum, where the thermometer is allowed to remain from 1 to 3 minutes. Always shake the mercury down in the thermometer before using it. To do so, place the instrument bulb down between the finger and thumb, then with a wrist movement shake the thermometer in a downward direction. The bulb of the thermometer should have a little vaseline put on it before introducing it into the rectum. It should be introduced slowly, and if any obstruction is met with, should be turned between the fingers and its direction changed slightly."

The Blockade to be Relieved.

The Canadian Pacific, in response to the representations made by the Hon. Mr. Bulyea, acting on behalf of the Territorial Grain Growers' Association and the Winnipeg Grain Exchange, has announced that arrangements have been made whereby a supply of cars is being obtained from the Great Northern for the shipment of wheat to Duluth, where there is ample storage. If sufficient rolling stock can be secured from this course, it should relieve present serious situation.

The Spring Seeding.

March is the month for preparation for the spring seeding, when calculations must be made as to the crops that are to be sown, the seed well selected, cleaned and made ready for the fields as soon as the land is in fit condition to work. The earliest-sown grain crops are almost invariably the best yielding. It is therefore important that the time be well improved during the first days that the soil is in workable condition. Early-sown clover and grass seeds are also the most likely to germinate in largest percentage and grow strong, owing to the more plentiful moisture prevailing in the spring months. The early-sown is usually the earliest-harvested grain, giving the young clover a chance to secure the benefit of any showers that may come after the harvest, to strengthen it for the ordeal of the dry time which usually comes in the later summer months, and often at that stage burns the life out of the tender plants which have grown up under the shade of the grain crop. Of the spring grain crops, wheat and barley are doubtless the most favorable for seeding with clover, as they have less leafy stems and grow less rankly than oats, giving the clover more air and sunlight, drawing less heavily on the store of moisture in the soil, and leaving a larger share for the clover plants. If clover be sown with oats, it will be wise to sow the oats as thinly as is consistent with the probability of securing a fair crop. If the seed-bed be well prepared, we are persuaded that thinner seeding than is generally practiced would give as good results in the yield of grain if the preparation of the seed-bed is as thorough as it ought to be, and would give the clover a much better chance for its life. While it is important that the seeding be done as early as possible, it may be unduly hurried if the bulk of the land be not dry enough to work freely; this is true especially of clay soils, which if worked while wet will bake and harden if a spell of dry weather comes, and seriously check the growth of the crops. In the rush to get through with the seeding early, there is the liability to slight the cultivation, which is certainly a mistake and will tell adversely on the crop during the whole season unless the weather conditions happen to be exceedingly favorable. Thoroughness of cultivation depends much upon the class of implements used and their condition for doing the best work. A cultivator that will do very good work while the land is moist in the early spring may, for want of sharpening, be quite unfit two weeks later if in the meantime the soil has become dry and hard, and the sharpening of the hoes may make all the difference between thorough work and a half-done job, and a difference of several bushels per acre in the crop yield. The fields that are to be latest sown could be greatly helped in holding moisture and keeping them in condition to work freely if they were harrowed once or twice, especially after a shower, before they get dry and hard. Where this has not been done, a stroke or two of the harrows before the cultivator will cause the latter to run a more even depth and the land to break up into finer particles. In such case, the roller can be used to good advantage after the cultivator and before the harrowing and drilling, making a finer seed-bed. It is well to finish a field before leaving it to begin another, running the necessary water furrows, and shovelling them out if need be, so that if rains come no part of the field may be flooded. Sometimes it is wise to finish one half of a field before attempting to complete the whole, especially if the weather is threatening. Thorough cultivation, with the object of securing a fine seed-bed, leaves clay land liable to pack and crust on the surface after a heavy rain, preventing the plants from coming through, excluding the air, and cramping them, it may be, throughout their life. In such case relief may safely be given by harrowing before the land gets hard, even if the seed has sprouted and the blades have partially shown above ground. In extreme cases of this kind we have seen the cultivator used with good effect. Soils and circumstances differ so widely that each farmer must consider his own and use his best judgment as to what is the best procedure under the conditions confronting him. For this reason, no cast-iron rules can be depended upon as being applicable to all. There is no sphere in business life where common sense and sound judgment are more necessary than in successful farming.

Care of Harness.

The life of a set of harness may be very considerably prolonged by the exercise of a little care in its treatment. When from accident or neglect harness has been soiled, it can easily be cleaned by washing with castile soap. As a dressing for keeping leather or harness pliable there are many preparations upon the market. Cod-liver oil of the cheaper grades is now largely employed for this purpose instead of the neat's-foot oil which our forefathers used in such quantity for the preservation of their harness. One of the great advantages of using cod-liver oil is that rats and mice usually give a wide berth to any harness or other appliances dressed with this oil.—Ex.

Retaining Soil Moisture.

All the plants get their food through the moisture in the soil. As evidence of this, even a poor farm will give a fair crop in a favorable season. Every ton of dry matter in a crop of flint corn represents an absorption of 325 tons of water from the soil. Even the mineral matter of the soil is taken up by plants through the medium of the water in the soil. This is accomplished through the action of the acid in the roots, the acid breaking up the mineral substances and bringing them into solution. This may be clearly seen by taking two pieces of marble hollowed out to hold water. In one put water only; in the other a few grains in the water. After these grains have sprouted and grown, clean off both pieces. The former will be found perfectly smooth; the latter will be roughened, as a result of the action of the acid on the marble.

Effects of Capillary Attraction.—Sandy soils are frequently too loose to act with power in this respect. On the contrary, clay soils are frequently too compact. In consequence, these soils require special treatment. The lamp-wick well represents this. It is possible to have a lamp-wick woven so closely that the oil will not rise (clay), and it may be woven so loosely that the oil rises very slowly (sand). All cultivation should be done with this principle ever in mind. Soil preparation should do two things: First, preserve a very fine tilth of surface soil to prevent undue evaporation of moisture; and, secondly, to keep the lower soil and the subsoil in such friable but compact condition that the raising of the moisture from the lower layers will be facilitated. Tile draining assists this action by drawing off surplus free water, and thus allowing of access of air to soil and subsoil—a necessary provision. Baking of surface soil should always be prevented if possible, because such condition favors rapid evaporation. Soils should not lie in spring until the surface bakes, for above reason. If not ready to put crop in, at least run the harrow over the surface to help retain moisture. Constant and proper cultivation of surface soil acts as a soil mulch. The Ontario Agricultural and Experimental Union experiments show the effects of ridging or firming the surface of soils. Drilling and then rolling resulted in a rapid evaporation of soil moisture, but drilling, rolling and then harrowing gave good results, showing the necessity of leaving the surface soil loose to prevent evaporation. The amount of humus or vegetable matter in soils is an important factor in controlling moisture, and in the present depleted condition of many soils, every effort should be made to secure the presence of large amounts of humus. Fall cover crops do a great deal towards preservation of moisture by adding to the total humus content. They also prevent leaching in light soils, and should be much more generally used.

Manure: Barnyard and Green.—Plant-food in the soil is often in an unavailable form. The addition of green manure assists materially in liberating this fertility. Many hundreds of acres of worn-out soil in New England States are being reclaimed almost solely by use of green crops as manures. Whether these crops shall be fed off on the land or turned under direct is a matter for settlement at the hands of the individual. The kind and age of the stock we feed will materially affect the results as far as the land is concerned. Manure resulting from the feeding of young and growing stock will contain about 65 per cent. of the original content of the food in manurial values to be returned to the soil, while that from fully matured animals will contain about 90 per cent. The manurial value of food is a question that merits more careful study than it usually receives. Clover hay stands twice as high as timothy in this respect. Buckwheat middlings stand high, and we also notice that they are a very excellent foodstuff for milk or pork production. The Soy bean is likely to be much more generally used as food as it becomes known, and the resulting manurial value is great; its manurial value per ton being about \$16. The cow pea (not a pea, but a bean) is another food that stands high in both these things. The hay from both these crops is also high in food and manurial value, the latter having a nutritive ratio of 1:3.8. They have a manurial value more than twice that of oats, and can be bought for much less money per ton. The leguminous crops give more favorable results in manurial value than the cereals, due to their power to abstract the nitrogen from the atmosphere and their richness in this most valuable fertilizing material. It is well for us to remember that those grains and coarse fodders that are most valuable as foods are also most valuable from a fertilizing standpoint. Our soils are very commonly deficient in humus, and the use of green crops as manures is one of the cheapest methods of supplying the deficiency. Humus is not only a plant-food in itself, but its presence in the soil materially helps to liberate the dormant plant-food already in the soil.

Green Clover.—Re the plowing under of green

clover, it is well to study the following results of experimental work along this line:

Period of growth.	Resulting manurial value.
5-7 in. high.....	\$21.94
12-14 in. high.....	34.64
Blooming stage.....	37.00
Fully matured.....	44.00

The very great difference in the value between the blooming stage and the fully-matured plants would seem to be due largely to the fact that the plant, as it approaches maturity, seems to spend all its energy in an attempt to mature its seed, and in doing so makes great root development, and the clover roots are rich in plant-food constituents of the most valuable kind.

Middlesex Co., Ont. F. J. SLEIGHTHOLM.

Running Saw with Windmill.

I see in your March 1st paper an enquiry re running a saw with a windmill. I have no difficulty in running a saw 24 inches in diameter with a 14-ft. Brantford mill, at a distance of 50 ft. from the shaft, with a 4-inch rubber belt. To hold up the loose side of the belt, put a loose pulley on a short shaft about midway of the belt. We have threshed peas by connecting-rods at a distance of 60 feet from the foot-gear of the mill. I see no difficulty in Mr. Lapp running his saw 100 feet from the mill with a belt, if he arranges to carry up the slack side of the belt. I do not like a rope, as it gives so much trouble stretching when dry and contracting when damp. With a good wind we can saw cordwood as fast as three men can hand it on. If the slack side of the belt is not carried up it flops down and knocks off the belt.

WM. H. BEBEE.

Wright Co., Quebec.

Clover Growing in Lambton.

We have always been very successful in securing good catches of clover, whether sown with spring crops or winter wheat; therefore, in response to the invitation in the March 1st issue of "Advocate," I will give the method we pursue.

We have adopted a three-year rotation, which we find best meets our requirements, and we think it most beneficial to the land. Our rotation is: 1st year, clover; 2nd year, part to corn and remainder to beans; 3rd year, bean land to winter wheat and corn land to oats or barley, and all seeded to clover again.

With this rotation, if through any cause we fail in getting a clover catch during any season, it does not break up our regular rotation, as we can take a second crop of hay from field No. 1, plant beans after corn and corn after beans in field No. 2, and substitute oats for barley or barley for oats in field No. 3, which, after a good top-dressing of manure, is hardly likely to again fail in getting a good stand of clover.

Other advantages gained by taking but one crop of hay are: that a tough sod is never formed, thus avoiding that great enemy to grain crops—the wireworm; and in a favorite season for clover seed, the hay may be cut early and a crop of seed taken; or, after the hay is harvested, the field may be turned to pasture, practices which would be very detrimental if a second season's hay crop were desired.

Now, as to our method of clover seeding. On the land under wheat we sow the grass seed some still morning when the soil is open by alternate freezing and thawing during the latter part of March. Then, when the April showers come, the seed is all nicely covered. If sowing is delayed until after the soil becomes compacted by early



GENERAL ROUND-UP AT THE BIG BOW RIVER, SOUTHERN ALBERTA, JUNE 6th, 1901.

Utilize the By-products.

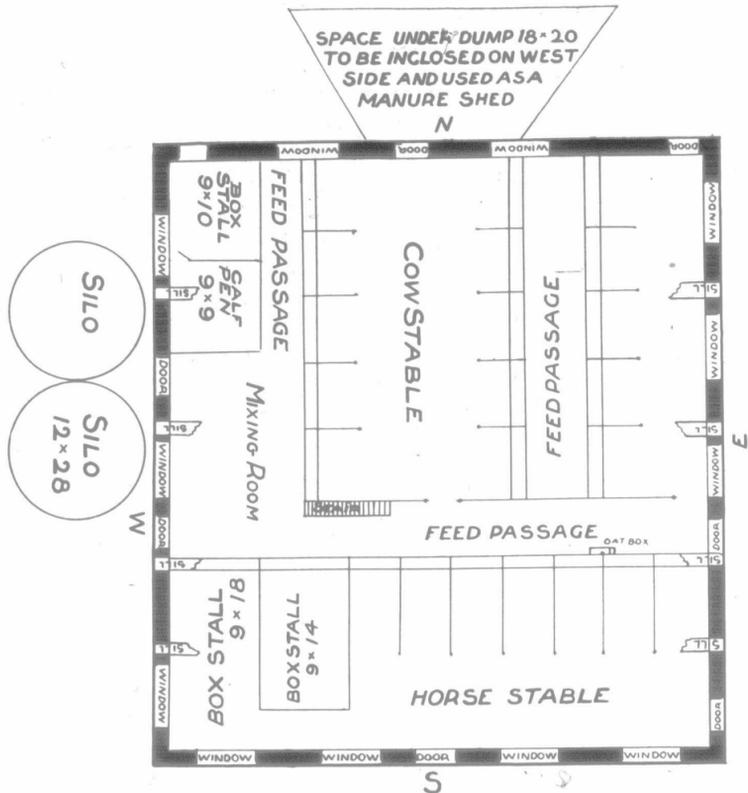
One of the reasons advanced by Canadian packers for the advantage the American packer has over them in being able to pay, on the whole, better prices for live stock, is the fact that the American utilizes the by-products. From the blood is got albumen, used in the arts and in medicine; horns and hoofs used for gelatine, and handles for brushes, for buttons, etc.; bristles for brushes; tankage for artificial manure, and so on; so that, as it is aptly put, "nothing is lost in the pig but the squeal." With all the above, the packer has been looking for further profits, according to the National Provisioner, who states as follows:

"The oily, greasy, thick pig skin is arousing new interest. Heretofore, the slaughter house has not seriously bothered itself about skinning the hog while his green hide left on the carcass and unencumbered with expense brought 8 cents per pound and more as pork, or 12 cents per pound when weighed in as cured ham or smoked bacon. The scientist will not let things alone, however, and it may yet pay to strip the hide from the hog for commercial purposes. The leather splitter has demonstrated his ability to shave hides almost into tissue leather. With this implement at his command and a new process in his possession, an American inventor claims that he can split a pig skin to the fineness of a cologne bottle-stopper cover and manufacture that article at a ridiculously low price. He can make the finest of 'imported' kid-glove stock, can displace oiled paper with a better and a cheaper article and do the same with the fine texture of rubber goods now used for waist shields. A hog hide can be treated so finely and split into so many separate skins as to astound the uninitiated. With this prospect before it, the hog skin has a right to come off and to expect much, in the near future."

showers, the seed falls on a smooth surface, and much of it never sprouts, or if it does, its roots have only a slight hold in the soil, and the first hot dry weather withers and kills it. When seeding on the spring crop which follows the corn, if the land was not entirely clean after harvesting the corn crop, we have it fall-plowed; but if clean we leave it and simply go on it in spring with spring-tooth cultivator and work it finely to a depth of two or three inches; then harrow it and sow the grass seed behind the drill, and again harrow, or, what we think is still better, roll and then harrow. We do not sow the grain too thickly—about 1½ bushels of barley or 2 bushels of oats per acre. We sow about six quarts of clover and two quarts of timothy seed per acre. We find that much of the timothy seed fails when sown in the spring; still, we always sow some, but we do not care for a great deal of it in the clover. After the grain is harvested, if we find patches in the field where there is a poor catch, we sow on some more timothy seed and run the smoothing harrow over it; then when the rains come it usually comes on and fills up the bare spots, which would otherwise grow to weeds. A top-dressing of rotted barnyard manure scattered over the poorer spots in the field before sowing the spring grain is a great aid in securing a clover catch. Clover seed is comparatively cheap this spring and it should be sown very liberally. We believe that it is one of the greatest aids in securing and maintaining fertility that the farmer can employ. For milch cows it has few equals, and we have this season wintered our horses on clover hay and oat straw, without any grain or bran, as it seems to take the place of both when horses are mainly idle; and our hogs and chickens are also very fond of it. Of course, our land is all tile-drained, which is very important on most soils.

E. F. AUGUSTINE.

Lambton Co., Ont.



BASEMENT PLAN OF JOHN D. M'GREGOR'S BARN, HALTON CO., ONT.

Success with Roots.

Allow me, before speaking of the preparation of the ground for corn and roots, to say a few words as to their importance and value. There is little need to say anything about corn, as we all recognize that it gives the largest returns per acre of good stock food of any crop grown. Its value as a cleaning crop is perhaps less appreciated. Owing to the fact that weeds can be seen and cut long after they would be entirely hidden in other crops, it gives a chance to finish the last lingerers of weeds, such as Canada thistles. The value of roots, except by stock-breeders, is not so generally known. At a sale, about a year ago, mangels were bought by milkmen at 9 and 9½ cents per bushel. On surprise being expressed to one of them that he could profitably give so much he answered, "Well, I had some mangels myself; they got done some time ago; I was feeding heavily of other food; I wanted milk, you see, and I noticed as soon as the roots failed the cows could not take as much heavy food as before and the milk fell off greatly." Professor Arnold, the dairy expert, said at a meeting many years ago, "If you feed a cow hay, she will digest a certain percentage of it; give roots in addition, and she will not only digest the nutriment contained in them, but will also digest more of what is contained in the hay." Roots, then, are not only a nutritious food themselves, but they aid in the digestion of other foods.

The first hoed crops to be put in are mangels and carrots, and it is well to sow them as soon after spring grain seeding as possible. Carrots especially cannot be sown too early. My practice has nearly always been to have hoed crop on stubble land fall-manured, lightly plowed under. For mangels and carrots I plow a good depth in spring if not sticky at the bottom, sometimes, if it seems needful, having previously harrowed the surface, work fine with harrows and cultivator also, if necessary, drill up and sow at once. Sometimes, instead of plowing, have gone over the ground with a subsoil plow (merely a long iron beam plow with mouldboard taken off) to a depth of eight inches or more and worked afterwards as before. This I consider the best possible preparation for hoed crops of any kind, the ground being stirred to a good depth and the frost-pulverized surface left on top for a fine seed-bed. My experience of it has been most favorable, the seed starting well and the crop in every way satisfactory. My father taught me to make drills for roots about 28 inches wide, and so far I have seen no reason to change. Narrower than that they are hard to work with a horse; greater width is no advantage. One pound of carrot seed per acre is plenty, if ground is right and it is sown evenly, but it is safer to aim at two pounds, sowing about an inch deep. It is difficult to sow mangel seed just right with an ordinary two-drill root sower, it being rough and often varying in size considerably. After a good deal of trouble with it, have finally settled down to doing it as follows: Find out first the number of drills to be sown, then with a little tin cup measure all the seed and reckon how much is needed for one drill, filling that amount into seed boxes at each end of the field, having, of course, put in a little

spring, plowing under, and after working well with disk harrow, sowing with ordinary grain drill or on shallow drills with root seeder. Salt, at the rate of 250 pounds per acre, will increase the yield of mangels from 80 to 100 bushels, though possibly at the expense of quality. It may be sown before drilling, but my preference has been to sow broadcast just before thinning, so that plants may not get the good of it until the dry, hot weather of summer, when they specially need it.

Those of us who have raised sugar beets for stock food have treated them in every way the same as mangels, but where they are raised to supply sugar factories, not only is the variety distinct, but the treatment given is quite different. One point is insisted on, manure must not be applied in spring, as the quality is thereby injured, the beets being more rooty and the sugar-content lowered. Whether manured or not, the land is always plowed in fall, cultivation in spring being altogether on the surface. After being brought into proper tilth, seed at the rate of 10 to 15 pounds per acre is sown on the flat with a grain seed drill or a drill made for the purpose, in rows from 20 to 22 inches apart. What I have to say further on corn and turnips must be left to another letter.

Middlesex Co.

Note.—Other readers of the "Farmer's Advocate" may have methods which they consider will give as good or possibly better results than those described above for the earlier root crops. If so, we would be glad to hear from them by an early mail in good time for our April 1st issue. In a multitude of councilors there is wisdom.—Editor.

Gang Plowing Manure Under for Spring Seeding.

A Lambton county correspondent asks: "What do you think about gang plowing manure in on clay land for seeding down, the manure being too long for top dressing?"

It will depend a good deal on the season; if it turns out dry, the crop will probably suffer from lack of moisture. However, we would risk it. Would roll immediately after plowing and then har-

row freely. If a good deal of the manure comes to the top it will do no harm, but rather good, and if it bunches with the harrow or drill, the bunches may be scattered with a fork, and the manure on top will serve as a mulch to retain moisture.

extra to start with. Leave openings for seed rather wide, so that more rather than less than the quantity desired would be sown. The seed will never be all run out when you get to the end no matter how wide the openings are; seed will be sown thinner at one end than the other, that's all. Four pounds per acre is about right. Sow 1¼ to 1½ inches in depth. I have found it a decided advantage to germination of the seed to roll the drills, if dry, the day after they are sown, using the land roller. Another and no slight advantage is that the ground is thus brought nearer to the level condition in which roots yield heaviest crops. Drills should not be made very high to begin with. Manuring in spring seems to answer for mangels just as well as fall manuring. Though I have never tried it myself, I have known excellent crops of mangels to be grown by manuring sod land in

Plan of Barn for a Hundred-Acre Farm.

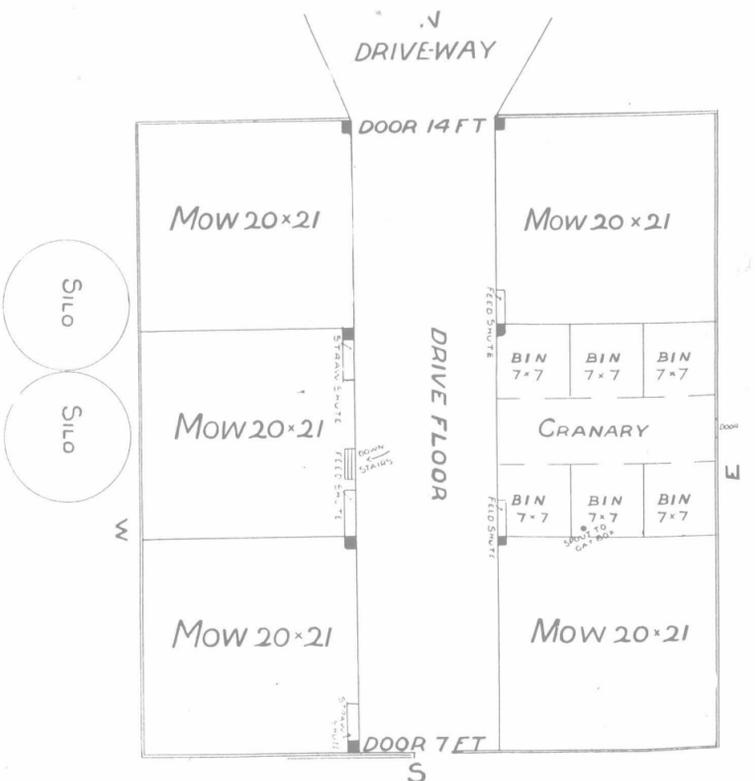
BY JOHN D. M'GREGOR, HALTON CO., ONT.

When the average farmer plans to erect a bank barn, he generally has some old buildings to tear down, and how to utilize the frames of these in the most economical manner is one of the most important matters for him to consider. The changed conditions of farming during the last few years calls for a different style of building. Formerly, when a large quantity of grain was grown, the mow capacity was the most important part of the barn, the greater part of the basement being left in a yard. But with dairying and stock-raising as the most important features, the major portion of the winter feed being stored in silos outside the main building, less mow room is required, and care must be taken to plan the basement in such a manner that a large amount of stock can be kept and also be convenient to attend to.

On the ordinary Ontario farm there is a 60 x 36 barn and a 60 x 24 shed, besides smaller buildings. The plan submitted will utilize the timber from these buildings with very little waste. The old posts will probably be 18 feet long. To make a steep hip-roof in a bank barn, 16 feet is long enough for the outside posts. The purlin plate should be 30 feet from the floor. This will make the first section of the roof very steep, while the center will only be a quarter pitch. The long purlin posts will be about 28 feet long and the tie-beams nearly the same. The old crossbeams of the barn can be used for these. The plates of the old buildings will probably be the full length and will do for the new building. The posts of the shed will do for the short purlin posts and the crossbeams for the beams between the outside and the purlin posts. It being an end drive, provision is made for a rack-lifter. The scaffold girths are 12 feet from the floor, and the rack-lifter girths 22 feet from floor.

The basement furnishes stalls for seven horses and thirty cattle, and stalls for six young calves. In addition, there are three large box stalls. This will accommodate as much stock as can be kept on an ordinary hundred-acre farm. The bridge or dump has been made 18 x 20, and is used as a manure shed. The whole of the basement is floored with cement. In building the mangers, provision was made for having the water pumped in by a windmill into a reservoir and then allowed to run into troughs in the mangers. The basement wall is eleven feet high, and sixteen large windows give abundance of light.

It is a fact pretty well established by all who have had much experience with sorghum, that it is very hard on land. We have had personal observation of good, strong land that a large crop of sorghum taken off of rendered almost unproductive.—St. Louis Journal of Agriculture.



UPPER-FLOOR PLAN OF JOHN D. M'GREGOR'S BARN.

Questions in Spring Cultivation and Seeding.

- 1st. What do you regard the most profitable spring grains to sow in your locality?
- 2nd. The best modes of cultivation and seeding?
- 3rd. The quantity of seed of different grains per acre to sow?
- 4th. The varieties that give best satisfaction?

CRAZY CROPS PREFERRED.

1st. We expect to put in about 175 acres this spring in the following order, as we think these the most profitable grains for us:

Forty-five acres of "crazy crop," or oats, barley and spelt in equal quantities, including a small fraction of flax: this will give a large yield, and is an excellent mixture for fattening stock. Twenty acres of oats and twenty acres of bugless peas (peas are next to clover for enriching the soil). For hoe crop, sixty acres of corn, four acres of potatoes, five acres of sugar beets and mangels, four acres of turnips and carrots, besides ten acres of millet.

2nd. When corn stubble is clean we prefer to put in without plowing; cultivate thoroughly, but shallow, for crazy crop, or oats. In this way you can depend upon a good catch of clover. Fall plowing should be cultivated in the same way for the kinds of grain named above. For corn or roots, supply abundance of fertilizers, spread on land fresh from the yard, and after plowing work down with spade or other harrows.

3rd. For crazy crop, not more than one and a half bushels of the mixture per acre (rather less than more) to secure a good catch of clover. The same quantity of oats per acre (rather less than more) if you want a good catch of clover. We prefer two bushels of peas to the acre. The ground should be completely covered to act as a mulch and enrich the land. One bushel of seed corn to four acres, where the corn is intended for the silo. We prefer hills to drills for keeping the land clean.

4th. To my mind, these grains are of about equal value. W. W. Shepherd. Middlesex Co., Ont.

FEED FOR STOCK THE MAIN CONSIDERATION IN GRAIN GROWING.

To the Editor "Farmer's Advocate":

Sir,—The following is submitted in answer to your enquiries re spring grains and spring seeding.

Food for our stock, of course, is the leading consideration, and the heaviest producers of this article are the most profitable grains. Oats easily lead in quantity sown in this locality; considerable barley is also grown. Wheat is not grown so much lately. Personally, I think, and the opinion is becoming quite common, that we have not much room for wheat, excepting perhaps the winter varieties sown for the benefit of the small seeds (clover and grass). The ravages of the pea weevil almost prohibit the growing of peas, the south townships suffering the most from this cause. Incidentally, I might say that co-operation of Ontario farmers, with the use of carbon bisulphide, would do away with this evil. I am in favor of shallow fall plowing, followed perhaps, if conditions warrant it, with surface cultivation; and spring cultivation, for seed-bed, with spring-tooth cultivator or disk. Believe in drilling in the seed, and unless a very rough surface demands a heavy harrow, I simply follow the drill with a light Breed weeder.

The quantity of seed sown should be according to nature of land. A light or impoverished soil would demand more seed. On the other hand, fewer plants are required on a rich soil, as a well-fed plant will spread its roots more and feed wider. If drilled in, an average quantity of seed would be: Oats, 1½ bushels per acre; barley, 2 bushels; wheat, 1½ bushels; peas, 2 to 3 bushels, according to size of grain; rye, 1½ bushels. If sown broadcast, a little more seed in each case.

With regard to variety, the "Siberian" oat has been taking the lead, but is being superseded to some extent by the "Ligowo," which, I think, is a better oat, larger and more plump in grain, and perhaps a heavier cropper. Black barley seems to be the favorite. "Colorado" wheat chiefly sown, though "Harrison Bearded" is coming into favor. Not much peas sown and not much choice. The "Grass" pea, though bug-proof, is not a heavy enough cropper. J. W. Widdifield. Ontario Co., Ont.

CULTIVATION AND VARIETIES OF SPRING GRAINS.

1—Peas and oats, in the order named, have been the favorite crops for the past few years. In the future we may have to change peas for barley, for the reason that in some localities the pea bug or weevil has made its appearance to some extent the past two seasons.

2—Fall cultivation: Gang plow two or three inches deep as early as possible after the preceding crop is harvested; harrow well, followed by single plowing later on in the fall or in the following spring. In our locality, spring seems

preferable. If plowed in the fall, the spring cultivation is with disk harrow, or cultivator and harrowing; then sowing with seed drill, followed with harrow and roller.

3—Quantities of seed per acre: Small peas, two bushels; oats and barley the same. In my experience these quantities have given the best results. Of course, the fertility of the soil and other conditions have something to do with the quantity of seed.

4—Varieties: Peas—The ordinary small white, commonly known as Golden Vine or Multipliers, have given the best results. Oats—Early Siberian have given the best results, whilst some still cling to the old variety of New Zealand; the Banner still has its advocates. Barley—Russian varieties give the best results, it being grown mostly for feeding purposes; they produce more grain and straw than the old six-rowed variety. Bruce Co., Ont. Jas. Tolton.

OATS THE SUREST CROP.

In reply to your enquiries: 1st—I consider oats the surest crop to grow here now. We sow oats, barley and peas together—oats three to one. This makes a good crop to thresh and grind for feed, as we feed all we grow. Ensilage corn grows well here and matures well.

2nd—The best mode of cultivation and seeding: Plow well in the fall, having the land in good heart and well drained. Cultivate with disk harrow and harrow well, then sow with drill seeder, making a deep mould.

3rd—The quantity of seed of the different grains per acre: 2½ bushels of 40 pounds per arpent, as this is less than an acre; the same for the mixture. The "Banner" oat gives best satisfaction—the straw is stronger and does not lodge so easily as some of the others. Chateauguay Co., Que. Robert Ness.

GRAIN MOSTLY GROWN FOR FEED.

The bulk of the spring grain grown in our locality for the last year or two has been oats and barley. Since the pea weevil has become so general the farmers have reluctantly discontinued growing this very important crop. With the exception of a few who will grow the grass pea, peas will be a thing of the past, and it is not expected that they will fill the want on account of their usually small yield. There will be more mixed grain sown this spring than usual. The mixture will be composed of oats, barley, and in some cases grass peas and in others a small percentage of goose wheat. It is sown with the double purpose of providing green fodder in the dry weather, if necessary, and in case of leaving it to mature, furnishing excellent material for grinding. Some very large yields were obtained from mixed grain last year. It is now a number of years since any considerable amount of spring wheat has been sown. Those who do try a small amount are invariably disappointed by results.

The most of our soil is rather heavy clay, and it is always best to plow in the fall, and for the same reason it is best not to go on to the land until it is perfectly dry. Better results are obtained from seeding a little late than from early sowing on wet soil. An effort should be made to cultivate the land until a good seed-bed is obtained. Many are now using three horses on the latest style of cultivators, which do very effective work. The best results are obtained from drilling, in preference to broadcasting. The amount of seed generally sown of barley and oats is from a bushel and three-fourths to two bushels. In the case of mixed grain, two bushels and a half may be sown. If the season is early, lighter sowing answers, but as the season advances more is required. The varieties of oats most in favor are the "Ligowo," "Newmarket," and "Banner." The Odessa barley seems to suit our soil best of the six-rowed varieties.

In sowing the mixed grain, it is best to sow some variety of two-rowed barley, such as the "Sydney" or "Duckbill," and it will ripen about the same time as the oats. Spelt is not much grown yet, but the farmers are becoming interested in it, and are watching for results. The most of the grain grown here is fed on the farm, and its value as hog feed and as an auxiliary to the corn crop for the cattle is the chief consideration. Jos. Mountain. Perth Co., Ont.

OATS AND BARLEY MOST PROFITABLE—MIXED CROPS APPROVED.

The most profitable spring grains to sow are oats and barley in this locality, peas having largely been a failure the past four or five years. A large percentage of farmers are sowing a mixture of oats, barley and goose wheat for feeding to stock. This mixture gives a much larger yield of weight per acre than if grown in separate plots.

In this locality all lands intended for spring seeding should be plowed in the fall. The first thing to do in the spring, as soon as the land is fit to work, is harrow first, then cultivate with a spade harrow or cultivator. If a cultivator be used, don't go deeper than three inches; harrow again, then sow and roll after sowing. Heavy

clay soil should get a single stroke with harrow after rolling, as it helps the land to retain the moisture and prevents baking. Regarding the quantity of seed per acre, there can be no set quantity, as short, plump oats will run out of the drill much faster than long ones. Then there is the difference in the fertility of the soil to be taken into consideration also. We sow all our grain, except what we keep for seed, of the mixture in the proportion of 5 bushels of oats, 2 bushels barley and 50 pounds goose wheat. We use a shoe drill and set it to sow from 1¼ to 1½ bushels per acre; the oats we sow are short and plump. When oats are sown alone, 1½ bushels per acre; barley, 1½ to 1¾ per acre. Of oats there are many varieties sown in this section, mostly white. The variety that has given us the best satisfaction is the "Cluster" oat. Have had good results also from the "One Thousand" oat. We sow two-rowed and six-rowed barley, and have had good results from both. An early variety of oats should be sown with the mixture. Great care should be taken in cleaning oats for seed—the small kernels should be taken out. Huron Co., Ont. Robt. J. McMillan.

CENTRAL EXPERIMENTAL FARM SEEDING METHODS AND VARIETIES.

1—Oats: For light soil, Banner, Waverley; for heavy soil, Ligowo, Tartar King. Wheat: Preston, Red Fern, Wellman's Fife. Barley: Mensury (6-rowed), Canadian Thorpe (2-rowed). If sown with a mixed crop, Canadian Thorpe will prove the most satisfactory. Corn: For grain, Longfellow, Compton's Early, Canada White Flint. For ensilage, Selected Leaming, Mammoth Cuban, Early Mastodon.

2—It is most advantageous to sow grain as early as possible in the spring, and for this reason the land should be thoroughly worked the previous autumn. In the spring, cultivate thoroughly with either spring-toothed or ridge-toothed cultivator. This may be done by going over the fields twice, then sow with a seed drill at right angles to the last cultivating. If the land is thoroughly cultivated it will not be necessary to harrow in the spring. Should the soil give evidence of becoming very dry, roll immediately after sowing.

3—The quantity of seed to sow per acre depends upon the size of the grain and also on the character of the soil, a poor soil demanding more than a rich soil. Approximately, however, the following are about the right quantities: Oats: Banner, Waverley, 2 bushels per acre; Ligowo, Tartar King, 1½ bushels per acre. Wheat: 1¼ to 1½ bushels per acre. Barley: Six-rowed, 1½ bushels per acre; two-rowed, 2 bushels per acre. Ottawa. John Fixter, Farm Foreman.

Spontaneous Combustion from Shredded Corn.

Through rapid oxidation, heat may be generated with such rapidity in vegetable and other substances as to cause them to ignite. Hence the need for care in the storing of improperly-cured fodders in barn mows. This has been one of the chief difficulties in connection with the storage of large quantities of cornstalks, either whole or cut up, even when fairly well cured. The danger is lessened by mixing straw plentifully with the stalks. Mr. S. A. Freeman, a well-known farmer, of Dereham Tp., Ont., had a large and valuable barn burned in that way not long ago. As a warning to others we give his account of the occurrence. He writes us:

"There was not the slightest possibility of the fire starting in any other way than by spontaneous combustion. There were 33 acres of shredded corn in the center of the barn, between two mows of straw built up 35 feet high. This had been very hot ever since it was husked. The day of the fire two of my men were up in the barn putting down feed and bedding for horses and cattle not more than one hour before the fire broke out. Neither of them smoke, nor was there any other person around the place. It was a beautiful day. The cattle were all out about 3 o'clock, and the herdsman had just put in the feed and opened the door to get them in, when he smelled smoke. He ran to the hog barn, thinking it must be there, as I have a furnace in that building, but returned in a minute and found the barn all in a blaze. He had barely time to get out, from the stable below, four horses, two sows and a bull calf; had to rush the calf through the fire and smoke. Mrs. Freeman saw the smoke coming out through the cracks of barn and ran to the large door and looked in and saw the barn one mass of flame. Had the men been up in the mows when it burst into flame, she does not think they could have escaped alive. It would seem as if the barn was filled with gas and went into a flame in an instant. There had been a strong gassy smell in the barn, particularly that day, so much so that the men spoke of it, saying that it was stronger than they had ever noticed before. This was when they were up in mow before the fire. I was away from home at the time the fire started, but got back in time to see my building in ruins. Had never given myself any uneasiness about it, as I did not believe a fire

could start in that way. However, my wife had worried over it ever since it had been so hot. A year ago I threshed my corn (ten acres) with a grain separator. I salted the stalks very heavily, and they kept nicely; never had such good satisfaction with feeding cornstalks. This year I took the advice of the party from whom we bought the shredder. He said for me not to salt it (the shredded stalks) or mix straw with it. It might heat some, but it would make all the better feed. I took his advice, contrary to my better judgment, and now I suffer the consequences. There have been a good many enquiries about the fire."

S. A. FREEMAN.

DAIRY.

The Value of the Babcock Test.

The discovery of the method of determining the amount of fat contained in milk, known as the Babcock test, was one of the most valuable ever made in connection with the dairy industry, and as an aid to profitable dairying ranks with that of centrifugal cream separation.

The Babcock test has done more to place the product of the cow in an intelligent light before the public mind than any other factor of the present day, and it has also shown the milk-producer the relative value of the milk given by the different cows of his herd, either for butter or for cheese making, thus enabling him to determine accurately which of his cows are profitable and which are unprofitable.

Before the advent of this test it was assumed that all milk was of equal value for cheesemaking, and the distribution of the proceeds of a factory was made upon the "pooling system," or the weight of the milk furnished by each patron, regardless of its fat content. So firmly did the pooling system become established in connection with cheesemaking that it was with the greatest difficulty that even a small proportion of those engaged in the industry could be made to realize the fact that there was a fixed relation existing between the amount of fat in the milk and the amount of cheese produced, and many do not want to see it yet. The pooling system tempted many to be lavish with good clean water for rinsing the milk pails, which often found its way into the milk cans, so that none of the milk should be wasted, while others thought it no harm to take a little off from the top of the night's milk, providing they didn't dip too deep.

Before the discovery of the Babcock test it was a difficult matter to detect these fraudulent practices, and those who wished to be honest were completely at the mercy of the dishonest patrons, and there was not the slightest incentive for any patron to improve the quality or richness of his milk. As our scientific men began to show by their investigations that the system was radically wrong, a demand for a change sprang up in some quarters, and the method of paying by the fat content alone was adopted by some factories.

While this was a more just and equitable method than the pooling system, still it went somewhat too far in the other direction, and gave a patron credit for more cheese than his milk actually produced if the milk contained a high percentage of fat. Another method, slightly different from the last quoted, is that known as Prof. Dean's method of distributing the factory proceeds, and which has been adopted by a number of factories in Ontario and a few in Quebec, and wherever adopted seems to be giving general satisfaction.

"The principle of this system is that milk is valuable for cheesemaking in proportion to the fat and casein contained in it, and it further assumes that the percentage of fat + 2 represents the available fat and curdy compounds in milk for cheesemaking.

"The application of this system is very simple. To illustrate: The tests for fat of patron's milk are 3.0, 3.5, 3.8, and 4.0. The percentage of fat and casein are 3 + 2 = 5.0; 3.5 + 2 = 5.5; 3.8 + 2 = 5.8, and 4 + 2 = 6.0. The pounds of fat and casein are calculated by multiplying the pounds of milk delivered by the percentage of fat and casein.

"Thus, if the first patron had 1,500 lbs. of milk, he would be credited with 1,500 × 5 ÷ 100 = 75 lbs. of fat and casein. If the second delivered 2,000 lbs. of milk, he would be credited 2,000 × 5.5 ÷ 100, or 110 lbs. of fat and casein, and so on with all the others. The value of one pound of fat and casein is ascertained by dividing the net proceeds of the sale of cheese by the total pounds of fat and casein delivered.

"The following table gives a summary of the results obtained during five years' experiments, in which 250 experiments were made with nearly 200,000 lbs. of milk, which contained percentages of fat varying from 2.7 to 5.5."

ONTARIO AGRICULTURAL COLLEGE DAIRY SCHOOL BULLETIN, 1901.

Average per cent. of fat in milk.	Pounds cheese made per 100 lbs. milk.	Pounds cheese made per 1 lb. fat in milk.	Pounds cheese made per lb. fat and casein or per cent. fat + 2.	Lbs. loss of fat and casein in whey.			Average score.	
				Per 1,000 lbs. milk.	Per 100 lbs. of curd cheese.	Per cent. lost in curding in four weeks.	Flavor, Max. 35.	Total, Max. 100.
2.87	8.75	3.04	1.79	2.71	3.09	4.26	30.4	89.9
3.22	9.03	2.80	1.72	2.75	3.15	4.43	30.2	89.4
3.83	10.02	2.61	1.71	3.34	3.21	4.10	30.8	90.3
4.23	10.67	2.53	1.71	3.21	3.02	4.05	31.0	90.4
4.74	11.44	2.41	1.69	3.64*	3.18*	3.07	31.0	89.8
5.21	12.13	2.32	1.68	3.40*	2.80*	3.53	31.5	91.6

* Fat only. Casein not considered.

Amounts of money (cheese, Sc. per lb.) credited by the three systems, and also value of cheese:

Average per cent. fat in milk.	By weight of 1,000 lbs. milk.	By weight of fat in 1,000 lbs. milk.	By weight of fat and casein in 1,000 lbs. milk, or fat + 2.	Value of cheese made from 1,000 lbs. milk.
2.87	\$8.27	\$ 5.91	\$6.69	\$7.00
3.22	8.27	6.63	7.18	7.22
3.83	8.27	7.89	8.02	8.54
4.23	8.27	8.71	8.56	8.52
4.74	8.27	9.76	9.27	9.15
5.21	8.27	10.73	9.91	9.70

"Our five years' experiments prove that this system comes nearest to the actual value of the cheese produced, though it still places a slight premium on the rich milk. It encourages the production of rich milk, while at the same time does not discourage the majority of patrons who have average cows and who are apt to envy those whose cows give a small amount of rich milk and who draw a large share of the proceeds of cheese sales when the money is divided on the basis of fat only."—O. A. C. Report, 1898, p. 52.

If the fat alone were the correct basis, then the milk containing 5.21 per cent. of fat should have made 15.8 lbs. of cheese per 100 lbs. of milk, whereas, from the large number of experiments made, the average from the rich milk was only 12.13 lbs., showing fairly conclusively that the fat in the milk and the cheese produced do not increase in the same proportion.

Besides providing a more equitable and just basis for dividing the proceeds of cheese sales, the use of the Babcock test places the business on a higher plane and creates a better feeling among the patrons if they have the assurance that the test is properly made. There is nothing for a patron to gain by dishonest practices, and the temptation to skim or water the milk is at once removed, or if indulged in, no other patron suffers loss by the act. The patron who desires to improve the quality of his milk by increasing the fat content is assured that he will get full value for his milk, and the patron who sends milk low in fat also receives his just dues, and he should ask no more. This is the man, however, who is usually dissatisfied with the system of paying by test in any form, and it sometimes happens that there are enough of such patrons in a factory to rule the "test system" out of the business after a year's trial, simply because it does not allow them to rob their neighbors who are supplying a more valuable grade of milk.

That there are often good reasons for complaints against the results obtained by the Babcock test none will deny who are conversant with the careless methods often adopted in making the tests, but the system is not to be blamed for such results. No man should be allowed to make tests for a factory who has not made a study of the subject and who does not realize the importance of careful, accurate work.

The care of the milk, however, often has a good deal to do with the erratic results often obtained from one month to another, and the man who makes the test is blamed for what is purely the patron's own fault.

Milk that has been well cared for and arrives at the factory in first-class condition invariably gives a more satisfactory test than milk which has been neglected and carelessly handled.

To get the best results, care should be taken to prevent the cream from rising as much as possible, and to this end the milk must be cooled and agitated more or less, and if the agitation is carried on at intervals until the milk is down to 60 or 65 degrees, the test will usually come out satisfactory, because the milk will be in good condition when it goes into the composite sample bottle, and will be in better condition when test day comes than will milk which was more or less sour when put into the composite sample bottle.

J. STONEHOUSE.

I am well pleased with results obtained from advertising in your most excellent journal. I believe that I have been a subscriber to the "Advocate" nearly continuously for thirty years, and I can not do without it yet. Long may the "Advocate" live as the farmers' friend and for the dissemination of agricultural knowledge.

Bruce Co., Ont. A. E. SHERRINGTON.

Ailments of Dairy Cows.

To the Editor "Farmer's Advocate":

I notice that readers of your valuable journal when complimenting you on the excellence of the "Advocate," nearly all state it is the first paper to be read on coming in from the post office. I must say this is my experience also. When calling for the mail myself, I must know the contents before reaching home, for the family are all after it, and I know the chances are I may not be able to get it first after reaching home. Now, why this interest in the paper? I presume it is because there is always in it something of interest and benefit to all, both old and young. I confess we have learned many good lessons on many lines of farming, especially in dairy and butter-making. I must also compliment you on your desire to publish articles of this character, that farmers may aid one another by their experience. Having benefited by others' experience, I am therefore willing, if I can in any way, to aid others.

Dairying has become a very important branch of farming, and none too much so, since grain growing for sale has of late been so unremunerative. Other parts of the world and parts of our own country being able to produce cereals in such great abundance, and with such ease of culture, it is next to impossible for us to grow grain, especially wheat, at a profit, so that it is actually necessary for us in the older parts of Canada to turn our attention to the various classes of live stock or to mixed farming, keeping a few of each kind of stock, changing if one kind fails, some, or all, of the others may succeed. I have taken up dairying for the production of cream and butter, and to this end have hung my faith on the Jersey cow, and having had many years' experience with some of the other breeds, I am satisfied I am on the right road, and have made choice of the best breed of cattle for that purpose. It is true we have our drawbacks. "It is not all gold that glitters." With heavy feeding year in and year out, treating our cows as machines, feeding them for nearly all they are good for, calculating it costs as much for labor to manage a poorly-fed herd as a well-fed one, the one producing a profit, while the other barely pays costs, we may find them liable to some ailments, such as contagious abortion (the worst of all diseases), milk fever, garget, retention of afterbirth, etc. These are all traceable to cause, and, I believe, are curable as well as preventable, if proper precautions are taken in time. Contagious abortion is no doubt a bacterial disease, which can be prevented and in time eradicated by the liberal use of strong disinfectants and the strictest care and precautions with the cow after she aborts, taking care to bury or burn the calf and afterbirth, separating the cow from the rest of the herd for at least two or three weeks. Milk fever, garget and retention of afterbirth, in my opinion, after many years of experience with cattle, come of colds or chills, from exposure of some kind. Perhaps the cow may not be in the best of health from some cause at the time of calving, hence she is more liable to trouble of this kind. All animal life runs something on the same lines. If man, for instance, is in poor health, he is much more liable to contract colds or contagious diseases. So it is with the brute creation: so it is with the cow. She may be allowed to stand out at the watering time longer than she should, through the carelessness of an attendant, or moved to a box stall or other part of the stable much colder than her accustomed stall, or placed near a door in the draft, thus getting a chill which may result in milk fever, garget, or retention, according to the severity of the exposure. Our practice to prevent such trouble at time of calving, is to not allow our cows out of doors for several days before and after calving in winter or during any severe weather. By these precautions we have never had a case of milk fever, and but light cases of garget, etc. Our treatment for garget is to rub the part affected with hartshorn and goose grease—nothing is better and it is simple. But what we do suffer from is bad milkers: men folk bruising the udder while milking by taking hold too high on the teat, thus causing inflammation and more danger of losing a teat than from garget.

I have read with great pleasure the articles on this subject in the Feb. 15th issue, especially Mr. C. Rice's, although I cannot accept the idea of partial milking to prevent milk fever. Neither do I believe in drenching a cow with salts at such a time. Keep her warm, water with warm water, and feed her carefully with succulent food, nothing better than ensilage, roots and bran, with a little hay.

One word re "Profit from Jerseys," published in your Feb. 15th issue. I am sorry I did not go further with my comparison. It did dawn on my mind, but I did not want to take up too much of your valuable space with further comments. However, I sold cream enough from my herd of 16 cows, three years ago, to average nine pounds of butter per head per week for eleven months, and believe I could get 25 cows out of my herd of 35 cows leaving out ten old cows, heifers, and those that have lost parts



MAPLE HILL SUGAR-BUSH.
On the farm of Henry Field, Grassmere, Muskoka, Ont.

of udders) that would make ten pounds per head per week for eleven months. We bred Durhams for many years and the best we ever had them to do for a year was 1,150 pounds of butter from seven cows, about 3½ pounds per week, and there was not an old cow nor a heifer nor one with a deficient udder, and I believe as good a lot of grade Durham cows and as well fed as you could find.

T. P.
York Co., Ont.

Supplying Milk to a Condensing Factory.

The patrons of a condensed-milk factory, such as that established at Ingersoll, Ont., a few years ago, deliver the whole milk, there being no skim milk or whey returned. Condensed milk being used on shipboard and elsewhere, must be in such a condition as to keep a long time perfectly, without developing any unpleasant flavors. Hence, the greatest of care is needful in producing milk for that purpose, and it would be well if cheese-factory and creamery patrons were equally particular. The following describes the regulations governing the patron and the price paid for the milk:

- 1st.—In supplying milk for the condensing factory, we are not allowed to feed anything that will give the milk a disagreeable flavor or in any way take away the standard richness, such as turnips, ensilage, linseed meal or barley sprouts.
- 2nd.—There is no special rule of watering; only good pure water.
- 3rd.—As for handling the milk: it is supposed to be milked in as cleanly a manner as possible. We use a strainer of wire cloth, 100 meshes to the inch; the milk to be thoroughly cooled immediately after milking by continual stirring until the animal heat is all out and the temperature down to 58 or 60 degrees in a tank of fresh, pure water. We have a nice-sized milk-house, with a tank inside, where we cool our milk.
- 4th.—We always keep the milk over night, delivering it every morning. In warm weather all we do is to keep it as cool as possible with ice after it is cool and the milk-house well ventilated.
- 5th.—We buy our cans from the company, each can holding 68 pounds. The cans are washed at the factory by steam every morning.
- 6th.—The milk is supposed to contain at least a percentage of 3.50 per cent. butter-fat.
- 7th.—We receive as high as \$1.33 a hundred for December and January, and 85 cents for June.
- 8th.—We certainly consider we are paid for the extra work. The milk should be just as properly cared for if going to a cheese factory, to give the best satisfaction and produce good material. In the very hottest weather we put the morning milk in water and ice, and by the time we have our breakfast eaten the milk is cool and ready to start for the factory. As far as the work is concerned, it is only properly done. The only objection is we have a few miles further to draw the milk. Taken as a whole, we consider it very little more work, and we are amply compensated. We think a great deal of the condensing factory.

R. CLIFFORD,
"Hillcrest Farm," Middlesex Co.

POULTRY.

Poultry Breeding.

Poultry, to be made profitable in any of its branches, must be thoroughly understood. To this end a large capital of common sense is required. It is a mistake to suppose that the keeping of poultry requires much outlay of time and money. The business, unless in very exceptional cases where it is managed on a large scale, can be easily carried on by anyone who is disposed to utilize the spare hours of each day without detriment to other matters of a more important nature. But usually the great mistake is made at the start. Too many breeds are selected. Begin with only one, and make yourself familiar with all the points relating to it, as well as the natural characteristics of the breed. You may then venture with a second one, but it must be borne in mind that it requires five times as much caution to keep two breeds as one. If only a single breed is kept, there is no danger of any crossing or mixture, and the birds may run at large, providing not too near the neighbors; but the introduction of a second breed necessitates good, high, close fences, confinement, and great care in properly collecting and separating the eggs.

Our most successful poultrymen are those who make a specialty of one breed. They aim to keep the best, and can easily do so, as long familiarity and experience with a flock of fowls all of one kind permit the breeder to detect at a glance all the defects, owing to the constant impression of the characteristics on his mind by frequent observation, while if attention were turned to several breeds, the details essential to perfection in all the points would not be so easily noticed.

What breed we shall keep depends largely upon one's situation and the purpose he has in mind. The Plymouth Rock and the Wyandotte make the best poultry for the table and are excellent layers; but as to laying qualities alone, there is not the slightest doubt but that the families of the Spanish class, notably the Leghorn, will lay more eggs in a year than any of the Asiatics or the members of the American class. It is to be borne in mind, however, that if one wishes eggs in the winter he must select one of the heavier breeds, in preference to the Leghorns, as they are not disposed to lay in cold weather unless the coop is an exceptionally warm one.

Having decided upon the kind of bird, the next thing is selecting the breeding stock. Breeding stock requires to be so fed and cared for that its health and vigor may be maintained to be in condition to transmit the good qualities to its progeny. To secure this condition requires careful management, and careful management includes, first of all, freedom from vermin. Lice sap the vigor from fowls, and there are more lousy fowls in the yards of careful breeders than are suspected. Again, ample opportunity for exercise is required. Exercise promotes digestion, quickens circulation, causes the waste of the body to be quickly repaired and thus promotes the general health. If this exercise can be taken upon a grass plot where the fowls can supply themselves with green food, it is well; but the exercise should be had and the green food supplied in some form. Cleanly quarters and abundance of fresh air and water are required. The oxygen the air contains burns up the impurities in the blood, gives a bright red color and sends it through the proper channels to build up the strength of the fowl.

Finally, proper food, in proper quantities, must be supplied at proper times. This food

must be rich in protein rather than carbon, for muscle, not fat, is required. Oats, wheat, barley, and a very little corn, are good. Milk and an ounce of lean meat daily to each fowl are excellent. Granulated bone, cracked oyster shells and various forms of grit should be supplied freely. Only what the fowls will eat up clean should be fed at one time, and twice a day is frequent enough. All the wants of the system should be supplied, and with no forcing mixtures, the appetite should be kept clean and sharp at mealtimes. With stock cared for and selected in this way, the hen that lays the egg will be in a condition to make it vigorous, so that it will prove fertile, hatch well, produce a strong chicken, and prove her worthy of being the mother of a healthy brood.

"DRI."

The Canadian Hen Wins.

The naming of the Triggs baby and the coming of Prince Henry are important matters, to be sure, but they are really of small consequence compared to the industrial paralysis that has struck the great American hen. The egg famine that now seems imminent touches the poor man's breakfast table, while the entertainment of the visiting prince touches the few who can afford it and are falling over themselves to be touched.

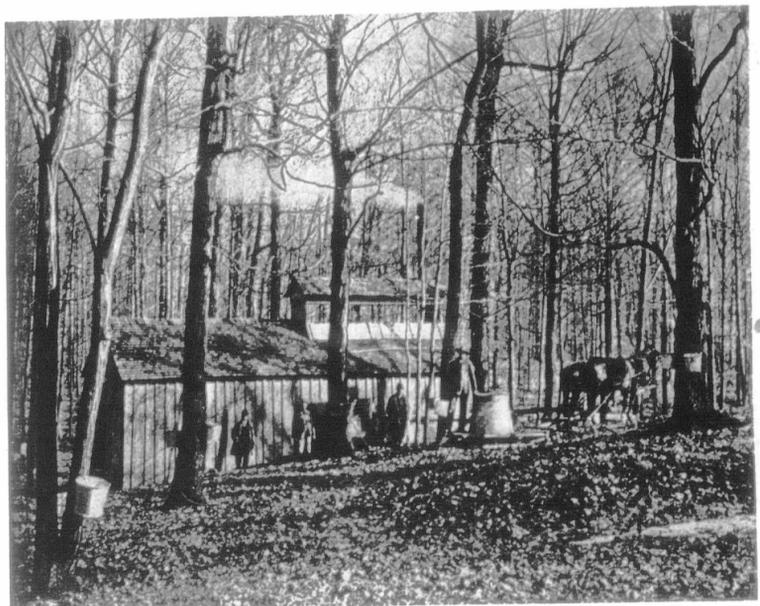
With cold-storage eggs at 35 cents a dozen on Water street and the retail price soaring skyward, the outlook is distressing and gloomy the prospect for that Western luxury, "ham-and-eggs, country style."

The stringency in the egg crop is laid at the door of the American hen. She refuses to respond to the usual treatments that have been found efficacious. Feeding her red pepper has even failed to fill her with a burning desire to do her duty. And as for bone-dust, she will devour it with a glad cackle and in large quantities without showing the slightest disposition to drop anything in the egg basket.

With eggs soaring beyond our reach and Easter but four weeks away, it is a good time to reflect upon the statesmanship of the men who framed the Dingley law, and who put a tariff of five cents a dozen upon eggs in order to protect the American hen from the cheap pauper hens of Canada. Congressmen grew eloquent as they pictured the havoc and ruin that would be wrought in the egg industry, and how the American hen would be driven out of business by the poorly-paid hens across the Canadian border.

But has the American hen shown a proper appreciation of this "protection" accorded her in the Dingley tariff? We think not. The few eggs we can buy are of the vintage of 1901, and will not stand the candle test.—(Chicago Record-Herald.)

Poultry-raising is receiving largely-increased attention in Manitoba and the Northwest Territories, and is proving a fine field for the sale of the improved breeds and for eggs for hatching. With any amount of cheaply-grown wheat and other grain for feeding purposes and the possibility of securing the variety of foods necessary to successful egg production, poultry adds a healthful adjunct to the family bill of fare, while the towns of the West afford a ready market for both poultry and eggs.



From Country Life in America. **MODERN SUGARMAKING.**

Early Chicks.

BY JOHN B. FETTER.

Too much importance cannot be attached to the necessity of having early chickens in order to have the greatest success and profit in the poultry industry. Those who are in the habit of getting out early chickens know this by experience, while those who are not should try it for once the coming season and see if they do not learn the truth of the statement.

No matter what one is in the poultry business for—whether for eggs, broilers, or fancy birds—the early chicken is the most profitable one. The majority of us are in it for what we make from the sale of eggs produced by the hens and the sale of surplus cockerels for table use. It has been found that it is much easier to start pullets to laying before winter than it is after very cold weather sets in. We, therefore, should try to get our pullets matured and into laying condition by the first of November, and, if possible, in the latter part of October. Taking the heavier breeds, such as Rocks, Brahmas, Cochins, and Wyandottes, the greater number of the pullets do not begin to lay before they are about seven months old. In order to get them at work by the time mentioned, the chicks should be hatched as early in April as possible. It is not necessary to get Leghorns and other light breeds out quite so early, as they come into maturity much more quickly. It is no uncommon thing for well-grown Leghorn pullets to begin laying before they are five months old. So we could hatch this breed out in early June and still have pullets into laying condition by the latter part of October or first part of November; but it would be better to get all chicks of even these lighter breeds out not later than in May. Leaving the egg problem, let us go to the birds that we have to dispose of for table use. We are all very well aware of the fact that all kinds of dressed poultry are much higher in price during early summer than on later in the fall. It stands in hand, then, for us to get our chicks out good and early, so that those that have to be marketed will be of good size when dressed poultry is at its highest price.

If we are so fortunate as to have fowls of such a quality as to be able to compete in the leading poultry exhibitions and carry off but a few of the highest awards, then we should see that we get our chicks out real early and get our exhibition birds fully developed. Often a cut of a

point or two will be made for undersize or underweight, and often this—what seems at first thought but a slight cut—is the cause of some of our opponents carrying off the honors that we had hoped and worked so hard for. Other things being equal, the well-developed bird always wins in competition with one not properly matured.

Chickens make more rapid progress if hatched before the extremely hot summer days set in. Besides the heat affecting them physically, it also promotes a very rapid increase of lice, and there is nothing that retards the growth of chicks more than lice. Gapes are also more prevalent in hot weather than they are during the earlier part of the season. By getting our chicks out early, we will get them up to a good size and they will be in better condition to resist these drawbacks when they come to them. But we must exercise caution and not get our eggs hatched too early, if we want early winter layers. Pullets, if hatched out too early, will moult during the same fall, and that will put an end to their egg production until the following spring. They would then be but a bill of expense during the whole winter.

By exercising a little caution, we can manage our flocks in such a manner as to be much more profitable to us, and this by having early chicks, early broilers, and early winter layers.

GARDEN AND ORCHARD.

Does Fumigation Injure Trees?

Regarding the alleged injury to nursery stock by fumigation, I may say that if trees have well-ripened wood and are in a dormant condition at time of treatment, there is no injury by the hydrocyanic-acid-gas treatment. Trees may be injured, though, if they are treated before growth has stopped in the fall or after they have budded out in the spring. Our experiments have proved that well-matured dormant trees will stand three times the prescribed dose without injury. My experience in this work during the past three years confirms me in the belief that much of the injury to trees said to be due to fumigation is the result of frost, and of exposure during handling in the nursery, and of delay in shipment.

W. N. HUTT,

Inspector of Fumigation.

Welland Co., Ont.

Spraying Mixtures.

Bordeaux Mixture.—Dissolve four pounds of copper sulphate in forty gallons of water, and add four pounds of fresh lime. Strain out the lime and test for proper strength with ferro-cyanide of potassium. If the lime is deficient, a few drops of the cyanide will turn brown in the Bordeaux, when add more lime till the cyanide, when dropped in, remains colorless.

Copper Sulphate Solution is made of one pound of copper sulphate dissolved in twenty-five gallons of water, and is for use only before foliage appears.

Paris Green.—For fruit, add four ounces to forty or fifty gallons of water, and for potatoes, add six to eight ounces to forty or fifty gallons of water. The Paris green may be added to the Bordeaux mixture the same as water, and thus apply the fungicide and insecticide together.

Hellebore.—Mix fresh white hellebore one ounce with three gallons of water.

Kerosene Emulsion.—Dissolve half a pound of hard soap in one gallon of boiling water; remove from the stove and add two gallons of coal oil, and churn until it becomes of a thick creamy consistency. Dilute with water, about twenty times its bulk, for use.

Lime and Sulphate.—It is desirable to dilute both the lime and sulphate before mixing, and especially important that the sulphate be poured into the lime, and not the lime into the sulphate. —F. A. Waugh.

Arsenite of Lime.—This insecticide is coming more into popular favor yearly, and is worthy of it. Arsenite of lime is at least one-half cheaper than Paris green, is equally efficient, and will not burn the tenderest foliage at the strength ordinarily applied. To make 800 gallons of spraying mixture: White arsenic, 2 pounds; sal. soda, 8 pounds; water, 2 gallons.

"A Visit to Old Friends."

I would like to know if it is possible to get a copy of the picture in the Christmas number of the "Farmer's Advocate," entitled, "A Visit to Old Friends"?

W. L. A.

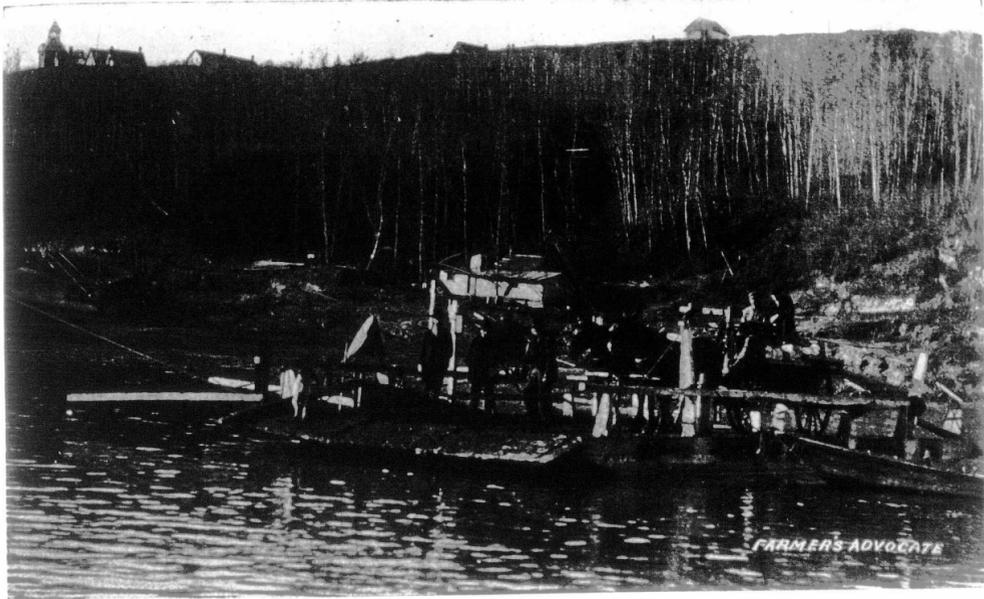
Ans.—Write the painter, Mr. Paul Wickson, Paris, Ont.

Spraying Calendar.

(Recommended by Spramotor Company.)

PLANT.	1ST APPLICATION.	2ND APPLICATION.	3RD APPLICATION.	4TH APPLICATION.	5TH APPLICATION.	6TH APPLICATION.
<i>Apple</i> Scab, codling moth, bud moth.	When buds are swelling, Bordeaux, copper sulphate solution and Arsenites.	Just before blossoms open, Bordeaux. For bud moth, Arsenites, when leaf buds open.	When blossoms have fallen, Bordeaux and Arsenites.	10-14 days later, Bordeaux and Arsenites.	10-14 days later, Bordeaux and Arsenites.	10-14 days later, Bordeaux and Arsenites.
<i>Cabbage and Cauliflower</i> Worms, aphids.	*When worms or aphids are first seen, Kerosene emulsion.	*7-10 days later, if not heading, renew emulsion.	*7-10 days later, if heading, hot water (130° F.) or Hellebore.	Repeat third in 10-14 days if necessary.		
<i>Celery</i> Leaf blight, rust.	*Ammoniacal copper carbonate at first appearance of disease.	Repeat first to keep foliage protected.				
<i>Cherry</i> Rot, aphid, slug.	As buds are breaking, Bordeaux. When aphids appear, Kerosene emulsion.	When fruit has set, Bordeaux. If slugs appear, Hellebore.	10-14 days, if rot appears, Ammoniacal copper carbonate.	10-14 days later, Ammoniacal copper carbonate.		
<i>Currant</i> Mildew, worms.	*At first sign of worms, Arsenites and Bordeaux.	10 days later, Hellebore. *If leaves mildew, Bordeaux.	If worms persist, Hellebore.	After fruit is harvested, apply Bordeaux freely.		
<i>Gooseberry</i> Mildew, worms.	*When leaves expand, Bordeaux. And for worms as above.	*10-14 days later, Bordeaux. For worms as above.	*10-14 days later, Ammoniacal copper carbonate. For worms as above.	*10-14 days later, repeat third.		
<i>Grape</i> Fungous diseases, flea-beetle.	In spring, when buds swell, copper sulphate solution, Paris green for flea-beetle.	*When leaves are 1-7 inches in diameter, Bordeaux. Paris green for larvae of flea-beetle.	*When flowers have fallen, Bordeaux. Paris green as before.	10-14 days later, Bordeaux.	10-14 days later, if any disease appears, Bordeaux.	10-14 days, ammoniacal copper carbonate. Make later applications of this if necessary.
<i>Nursery Stock</i> Fungous diseases.	*When first leaves appear, Bordeaux.	*10-14 days, repeat first.	10-14 days, repeat first.	10-14 days, repeat first.	10-14 days, repeat first.	10-14 days, repeat first.
<i>Peach, Nectarine, Apricot</i> Brown rot.	*Before buds swell, copper sulphate solution.	Before flowers open, Bordeaux.	*When fruit has set, repeat first.	10-14 days later, repeat.	*When fruit is nearly grown, ammoniacal carbonate.	Repeat five at intervals of 5-7 days if necessary.
<i>Pear</i> Leaf blight, scab, psylla, codling moth.	As buds are swelling, copper sulphate solution or Bordeaux.	Just before blossoms open, Bordeaux; Kerosene emulsion when leaves open for psylla.	*After blossoms have fallen, Bordeaux and Arsenites; Kerosene emulsion if necessary.	*8-12 days later repeat third.	10-14 days later, Bordeaux, Kerosene emulsion applied forcibly for psylla.	10-14 days later, repeat fifth, if necessary.
<i>Plum</i> Fungous diseases, curculio.	*During first warm days of early spring, Bordeaux for black knot. When leaves are off in the fall, Kerosene emulsion for plum scale.	When buds are swelling, Bordeaux for black knot and other fungous diseases. During mid-winter, Kerosene emulsion for plum scale.	*When blossoms have fallen, Bordeaux. Begin to jar trees for curculio. Before buds start in spring, Kerosene emulsion for plum scale.	*10-14 days later, Bordeaux. Jar trees for curculio every 2-4 days. For San Jose scale, Kerosene emulsion when young appear in spring and summer.	10-20 days later, Bordeaux for black knot. Jar trees for curculio. When young plum scale insects first appear in summer, Kerosene emulsion.	10-20 days later, Bordeaux for black knot. Later applications may be necessary to prevent leaf spot and fruit rot, use Ammoniacal copper carbonate.
<i>Potato</i> Scab, blight, beetles.	*Soak seed for scab in corrosive sublimate solution (2 ozs. to 16 gals. of water) for 90 minutes.	When beetles first appear, Arsenites.	*When vines are two-thirds grown, Bordeaux; Arsenites for beetles if necessary.	10-15 days later, repeat third.	10-15 days later, Bordeaux if necessary.	
<i>Quince</i> Leaf and fruit spot.	When blossom buds appear, Bordeaux.	When fruit has set, Bordeaux and Arsenites.	10-20 days later, Bordeaux.	10-20 days later, Bordeaux.	10-20 days later, Bordeaux.	
<i>Raspberry, Blackberry, Dewberry</i> Anthracnose, rust.	Before buds break, copper sulphate solution, Bordeaux. Cut out badly diseased canes.	During summer, if rust appears on the leaves, Bordeaux.	Repeat second if necessary.	Orange or red rust is treated best by destroying entirely the affected plants.		
<i>Rose</i> Mildew, black spot, red spider, aphids.	*For mildew, keep heating pipes painted with equal parts of lime and sulphur mixed with water to form a thin paste.	*For black spot, spray plants once a week with Ammoniacal copper carbonate, using fine spray.	*For red spider, spray plants twice a week with Kerosene emulsion. Apply to under side of foliage.	For aphids, spray affected parts with Kerosene emulsion when necessary.		Kerosene emulsion must be used very dilute, as rose foliage is easily injured by it.
<i>Strawberry</i> Rust.	When growth begins in spring, Bordeaux.	*As first fruits are setting, Bordeaux.	As first fruits are ripening, Ammoniacal copper carbonate.	*When last fruits are harvested, Bordeaux.	Repeat third if foliage rusts.	Repeat third if necessary.
<i>Tomato</i> Rot, blight.	As soon as disease is discovered, Bordeaux or a clear fungicide.	Repeat first at intervals of 7-10 days.				

*The most important applications. Add Paris Green to Bordeaux Mixture for plums after blossoms have fallen.



A FERRY ACROSS THE SASKATCHEWAN AT EDMONTON, ALBERTA.

Pruning Apple Trees.

There is no better or more convenient time for pruning the apple orchard than during the latter part of March or first weeks of April. At this period the farmer has ample time to do the work carefully, and, therefore, systematically; but if left until the rush of spring work begins, pruning, if attempted at all, will be done in a hurried and unskilful manner.

If the word "training" were substituted for the word "pruning," the term would better convey the idea as to how the work should be done. The process of training an apple tree into a properly-formed head should begin with the season when it is first set out from the nursery. From three to five branches should be left, starting from the trunk at points which will result in a well-balanced top and without forming a crotch, as this in after years will often cause the tree to split when heavily laden with fruit or during a severe wind or ice storm. I may perhaps touch on this point more fully in a future issue in outlining the work of setting out an orchard.

When the head of the tree has been rightly started, it should receive a light pruning every spring, cutting out such twigs as are growing in a wrong direction or intersect one another, always aiming to keep a well-balanced head in view, fairly open in the center to admit free circulation of air and sunlight, for without these, fully-developed and high-colored fruit cannot be obtained. With trees thus pruned, spraying can be much more readily and thoroughly performed, and the work of gathering the fruit will be much lessened. If the pruning is done every season, most of the limbs to be removed can be cut out with a sharp knife, which is a much better implement than the pruning shears, as these pinch the bark and injure the delicate cambium or tissue of inner bark, and a badly-healed wound results. If through unavoidable cause it is found necessary to remove a large limb, it should be done when the sap is flowing freely through the tree. It should be cut off with a fine-tooth saw as close to the trunk as possible, without regard to the size of the wound, which should at once be covered with a coat of thick paint or soft grafting wax to exclude the rain and prevent drying out by the sun. If treated in this way, a large wound will soon heal over with fresh bark, and not much injury to the tree will result. A quite common practice is to leave a stub of several inches when removing a large limb. When this is done the cambium dies back and the wound does not heal over, with the result that rot enters and works its way into the heart of the tree, which in time is quite destroyed. If one were to go through the orchard several times during the months of June and July and remove, by rubbing off with the hand, all suckers which have made an appearance, a great deal of work would be avoided the following spring. We are always careful when pruning or picking fruit to wear rubber boots or overshoes so as not to injure the bark on the limbs. Different orchardists have different ideas as to training the trees to form high or low heads. A medium course is always safe to follow, endeavoring to get such spreading varieties as Greenings to grow as upright as possible, and an upright type like the Spy to develop a more spreading form, always aiming to keep the center of the tree fairly well open.

F. F. AUGUSTINE.

Lambton Co., Ont.

Desirable Changes in the Fruit Marks Act.

No one can doubt that the Fruit Marks Act is a good thing, at least so it seems to the writer. For certainly it has given definite shape to the former vague yearnings after reform which almost everybody in the remotest way connected with fruit-growing has had in the past. It has made the honest and conscientious packer more careful; he has given more thought to his work and has put himself in the way to learn anything new that could be learned. It must certainly have made the few dishonest growers, who systematically plan to defraud their customers, more cautious as to how they fill up the middle of their barrels with worthless trash; and it cannot help gladdening the hearts of our customers when they find that they can now buy our apples with much greater assurance that every barrel will contain edible apples properly packed. But while all this is most emphatically true, there are, it seems to me, several changes and additions which ought to be made in the law before it shall fully meet the needs of the case. The Act has been most thoroughly discussed by our "Horticultural Club," which meets at the School of Horticulture in Wolfville, and which numbers among its members many practical fruit-growers of large experience.

After a careful consideration of the matter they passed a set of resolutions on the subject, the most important of which are as follows:

"Resolved, that we recommend that the Fruit Marks Act be amended so as to classify apples into four grades, as follows:

"1st.—'Extra,' consisting of extra large, well-grown specimens of one variety, sound, of nearly uniform size and normal shape, and containing not less than 90 per cent. free from defects and properly packed.

"2nd.—'No. 1,' consisting of large, well-grown fruit of one variety, sound, of nearly uniform size and normal shape, and containing not less than 90 per cent. free from defects and properly packed.

"3rd.—'No. 2,' consisting of smaller specimens of one variety, sound, of nearly uniform size and normal shape, and containing not less than 90 per cent. free from defects and properly packed.

"4th.—Either 'drops,' 'culls,' or 'No. 3,' consisting of culls, windfalls, misshapen, inferior or defective fruit.

"And, whereas there is nowhere in the Act any protection given to the grade marks of the grower,

"Therefore, resolved that section 10 be amended so as to provide the same penalty for altering or effacing the packer's grade marks, by any unauthorized person, as for tampering with the inspector's marks."

This last clause was suggested by Mr. R. W. Starr, who had had the marks of poorer grades of fruit shipped to Halifax removed from the barrels and "No. 1" substituted, and the fruit then re-shipped to Newfoundland, with the result that the reputation of his brand was injured.

In reference to the marks for the four grades of fruit, considerable discussion arose as to whether it was better to adopt those suggested or a system of Xs. Several growers present had had consignments sold in England when the one X sold as the lowest grade and the three XXX as the highest, whereas just the reverse was intended, and a member of the club reported that Mr. W. H. Chase, who probably ships more apples than any other man in Nova Scotia, was strongly in favor of discontinuing the use of X as a grade mark. On the other hand, some members thought that to mark a barrel "No. 2" was prejudicial to it, especially in the Liverpool market. But it was pointed out that while this might have been so in the past, this feeling was passing away, and if it could be arranged so that No. 2 apples would differ only in size from No. 1, there would be a good demand for this grade, as many dealers preferred it on account of getting a greater number of apples per barrel.

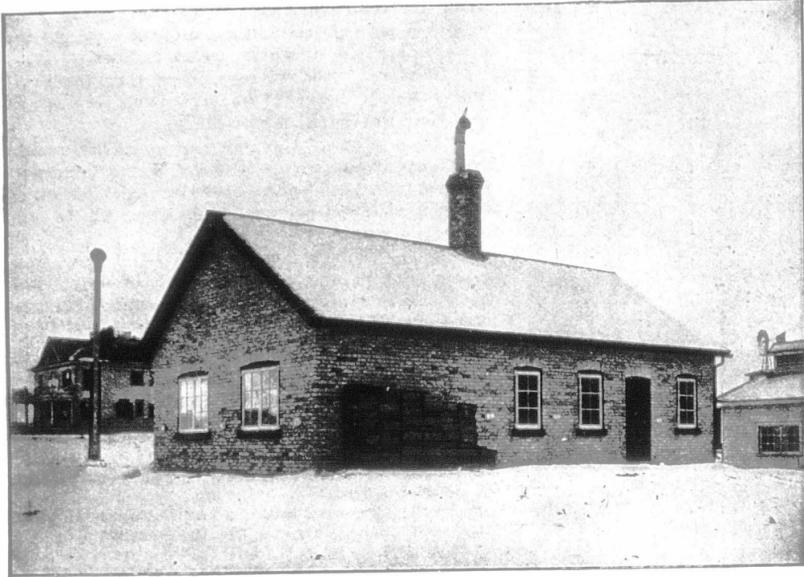
But, however men may differ in opinion as to what grade marks should be adopted, all must agree that some simple system of marking which shall bring about greater uniformity in grades and in the designation of grades is certainly to be desired.

F. C. SEARS.

King's Co., N. S.



INTERIOR VIEW OF ONE OF THE COMPARTMENTS IN BEE CELLAR—SEE ARTICLE, PAGE 218.



EXTERIOR VIEW OF CELLAR.

APIARY.

A Model Bee Cellar.

BY R. F. HOLTERMANN.

In cellar wintering, one says, "Use a sub-earth ventilator"; another one says, "Use a ventilator"; the third says, "No ventilation is required." Again, one says, "Have a temperature of 60°"; another, 52°; another, 42°; while another says that just above freezing (32°) is best. One says outside wintering is better; another, cellar. Let us suppose that conditions are quite alike, and one man says his bees come out all right with a temperature of 52°; the other says his bees will not winter well at that temperature, but he wants 42°. Under these circumstances both can not be correct. The trouble simply is, that one man is satisfied with poorer results than the other.

The proper wintering of bees, and bringing every colony out strong in spring, not only in bees, but vitality, is necessary to success, and the very foundation of successful beekeeping. The sooner we recognize this the better, the more the cost of producing honey will decrease, and the less frequent will be the seasons when we do not obtain surplus honey.

A man asked me, "Are any of your bees dead yet?" Having charge of something like 200 colonies, I answered, "Yes, if you mean bees. There are bees dying continually." He said, "Oh! I mean colonies." I answered no, and I should consider it a very serious matter if any colonies were dead.

What I want to bring out is this: Many are satisfied if they bring the hives out with live bees in every one. No good beekeeper should be content with this. What every one should aim at is to bring them out of winter quarters with the least consumption of honey, and the least possible loss of bees and loss of vitality in the bees. Nothing less should satisfy.

We read grave discussions as to whether bees require the cellar in which they are wintered to be ventilated. When we understand the nature of the honey-bee, its delicate breathing-cells, its abhorrence of impurities, it seems to me a waste of time to discuss such a question. We know how restless we become and how injuriously we are affected when the air becomes foul in the room we are in. Again, the bees consume honey. This turns the saccharine matter in the honey into heat and energy. It expels the water, and if the atmosphere is not changed it must become damp and abnormal. Moisture about the bees, we know to be injurious.

Again, as to the temperature, if a floor has been scrubbed in the kitchen, and we sit down in the kitchen at a temperature of 70, those liable to catch cold run great risk; but raise the temperature and the evil from the dampness is largely overcome. Again, I can be comfortable with an overcoat on when I would catch cold without it. When the temperature of a cellar is discussed, would it not be well to know whether the wooden covers or cushions are on the hive or not? A lower temperature will answer if the cushions are on the hives to prevent heat from passing off. Again, where the humidity is great the temperature must be higher.

I can understand that the more perfect the conditions, the less movement and activity of the bees and the less atmosphere is consumed, and the less stores are consumed. But if there is no supply of fresh air, in time the air must become damp and vitiated, and then the bees become restless and active, and rapidly consume more stores, use more air, and wear themselves out.

etc. They also make pickles, having about 45 acres in cucumbers alone. The blossoms of these, last year, were much appreciated by the bees. They have about 150 acres in alfalfa, and will have a large area in alsike clover. These people having the capital, I proposed going extensively into the bee business, they to furnish the capital, and I to manage, and share in the proceeds. They consented.

Our first step was to plan a bee-cellar—one in which a large number of colonies could be wintered, and wintered well. With the best cellar wintering, and the best outside wintering, the beekeeper can save 7 lbs. of honey by cellar wintering. The bees do not require to generate as much heat, and the temperature does not vary as greatly. Variations of temperature disturb the bees; increased consumption of stores causes increased loss of vitality. The loss in this direction can be estimated only very broadly. Again, an outer case suitable for this climate costs 50 cents, or more. It is our intention to establish out-apiaries until at least 500 colonies are run. A saving of 7 lbs. per colony on 500 colonies would be 3,500 lbs. In wintering, cases would cost at least \$250. During prolonged and steady cold, wintering becomes uncertain, and we considered, in view of this fact, that a honey house, workshop and storeroom were required—that is, it would pay us to build a first-class cellar, and the house above. The cellar is intended to hold the 500 colonies.

The size is 40x24, and 7 feet in height in the clear. The entire cellar is below the level of the ground. It is built in a sand-bank, is double walled, with a 9-inch wall outside, a 3½-inch wall inside, and a 2-inch space between. The ceiling above is a double floor. The first floor is matched lumber, then a heavy felt paper, then ½-inch strips and a tongue-and-grooved floor above. The cellar floor is cement; and, laid in the cement, is a board floor. There is one stairway coming from outside. This is for summer use, and is the stairway down which the bees are carried for winter, and out of which they are taken for spring. Another stairway goes down from the shop above, and is for winter use. The object of this

construction was to secure thorough isolation and no ventilation through the wall. If ventilation comes here, there and everywhere through the walls, the beekeeper has no control over it, and it may come in when he least requires it. By having a proper ventilator, one which can be regulated, he has something like a businesslike arrangement.

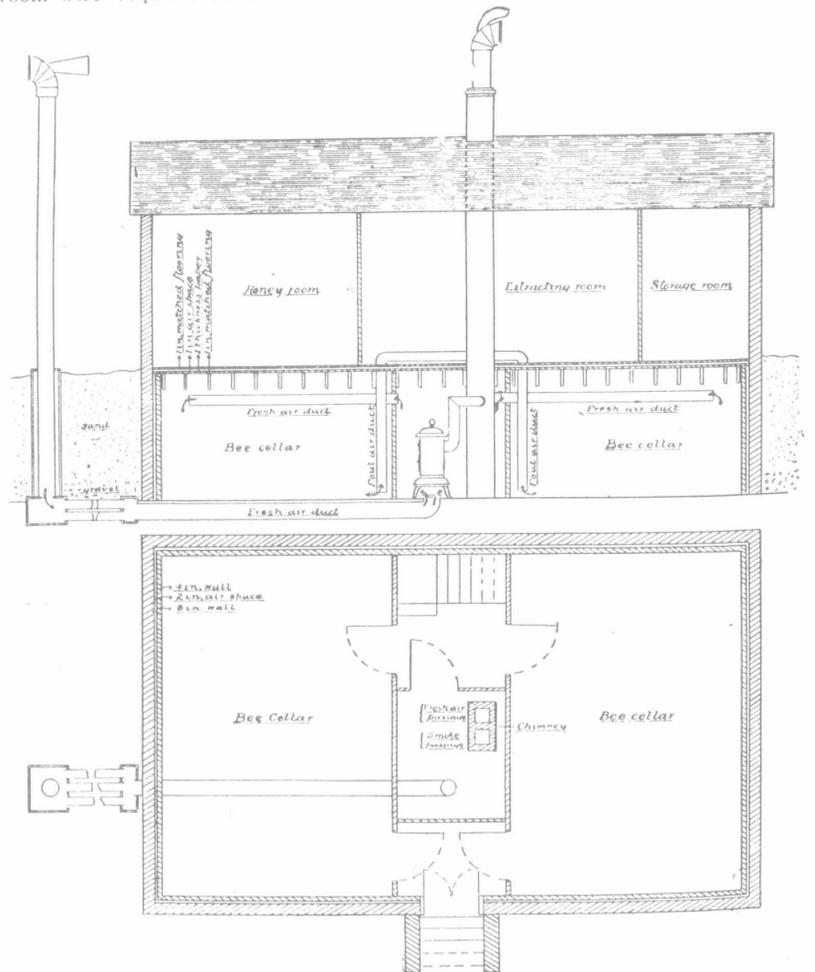
The air comes in at the center of the cellar floor. It is connected with a sub-earth ventilator of three 30-foot lengths of 8-inch glazed tile joined with cement, making it water-tight. It is laid eight feet below the ground, and connects with an upright pipe 25 feet high, and on top of it is a cowl always facing the breeze. The air passes through the sub-earth ducts, and they, being water-tight, can not get any moisture from them—a defect that many sub-earth ducts have. But the temperature is raised by passing through the warm earth, as the temperature of the air entering it rises and becomes more capable of taking up moisture.

In the plan two partitions run crosswise of the cellar, and two, again, join these. In this center compartment stands a self-feeding coal stove, and it stands right over (but two feet from) the floor where the cold air comes in. This stove regulates the temperature, and, after being warmed to the required temperature, it passes into the bee cellars through wooden pipes at the top, which discharge in the far upper and outer corners of the cellars. The stovepipe enters a double chimney, one part for the stove, the other for a foul-air vent. At the opposite side (but nearest to the two wooden partitions) is a foul-air pipe which, by means of vents and stops, can be made to draw the air from either the top or bottom of the cellar. These pipes draw off the foul air, and at the top of the chimney is another cowl, just the opposite of the previous one, which has its back always to the wind, and thus becomes a suction cowl.

In this way temperature and current of air can be controlled. The cellar is new, and 70 of these colonies never had a flight after being two days closed up on the cars, yet all appear to be wintering well—certainly a very severe strain on its qualities for wintering. I find that when cold walls are exposed to the atmosphere, the moisture condenses there; but here not a particle of moisture is apparent anywhere. It is carried to its proper place—outside. A candle (I never take an oil lamp) held close to the cluster shows it dry. The bees just lie there quiet as in sleep. Occasionally a cluster appears slightly active, but the next time this is quiet.

The hives stand on benches 20 inches high in front, 22 at the back. Four hives can rest on each bench, side by side, and four hives can rest one on top of the other.

It will be seen from the bench (p. 217) that the



ELEVATION AND GROUND PLAN OF THE CELLAR.

back of hive is 2 inches higher than the front. I like the back of the brood chamber raised by means of two blocks $\frac{3}{4}$ inch from the bottom board, giving a current of air through the hive. A warm cushion should be placed on top of each hive, especially the top and bottom row. Strong colonies so placed I like to winter at a cellar temperature of 42—perhaps even a lower temperature will answer. If no cushions are used, if the colonies are weak or the bank a clay bank with more moisture, I would raise the temperature some. Note, I keep a thermometer in each cellar, suspended about midway from ceiling to floor, and midway between the fresh-air and foul-air pipe. All these points are important for comparison, but to discuss the question with profit we must get the condition and then compare, and let us not be content with what we should not be content with, and delude ourselves with believing we are doing the best when we are not.

When a man loses in winter a colony with a queen and plenty of good stores, there is something wrong. Many a man gets no honey-flow, because the bees wintered so poorly they could not take advantage of the flow that came, especially early clover or a blossom which stands in a relative position.

In the house above the cellar I have a comb-honey room, a room for extracted honey, and a room for store combs and hives. The first and last are almost air-tight, and can be fumigated. Then there is the workshop.

There are, of course, other conditions, such as good stores, the strain of bees, size of brood-chamber in proportion to the number of bees, etc., which influence wintering, but I have not time to enter into those questions now.—Gleanings in Bee Culture.

QUESTIONS AND ANSWERS.

- 1st.—Questions asked by bona-fide subscribers to the "Farmer's Advocate" are answered in this department free.
- 2nd.—Our purpose is to give help in real difficulties; therefore, we reserve the right to discard enquiries not of general interest, or which appear to be asked out of mere curiosity.
- 3rd.—Questions should be clearly stated and plainly written, on one side of the paper only, and must be accompanied by the full name and address of the writer, as a guarantee of good faith, though the name is not necessarily for publication.
- 4th.—In veterinary questions, the symptoms especially must be fully and clearly stated, otherwise satisfactory replies cannot be given.

Veterinary.

DISLOCATION OF THE PATELLA.

Last August I bought a four-year-old mare, apparently sound. No one has noticed anything wrong. The seller told me that she stocked in hind legs; this continued until the weather got cold, and then disappeared. I noticed from the first that when moving in the stall in the morning her hind ankles would crack, and she also had difficulty in lifting her feet off the floor. I gave her a box stall and have not noticed such symptoms since. When going straight ahead or on the roads there is no trouble. J. E. B. Huntingdon Co., Que.

Ans.—The cracking sound mentioned is not in the ankle, but in the stifle joint. If, when she has this trouble, you place your hand upon the stifle of the affected leg and force her to move, you will feel the bone slip into its place and hear the click at the same time. I infer, from what you say, that both legs are affected. The patella (stifle bone, corresponding to the knee-cap in man) becomes dislocated. When out of place she cannot raise her foot, but the muscular tension caused by her endeavor to move forces the bone into place and she will go sound as long as she is kept moving straight away, but if she stands or is turned around in a short space the displacement is liable to recur. It is not probable that she will be troubled much while in a box stall or at large. You had better give her a long rest in a box stall and blister the inside and front of the joint, or joints, if both limbs suffer, every three or four weeks for four or five times. J. H. REED, V. S.

COLT WITH ENLARGED HOCK.

A yearling colt got kicked on the hock six weeks ago. Our veterinarian gave a bottle of dressing and said it would heal, but a permanent blemish would remain. The wound is healed, but a swelling remains. It is not lame, but rather stiff. E. H. M. Durham Co., Ont.

Ans.—It is probable your veterinarian was quite right in saying there would be a permanent blemish. Enlargements of this nature are very hard to reduce. You may get benefit by using the following: Iodine crystals, 4 drs.; iodide of potassium, 2 drs.; glycerine, 4 ozs.; alcohol, 4 ozs. Rub a little of the liquid into the enlargement with smart friction, once daily. You will require a great deal of patience and it will probably be some weeks before you can notice any improvement, but if you continue you will succeed in reducing the enlargement and possibly in entirely dissipating it. J. H. REED, V. S.

MAMMITS IN COW.

I have a Jersey heifer, two years old last February, came in about a week before she was two years old; milked splendidly. Early in June she came from pasture with the left forward quarter of her udder badly caked clear down into teat. We finally reduced the swelling, but udder would cake once in a while during summer. Did not use any more milk from that teat and dried it up. There was a small bunch came in teat, but got that well cleaned out. Used to use a milk tube and kept teat well cleaned out. She just came in to-day and that quarter again swollen up and teat very hard to milk. We did, once in a while, when cleaning out that teat, get a little heavy matter (sort of white chunk's), and until now the passage has been quite clear. Please advise me through paper as quickly as you can what to do and what you call the trouble, and if I can save teat? Other teats are all right. N. Y. State. F. M. JOHNSON.

Ans.—Your cow has mammitis (inflammation of the udder) in one quarter. This often occurs when the gland becomes active at parturition, and may occur during any period of lactation. The fact that she had a previous attack and that the gland had not quite recovered its normal condition predisposed to the present attack. Feed her on dry food; do not give anything that encourages the secretion of milk. Purge her by giving 1 1/2 lbs. Epsom salts dissolved in a quart of warm water, and follow up with 3 drams nitrate of potash three times daily. Bathe the affected quarter often and long with warm water, exclude drafts, and after bathing rub well with camphorated oil, by adding 1 ounce gum camphor to 1 pint sweet oil in a jar, then put the jar in a hot-water bath until the camphor dissolves. Draw all the fluid you can get from the teat four or five times daily. If a growth comes in the duct and you cannot draw the fluid, you will have to get a veterinarian to operate. If, after inflammation subsides, there be an enlargement of the quarter, rub well with the following liniment twice daily: Iodide of ammonium, 1 ounce; tincture of iodine, 1 ounce; alcohol, 1 pint. J. H. REED, V. S.

CHRONIC LAMINITIS IN MARE.

I bought a nice year-old mare about two years ago. She went tender in off fore foot. My veterinarian said she was a short stepper, but an examination revealed a corn, which has since disappeared. She is still lame, the leg does not swell; the hoof is dry and hard. She sets it out in front sometimes, but usually stands all right. She steps very short and tries to set the heel down first. She is in good condition. Prince Edward Co., Ont. O. K.

Ans.—Your mare has chronic laminitis (founder) and a cure cannot be effected. If you observe the feet closely, you will probably observe that this foot is smaller than its fellow, and also that the wall is uneven or ridgy. The symptoms can be relieved by repeatedly blistering the coronet (that is, the skin just above the hoof, all around). This, of course, would necessitate rest. If you cannot give her rest, you can help the symptoms by poulticing the foot with boiled turnips or linsed meal, or standing in a tub of water for a few hours daily, and getting her shod with a rubber pad such as all good horseshoers should have in stock. If you cannot get the pads, have her shod with a bar shoe giving good frog pressure. The lameness can be removed by the removal of a portion of the nerves of the leg. This operation is called neurotomy, and none but an expert can perform it. It removes the lameness, but does not cure the disease, and, as it is liable to be followed by untoward results, it is better to not operate unless the mare be practically useless from lameness. J. H. REED, V. S.

COMMENCING TO BREED AN OLD MARE.

We have a thirteen-year-old mare by a French stallion, out of a Clydesdale mare. Do you think it would be safe to breed her to a Clydesdale? She has never been bred. Some tell me it is unsafe to start to breed her at that age, while others say it is quite safe. C. D. Ontario Co., Ont.

Ans.—There is a certain amount of risk to be taken by a person who breeds any mare; that risk may be slightly greater when the mare is old and has never bred. My experience has not taught me that age makes a noticeable difference in such cases. I have a favorite mare, now twenty-six years old, and she produced her first foal, without difficulty, at seventeen years of age, and produced in the same manner afterwards every time I bred her. I would have no hesitation in breeding your mare, and certainly would select a good Clydesdale for the sire, but, of course, you must remember that her age is not in her favor and you must assume the ordinary risks of a breeder. J. H. REED, V. S.

CAPPED HOCKS—TONGUE-LOLLER.

About a month ago a two-year-old colt hurt the caps of its hocks. They are swollen, but she is not lame. What will make a horse keep his tongue in his mouth while driving? A. M. F.

Ans.—If the swellings mentioned contain any considerable quantities of fluid, an operation by a veterinarian will be necessary. If little or no fluid be present, blister the parts once every month in the ordinary way until they regain their normal size. This condition is usually caused by the animal kicking and knocking the points of the hocks against the stall. Of course, the cause must be removed else a cure cannot be effected.

You can purchase a bit especially constructed for tongue-lollers in any well-equipped harness shop. No other treatment will be effective. J. H. REED, V. S.

CALF WITH A COUGH.

I have a Shorthorn calf three months old. When three weeks old I noticed him breathing fast, and he refused nourishment. I gave him ginger, oil of peppermint and whiskey. Next day he appeared all right. In a couple of days he began to cough and breathe heavy again. I gave him two tablespoonfuls of salts, with a little ginger; the symptoms continued at intervals for several days, and he did not nurse well. In the meantime, I gave him ginger and whiskey, also a teaspoonful of oil of tar once daily. He breathes naturally now, but his cough is no better. He runs in a box stall with other calves, and is well fed. His dam is in good condition, and gets nothing but wholesome food and water. Simcoe Co. G. C.

Ans.—The symptoms given indicate tuberculosis. I cannot say for certain that he is affected, but advise you to have him tested with tuberculin, and if he react it would be well to destroy him, as, if the disease is causing a cough at this age, it is dangerous to have him with other cattle, and he will probably not live to adulthood. It may be he simply has a chronic cough. The test will decide this, and if so, a blister applied to the throat will help him, and it is probable the trouble will disappear when the weather becomes fine and he gets on grass. J. H. REED, V. S.

FETLOCK ENLARGED FROM INTERFERING.

I have just purchased a ten-year-old mare with right hind fetlock enlarged, as the result of interfering. She has been carefully shod lately, and now goes without striking. There is a scab on the swelling, and a small windgall on the opposite side of the leg. N. B. S. B. H.

Ans.—Enlargements of this nature and windgalls are very hard to reduce. It is probable they will never cause lameness, and unless she is a valuable animal and you are very anxious to have her clean, I would advise you to leave her alone. I presume you are not very particular about bunches of this kind, else you would not have bought her. Long rest and repeated blistering will reduce the lumps. If you cannot give her rest, rub a little of the following liniment into the parts once daily with smart friction: Iodine crystals, 6 drs.; iodide of ammonia, 1 oz.; iodide of potassium, 3 drs.; glycerine, 6 ozs.; alcohol, 6 ozs. J. H. REED, V. S.

IRREGULAR STRANGLES.

I had a year-old colt, which took strangles about 12th of January. He gathered under the jaws, which I poulticed and afterwards lanced. It soon healed up and he regained his appetite, but did not recover his spirits. About 12th of February his appetite again failed and on 17th he refused to eat. I gave him a dose of physic. He seemed very thirsty; I gave him water in moderate quantities and often. He died on 20th. On opening him, found an abscess on bowels, near kidneys, about size of quart. 1. Was this abscess caused from strangles? 2. Are abscesses liable to form in any part of body, and if so, can anything be done when forming internally? 3. What treatment would you recommend for strangles? Lanark Co., Ont. SUBSCRIBER.

Ans.—1. The abscess was the result of strangles. This disease is of two forms: 1st, regular strangles; 2nd, irregular strangles.

2. In irregular strangles an abscess or abscesses may form in any part, and if they involve an important internal organ, death will be the result. The presence of these can only be suspected, and if known, nothing could be done.

3. Treatment for strangles consists in good care, steaming the nostrils, poulticing or blistering abscesses that are forming and opening when pus has formed. Antiseptics, as hyposulphite of soda, in 2- or 3-dram doses, should be given three times daily, and, of course, all complications must be treated according to symptoms. J. H. REED, V. S.

DOSE FOR A SOW.

Would 2 drams (1/2 oz.) nux vomica be too large a dose for a large sow? Leeds Co. SUBSCRIBER.

Ans.—One dram, either in the form of powder or tincture, would be a sufficient single dose.

GROWTH ON MARE'S LEG.

A two-year-old mare had a raw spot about the size of a five-cent piece on one of her hind legs, just where the tongue or tug would rub her. She has been idle all winter. The raw surface has been gradually increasing in size and is now about as large as a silver dollar, stands out about an eighth of an inch above the level of the skin, is raw all the time and occasionally bleeds when she lies on it.

Ans.—The growth is an epithelial tumor. Apply a little butter of antimony once daily with a feather. When it is reduced to the level of the skin and all diseased tissue has disappeared, dress three times daily with carbolic acid 1 part, sweet oil 60 parts.

Miscellaneous.

RESCUING A BLACK MUCK SWAMP.

I have about sixty acres of black mud swamp, and spent about \$1,000 draining it. It overflows in the winter and would dry off about the middle of June, too late to do anything with. I put in a stone drain, 70 rods through a piece of upland, some places 20 feet deep. I made the drain about 2 feet square and 3½ feet below the surface of the mud. I have two open drains through the lake, as we call it, and underdrains through about 20 acres, every 26 feet, 3 feet deep, of sawed lumber. I first got my ditch the right level, then I put planks in the bottom, laid a piece of scantling on each side (2 by 4), then a plank on top spiked to the scantling; next, plenty of brush and filled it in with the mud. The place was covered with hardhack bayberries. I have about 20 acres cleared and about 4 acres crop. Last year I top-dressed with barnyard manure and sowed oats on the most of it. They grew all right, but lodged some. I seeded it down with timothy and clover. I tried a small piece with potatoes, planted a half bushel of seed and I had eight barrels. I would like to get this place into hay as fast as I can. I find it wants something to make it produce a good crop. Barn manure and wood ashes seem all right, but it is hard to get either in large quantity. If you could suggest some kind of fertilizer that would be as good and cheap as barn manure at 50 cents a load, I would be very glad. I wish to plant say 10 acres of potatoes this spring. How would lime work? How much per acre would it require, if you recommend it at all? I had a few turnips last summer, they all ran to tops five feet high. What was the cause of it? Some stalks of the oats grew 8 feet long.

King's Co., N. B.

ALSTON GODDARD.

Ans.—Our correspondent deserves praise for his energy and enterprise in attacking the big swamp, and we trust he will be well repaid for the labor and money he has expended. The draining so far has been done thoroughly and the depth correct. Turnips on such land are apt to run to tops, though if left thin enough, say two feet apart in the drill, and drills 2½ feet apart, immense crops of roots are often produced. The crop mentioned was probably much too thick. A few seasons' cropping should, we think, tend to correct the tendency on such a soil to rank growth. Though 50 cents per load is pretty high for stable manure, we know of no artificial manure that is in ordinary farm practice anything like as good value. Lime is not, properly speaking, a manure—it is a stimulant. The increased crops which result from its use are taken directly from the soil, not from the lime, and impoverishment sometimes results. Caution in applying it is therefore necessary. On peaty soils, such as our correspondent has and which are already rich in nitrogenous material, its use is recommended and gives almost uniformly good results. Apply one to two tons per acre every five or six years. Prof. Harcourt answers a question as to lime on land in Feb. 15th issue. Writing on the question of the effect of various manurial elements, Prof. Roberts, in a recent work, says: "Nitrogen stimulates the vegetative system and tends to produce rapid growth and dark foliage. Phosphoric acid, among other effects, has that of producing well-developed, plump seeds and fruits; potash may augment these effects as well as increase and intensify the color of the bloom."

B. C. RANCHING.

On page 119, of February 15th issue, you give a view of a cattle round-up in Kamloops, B. C. Can you give me the name of the proprietor or of any rancher in that section of the country. We wish to go out there this fall, and would like to correspond with someone there with a view to getting necessary information.

Middlesex Co., Ont.

E. A. WILLIAMS.

Ans.—Write John Peterson, "Willow Ranch," or Chas. Humphrey, Kamloops, B. C. Useful information regarding the Province could also be secured from J. R. Anderson, Deputy-Minister of Agriculture, Victoria, B. C., or Thos. A. Sharpe, Experimental Farm, Agassiz, B. C.

STAVE SILO FOR SMALL HERD.

1. How many feet in diameter would you advise building a stave silo to feed 14 head of cattle, so that silage would not spoil between feedings?

2. Would a clover sod plowed this spring yield a satisfactory crop of corn, without manure?

Waterloo Co., Ont.

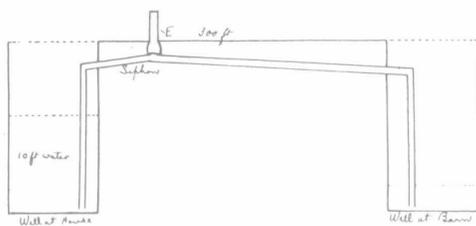
J. D.

Ans.—1. A stave silo 10 feet in diameter and 21 feet high will hold about 28 tons of well matured corn silage. A 10 by 24 ft. silo will hold 34 tons; a 12 by 20 ft. silo will hold 38 tons, and a 12 by 24 ft. will hold about 50 tons. On the basis of feeding a daily allowance of 40 lbs. per head for a feeding season of 180 days, and a crop of 10 to 12 tons per acre, 14 cows would require the product of 3 to 4 acres of corn. Considering all things, we would advise a 12 by 24 ft. silo, as one has to allow for about 10 per cent. shrinkage. That is, if 90 tons of silage is wanted, about 100 tons must be placed in the silo, and from a silo 12 feet in diameter enough would be fed off each day to keep the silage from spoiling, while 16-ft. lumber would work in all right, part of the boards being cut in two for splicing, breaking the joints; besides, it is desirable to have some silage left over for summer use in a dry time, if pastures fail.

2. If the land is rich, or in real good heart, a fair crop of corn may, with good cultivation, be grown without manure from clover sod plowed this spring. We have seen a very heavy crop grown from sod top-dressed with short manure before plowing.

CONVEYING WATER BY SIPHON.

A subscriber inquires as follows: "I have a good well at my house, but the well at the barn, 300 feet distant, does not supply sufficient water for the stock. There is a very slight fall, less than a foot between the two, the ground at the barn being a shade lower. The well at the house is 21 feet deep and the well at the barn about 20 feet. The latter is a clay bottom and will hold water emptied into it. The well at the house has about ten feet of water. I do not want to go to the expense of a windmill and tank at the house. Can I get the water from that well to the well in the barn by pipes, using the principle of the siphon, and if so, how? If that is not workable, can you suggest any other inexpensive plan?"



Ans.—The water from the well at the house being 10 feet deep, and therefore standing about 10 feet higher than the bottom of the well at barn, a siphon will operate successfully in this case. A 1-inch or 1¼-inch iron pipe extending near to the bottom of the well at the house, and laid as in the accompanying diagram, running somewhat below ground, and at the other end extending near to the bottom of the other well, is the principal part of the apparatus required. In addition, an air pump will be required to start the siphon and to pump out the air which may occasionally accumulate in the siphon. A hydrant, with check valve or stopcock below, may be placed at the highest point of the siphon (at E in the plan), and to this an air-pump or ordinary suction pump may be attached to fill the siphon and occasionally to pump out the air if any should accumulate. I believe this siphon will work continually except for an occasional gathering of air which escapes from the water. It will be necessary to have both ends of the pipe below water, then the air-pump at E will exhaust the air from the pipe and fill the pipe with water. The pump may then be stopped and the siphon will work of its own accord so long as there is a difference in level between the water surfaces in the two wells. So far as leaking air is concerned, there is less danger of a slight leakage stopping the siphon if the siphon is built exactly in the shape indicated by the sketch, viz., running up to the hydrant and down again at an angle, instead of a considerable length of horizontal pipe. With considerable slope, the air is more likely to be carried out.

J. B. REYNOLDS.

Ontario Agricultural College.

WEIGHT OF CREAM.

How many pounds of cream are there in one gallon? We sell our cream by the gallon, and are anxious to know the right amount.

Halton Co., Ont.

SUBSCRIBER.

Ans.—There is no standard weight for cream in Canada. Owing to its larger fat content, the specific quantity of cream would be slightly less than milk, but not sufficient to make a material difference in the weight. The weight of milk of good average quality is 10.3 lbs. per gallon.

REMOVING HAIR FROM HIDES.

We enjoy your paper very much, and find the "Questions and Answers" especially helpful. In the edition of January 15th, a recipe is given for tanning skins for robes or mats. I am quite anxious to learn how to remove the hair in tanning, as this is something I do not understand.

Algoma District.

WM. HUNT.

Ans.—Tanners remove the hair from hides by soaking them in a bath made by slacking lime in water, leaving calfskins in for about two days and cow hides for three or four days. The length of time depends upon the nature of the hide and the sort of leather for which it is intended. Experience will tell when it has been in the solution long enough to loosen the hair so that it has to be pulled or scraped off with a knife. The particles of lime must all be carefully washed out, otherwise the skin will be left in a hard condition. If you have only one or two skins to remove the hair from, it would probably be better to put some lime to slack in the evening and next morning work the lime and water into a soft paste and carefully rub it into the hair all over the hide. If the hair does not begin to loosen in a couple of days, apply more and test by pulling with the hand occasionally.

WEIGHT OF SILAGE—SILAGE VS. HAY—OAT SHRINKAGE.

1. How many cubic feet are there in a ton of ensilage in the bottom of a silo? 2. What is it worth compared with the price of hay? 3. What is the shrinkage of stored oats? I threshed in August, leaving the grain in the barn until the following spring, when I drew it to the storehouse, where it remained for ten months. When I sold it, the buyer asked 6 per cent. off for shrinkage, which I consider too much.

Hastings Co., Ont.

J. S. MCGURN.

Ans.—1. Corn silage varies in weight from 30 lbs. to 50 lbs. per cubic foot, according to the depth in the silo from which it is taken and the amount of moisture it contains. On an average, 1 cubic foot weighs about 40 lbs., or 50 cubic feet to a ton.

2. In a test at the Maine Experiment Station, Jordan, comparing hay with silage in feeding milking cows, and estimating the latter at \$10 per ton, found that the silage used would be worth \$2.25 per ton; but it was very watery, and had it been silage of average quality, its value on the above basis would have been \$2.62.

3. We believe that oats shrink more than any other grain, next barley, and then wheat and peas. The amount of shrinkage varies with the condition of the grain when threshed, chiefly its dampness. But after being threshed some seven months and then stored, if in good condition at that time, there should not subsequently be more than say 2 or 3 per cent. shrinkage, if free from mice and in proper bins.

TURNIP BLIGHT.

About the beginning of September last, my turnips took a blight—the leaves turned yellow, and they did not grow much more after that. In October, at digging time, about one-half of the turnips had rotted. I dug what was sound and let the bad ones remain in the field just where they grew. Would it be safe for me to put turnips on this same piece of ground this year? The land must be rich enough, as it had a fair dressing of manure last spring.

Simcoe, Ont.

G. C.

Ans.—The turnips were probably affected by plant lice, which breed on the under side of the leaf and suck the sap from it, causing the turnips to rot at the crown. This trouble is liable to occur during a season of drouth. As a rule, early-sown turnips are more liable to this visitation than later-sown. The best remedy is spraying with kerosene emulsion, which is readily done, having the spramotor in a cart or wagon, and spraying half a dozen rows at once. We would think it quite safe to sow turnips on the same land this year, and moisture can be better retained by not plowing in spring, but harrowing and cultivating occasionally after showers, and sowing on the flat or on slightly-raised ridges.

WIDENING A BARN.

Having heard of a new way of sawing barns through the center lengthwise to widen them, I wish further particulars. I have a barn 30 x 50 feet. How can we best make it 14 feet wider and raise it on a 9-foot wall? Have any of the readers sawed a barn through the center lengthwise, spliced the beams and put the extra piece in center? Is a hip-roof preferable to a straight one? If so, why?

Haldimand Co., Ont.

SUBSCRIBER.

Ans.—Barns are widened both by splitting them, moving one half out and putting in a new section in center, or by putting an addition to the side and altering roof, but we believe the former is less troublesome. In that case, the barn must be altered before being raised up for building basement wall. Better consult your framer and show him the barn. The writer's preference is for a hip roof.

TRESPASS—SPEARING FISH—NEIGHBORING FARMERS.

1. A farmer, owning in Ontario 400 acres of land in a square block, with a small river running across it and no public highway leading to the river or the banks thereof, wishes to know: (a) Can fishing parties cross over enclosed land to said river without committing trespass? (b) Can parties from adjoining lands, boating on said river, go on and along the shores of said river? (c) If so, how far can they go from the river's edge before committing trespass?

2. Is spearing fish prohibited?

3. A and B own enclosed adjoining lands. There has never been any dispute about the title-line, or fence; and each party built his share of fence (20 years ago or more). B makes an opening in the portion of fence he built and drives his stock to water at a ditch on A's side, some distance from the fence. A has on several occasions laid up the fence and forbidden B from letting it down or entering upon his land. B appears to ignore A's notice and continues to let down the fence and come on A's side to water his stock. A goes to a justice of the peace and states his case as above. The justice tells him that B is a friend of his and he does not wish to act, and, at all events, he believed that if B would say that he thought he had a right to do the act complained of, his (the justice's) jurisdiction would be ousted. The justice did not seem to think the above offence would come under the Ontario Petty Trespass Act. A (being a justice himself) referred the justice to the Criminal Code, 1892, section 507. The justice did not think the case would come under the above-mentioned section, and said to let the matter drop, if the grievance was not too great, or take it to the Division Court for adjustment. (d) Can the above case be tried under the Ontario Petty Trespass Act? (e) Could B be successfully prosecuted under sections 207 or 507 of the Criminal Code for damaging the fence? (f) Is the nearest justice (the one complained to) justified in his course pursued, or in declining to act?

Ans.—1. (a) No. (b) and (c) No.
2. It is as to some; for instance, trout, bass, pickerel, etc.
3. (d) Yes. (e) No. (f) No.

GIRDLED TREES.

1. How can mice be kept from the orchard trees in winter? 2. What should be done to trees that are found, when the snow is gone, to be eaten by these creatures? My orchard is much damaged.

Ans.—1. Before winter, bank up the clay like a small mound about the foot of the trees, and after the snow falls tramp it down firmly about the foot of the trees occasionally.
2. Wounds or girdles may be bridged by cions. Trim the edges of the girdle to the fresh, firm bark tissue, insert cions (which are whittled wedge-shape at each end), draw bandages around the trunk so as to hold the free edges of the bark and the ends of the cions, which are slipped in under the bark, and pour melted wax over the work. This is done in spring with dormant cions. Prevent the buds from throwing out shoots. If cions are placed close together they will soon unite along their sides and make a continuous covering of the wound. One of our staff treated a young Russet tree in this way, some years ago, the latter part of March or early in April, and though only three cions were used, the girdle was healed and the tree is still healthy and bearing.

SOWING BEANS.

What quantity of beans does it take to seed an acre, and how is the best way to sow them? Could they be sown with the grain drill, and should it be set to sow them? There is no table for beans with the drill. Could one sow three rows with an eleven-tube drill?

Ans.—Beans can be drilled by a grain drill, and three tubes used, easily on an eleven-tube drill. About 28 or 30 inches apart make a very good distance. One bushel per acre is plenty. Can set drill about same as for peas, or a little more open. Your better way would be to try an acre, as difference in size of beans would cause them to run out slow or fast. Drill on some soils does better than a regular planter. Don't put in too deep, and if ground is very dry, better run a land roller over after drilling, to retain moisture around the bean. Work land well before planting and you will have little difficulty in growing a good crop. Cultivate freely until beans begin to blossom.

DYSPEPSIA CURE WANTED.

Mr. H. J. Fry, Wellington Co., Ont., writes, asking for a recipe to cure dyspepsia, given in the "Farmer's Advocate" some time ago. We are unable to find it in our files, but possibly some reader can supply the information.

ORNAMENTAL TREES ON CLAY SOIL—BASTARD SPRUCE.

1. What kind of ornamental trees will grow in good clay soil, but shallow, being between one and four feet deep in different places?

2. I planted a spruce hedge two years ago; a few died the first year. Last year I planted others in place of these, but they are evidently a different variety from the first, and I have been told are what are called bastard spruce. Do you think they will grow equal to the others, or should I take them out and plant others this year?

Ontario Co., Ont. ENQUIRER.

Ans.—1. Your question is so indefinite that it is difficult to give a satisfactory answer. In saying that the soil is from one to four feet deep, you do not state whether it is lying upon rock or subsoil. If the soil is only from one to four feet deep and lying upon hard rock, it would be difficult to grow most any kind of tree satisfactorily, as this depth of soil would not hold moisture enough to supply the tree in case of severe drought. If the underlying soil is not impervious to water, but would hold a supply that could be drawn upon by the trees, this would answer in times of drought. With reference to the nature of the soil, I may say that, although trees differ much in their habit of growth upon different kinds of soil, yet most trees have wonderful powers of adapting themselves to different kinds of soil, if other conditions, such as climate and surroundings, are favorable. If the soil is in good condition and is not too shallow to hold soil moisture for growth, an endless variety of both deciduous trees and evergreens might be grown. To give anything like an extended list of these would probably take more space than is necessary. Of the large deciduous trees, we might mention the different varieties of maples, birches, elms, ash, oaks, basswoods, etc. Of the evergreen trees, the different varieties of pine, spruce, arbor vitae.

2. There are a number of varieties of spruce. The one most planted is the Norway spruce, which is a more rapid and stronger grower than any of the native varieties, such as the White or Black spruce. I cannot say that I have ever heard the term "bastard" applied to any of these, and perhaps this term is a local one, probably applied to a less vigorous growing tree. In making a spruce hedge, it is of course advisable to plant all of the one kind, for if the White or Black spruce should be mixed in the row with the Norway spruce, they would never be able to keep pace with it, and would eventually be crowded out. If, then, the trees of the second planting were of some other variety than the first, it would be better to replace them so that they may all be alike. This would make a more uniform hedge.

Ontario Agricultural College.

LAWN AND HEDGES.

We are thinking of leveling our lawn and planting some hedges. 1. There are some trees on lawn, would it be advisable to plow up lawn or draw earth and level over the top of old sod? What kinds and what quantity of seeds should be sown on a lawn? 2. What kind of nursery evergreens make the best hedge? 3. If cedars are used, does it make any difference whether taken off dry or swampy ground? What size should cedars be when planted for hedge? When may hedges be planted?

Waterloo Co., Ont. W. M.

Ans.—1. It is purely a question of convenience. You would be more likely, however, to make a good job by plowing up. Places that are bared should be enriched. Kentucky blue grass, red-top and white clover seed mixed are sown on lawns, about a pound for 1,000 square feet. Some lawns nowadays are sown with white clover alone, but after a few years our native June grass (which is blue grass) will displace it or anything else that may be sown.

2. Norway spruce.
3. From experience we can say that cedars, and pines also, are more certain to grow if taken from swampy than from high land. The reason, we suppose, is that as the roots are nearer the surface, more of them are taken with the tree when lifted. In choosing cedars for a hedge, take those from 2 to 3 feet high; cut back to 18 inches on planting, rather than smaller. Evergreens can be planted any time from 1st of May till the middle of June, though early planting is safest. The ground on either side a hedge should be hoed for the first year at least. It is well, the year a hedge is planted, to put some extra trees in a clump in good garden soil, where they will develop fibrous roots and be in fine shape the next year to replace any that may have failed to grow.

"CREAMERY" BUTTER.

I notice, in your February 15th issue, the question if it was lawful for farmers using cream separator and making up their butter on the modern system, and having their name and "creamery" butter printed on the wrapping paper? 1. On what authority does the answer of the question condemn us for so doing? We never heard of it being a criminal act. 2. Why is it that farmers cannot make their own butter on the same principle as they do at the factories, and put their own stamp on it, and call it "creamery" butter? The storekeepers here insist on us doing it, and they give us the same price as they do for butter made in factories.

Waterloo Co., Ont. READER.

Ans.—1. We would refer you to the Criminal Code, 1892, and especially to sections 443, 446, 448 and 450 thereof. Knowledge of the law is presumed, and ignorance of it is not regarded, legally, as affording a valid excuse. 2. It is the use of the word "creamery" that is objectionable, as it is so as being calculated to deceive the public. If the package were marked "private creamery," or by some such designation, the objection would be removed. The common understanding is that "dairy butter" is that made on the farm by a private dairyman, while "creamery butter" is that made at a creamery or factory. In this latter case it is done on a larger scale and the product is usually, though not necessarily, of a more uniform character. A private dairy, properly equipped and conducted, can turn out butter equal in quality to a creamery, and some city customers, as a matter of fact, prefer it. To get the best results in either case, the same principles governing the process of butter-making must be observed. It is not a question of having a cream separator at all, but simply that of the customer being led to believe that he is getting butter from what is known as a "creamery," when it is from a private dairy.

RE LUMP JAW IN CATTLE.

I noticed in your issue of January 1st an enquiry re cattle infected with lump jaw; also your answer, which I must say a little surprised me, for I have been told by several vets. of repute that sub-section 5 of the "Animal Contagious Diseases Act" exactly suits the case in point. If not, what does it mean? Surely, to allow an animal with a rotten open sore to run at large would be a wrong and a violation of the Act, as good authorities claim that this is a speedy way of spreading the disease known as actinomycosis or lump jaw in cattle?

Ans.—The Act referred to (R. S. O., chap. 273) does not apply to the case of cattle having lump jaw. By section 1 (a) the word "disease" used in the section referred to (5) must be construed as meaning "glanders or farcy."

HOW TO USE NIGHT SOIL?

I would like, through the columns of the "Advocate," the experience of those who have used "night soil" on their farms, as gathered from the system known as the "dry-earth" system. Dry earth or ashes are ordered by the board of health to be used in each closet, and the closets emptied every month or six weeks. The crop that will give best results from this kind of fertilizer on a sandy soil, and best method of applying it? Does it depreciate in value rapidly if allowed to remain in piles in the field and not covered with soil? Any information will be appreciated.

OLD SUBSCRIBER.

SICK HENS—CONGESTION OF THE LIVER.
Hens go around and seem blind for a few days and then die. On opening, find the liver very large and charged with blood; in some so large that it entirely filled the fowl. Birds are Plymouth Rocks. Fed on wheat, barley, meat scraps, cabbage, potatoes, etc. Younger birds seem to be the ones affected. Please give cause and cure?
SUBSCRIBER.
Keyes, Man.

Ans.—You have been too good to these hens, and have not made them work hard enough for their living. You might try giving half a teaspoonful (not heaped) of Epsom salts to each bird and thus purge them. You can increase or decrease the dose slightly, depending on the size of the bird. Medical treatment in poultry is generally of little use. Feed less. Don't feed any meat scraps, and make them work hard by scratching in straw or fine litter for what grain they get. Grain, only a little at night, besides what they work for in the straw. Plymouth Rocks seem predisposed to this trouble.

HAMPSHIRE SHEEP.

1. Are there any breeders of Hampshire sheep in Canada? 2. Would it be a good cross to cross a longwool ram with Shropshire or Oxford ewes? 3. What breed of sheep is best for wool and mutton combined?

Ans.—1. M. H. Cochrane, Hillhurst, Quebec, and John Kelly, Shakespeare, Ont., are breeders of Hampshire sheep. 2. No. 3. It is a matter of opinion and of choice; most of the breeds are good for both purposes.

MISCELLANEOUS.

A DEED—RECKONING WAGES.

1. A gets involved and his farm is sold at sheriff's sale, and B buys it and gets a sheriff's deed of it. After a number of years, B sells to C. What sort of a deed should B give to C? Would it be a quit claim or a common deed?

2. I hired a man for eight months. He put in about six. By counting 26 days to the month there would be some odd days over. Would the man be entitled to get pay for the odd days?
King's Co., N. B.

SUBSCRIBER.

Ans.—1. Judging, as we must, from your statement of case alone, we should say a deed of conveyance in the ordinary statutory short form. A "quit claim" deed would certainly not be appropriate.

2. No.

FEED FOR WEANLING PIGS.

What kind of food is the best for little pigs after being weaned from the sow, when we have no milk? I have some notion of feeding some. Would there be any profit for me if I bought my grain?

W. C. P.

Prince Edward Co., Ont.

Ans.—Shorts and kitchen swill are the best foods we can advise. If enough swill cannot be had, water would have to take its place when the pigs grow older, and biscuit dust from a biscuit factory might be used to advantage, mixed with hot water and allowed to cool, or the mixture cooled by adding cold water, but if the whole is fed lukewarm it will aid digestion. At present prices of grain we do not see that any considerable profit can be realized from feeding pigs where the grain must be bought.

A HOMEMADE DRINK—CIDER PRESSES WANTED.

You would greatly oblige by giving a recipe in your paper how to make grape wine; also, where cider or apple presses are to be got, and the price of them?

JAMES F. GRIERSON.

Lanark Co., Ont.

Ans.—1. Take twenty pounds of Concord grapes; bruise them and put a little water on them, and simmer slowly in a porcelain kettle for an hour; then press and strain; boil slowly for a short time and skim well; add four pounds of white granulated sugar, to be put in when nearly done, to prevent burning; put hot into self-sealing bottles or jars, like fruit. If too thick when using, dilute with water. The above makes a healthful, delicious, non-intoxicating drink, one that is much relished by sick people. Some use less sugar than the amount given.

2. Enquire of the Grimm Manufacturing Co., Wellington St., Montreal.

SPELT ASKED ABOUT.

Enquiries are reaching us from all quarters in regard to spelt, and where seed can be got? On the latter point consult seedsmen who advertise in the "Farmer's Advocate." Most of them can supply it. We judge that it will be carefully and generally tested this year. We advise readers not to go too extensively into novelties until their merits in the locality are proven. It is a sort of intermediate between barley and wheat, valued in Europe as a stock food either for grain-feeding or soiling purposes, and well adapted for poor land. The results of the co-operative experiments by the Ontario Experimental Union last year show an average yield of 24.1 bushels per acre grain and 1.5 tons straw, beating the spring wheats and some of the barleys. From Lambton Co., Ont., we had reports of yields ranging from 28 to 40 bushels per acre, and a very favorable report from Oxford Co., Ont. Would be pleased if other readers who have given it a fair trial would report results and the plan of cultivation and feeding grain that are most satisfactory.

GRASS FOR WOODLAND—LIME FOR CLAY LAND—BOOK ON ALFALFA.

1. Have a portion of beech and maple woodland on our farm. Have thinned it out and am anxious to get it to grow pasture. Can you or some of your subscribers inform me what grass seed is best adapted to shady land, as we left a scattering of small trees?

2. Have a field which I intend to seed this spring; is heavy clay. Which is better for the land, common red or alsike? Would lime help to loosen the ground?

3. I saw some time ago (I think, in your paper) a book offered by some publishing house on alfalfa. Where can I get this book?

Kent Co., Ont.

S. H.

Ans.—1. Orchard grass and Kentucky blue grass do well in shady places. Timothy would do to begin with, and the natural grass (June grass), which is much the same as blue grass, will in time take possession, crowding out the other.

2. The common red clover is best for the land, but it is well to mix this and alsike, which is more fibrous-rooted and sometimes holds longer in the ground. Lime is said to have the effect on clay soils of opening channels, which render them more friable and porous and produces conditions which allow freer passage of water downwards and of moisture upwards by capillarity, liberating mineral matter and securing more comfortable conditions for plant roots.

3. The book on alfalfa, by F. D. Coburn, can be had from this office. Price, 50 cents.

WASTE WATER FROM DWELLING.

I am thinking of putting a sink in the kitchen of my house this spring, and had intended to use 4-inch drain pipe with a collar attached, and to run contents of sink a distance of 100 feet north of the house to a cesspool, which I would build. I might say we have very little fall to the land, and a cesspool is the only way convenient. Would be obliged if you would tell me the size, shape, and material to use in construction of pool? The family is a small one, and the quantity of water would be about five or six pails a day emptied in sink.
Lincoln Co., Ont.

Ans.—If your soil is sufficiently porous so that the water will soak away rapidly, a big oak barrel or puncheon without a bottom, put down so that it can be covered with planks and a couple of feet of soil to protect from frost, will serve the purpose; but if the water has to be pumped out and removed regularly, you will need something more substantial, say of brick, large enough to hold several barrels of water. There must be a 3 or 4 inch vent pipe from this tank or barrel to let off any gas that might form. The 4-inch pipe from house to pit must have a fall of at least 1 inch in every 10 feet, and be below the frost line throughout. Between the sink and the pipe there must be a trap, and the pipe itself (2-inch) must continue on up through the roof as a vent for the escape of gasses that form in the pipe and pit. A portion of that work must be done by a competent plumber.

CORN ENSILAGE—GRASS PEAS—MANURING FOR MANGELS.

1. As the bugs have destroyed our pea crop, would you advise growing corn to feed to sheep in place of pea straw? Would sheep thrive on cornstalks and pulped turnips the first part of the winter, say for three months?

2. Would you advise me to sow grass peas on sod "spring plowed" that had not been broken up for a number of years; if so, how much seed per acre?

3. Would it be profitable to sow mangels on a poor piece of land if it were well manured in the spring, not having it to put on in the fall?

4. Would you advise a young farmer to borrow money to improve his farm by draining low land, putting in cement floors, re-shingling, building new fences, putting up stonework, etc.?
Durham Co., Ont.

W. J. S.

Ans.—1. Corn fodder is being used more than formerly as roughage food for sheep, and is highly thought of by some. We know of one prominent sheep-breeder who wintered his sheep once without any other rough food, and uses it largely every year. He puts it through a cutting box.

2. Grass peas are an excellent substitute for ordinary peas, and give a fair yield. Sow five or six pecks per acre. We could suggest nothing more suitable than spring-plowed sod. Many farmers in Middlesex County will sow this year a mixture of grass peas and Banner oats, about three pecks peas and six pecks oats per acre, last season's yield being so satisfactory. Are cut with the binder.

3. Spring manuring for mangels answers very well, either put in the drills and covered up or plowed under.

4. For advice as to whether a young farmer should borrow money for improvements, look up an article on "Starting Farming" in Feb. 1st issue.

STONE VS. WOODEN SILO.

Could you tell me, through your valuable paper, whether a stone silo plastered on the inside with cement or a cement one or tub silo would be the cheapest, all the same size; about 12 ft. in diameter and 30 ft. high? Will the silage keep as well in a stone one as any of the others? Give me an idea of the price of them separately.
FARMER.

Waterloo Co., Ont.

Ans.—Silage will not keep well in a stone silo, and we would strongly advise against risking it. We have known several instances where it was tried and found wanting. Cement silos, round or of octagon shape, or square, with the inside corners cut off, have generally proved satisfactory, though in some cases the silage has moulded for an inch or two next the wall, owing to the cement absorbing the moisture from the silage. This is said to apply only to the first season after erection. A cement silo should be very smoothly finished on the inside to facilitate even settling of the contents. A stave silo is probably the cheapest in construction, and will keep silage as perfectly as any. The relative cost will depend largely on the value of material and labor in your district. These questions are treated in reply to another in this issue.

N.-W. T. CATTLE BRANDS.

Could you kindly inform me how or where I can get a cattle brand for Alberta? I intend to send some cattle out there this spring, and would like to have them branded before I send them.

Addington Co., Ont.

MILES PINLEY.

Ans.—Write G. H. W. Bulyea, Commissioner of Agriculture, Regina, N.-W. T.

Kindness versus Cruelty to Animals.

In this age, happily, cruelty to dumb animals is vastly less common than was the case half a century ago, though there is yet room for much improvement in some lines in this connection. Clara Morris, in the March number of McClure's Magazine, gives a vivid sketch of the life-history of Henry Bergh, of New York, the originator of the Society for the Prevention of Cruelty to Animals in America, and who was made the butt of much ridicule, abuse and persecution in the early days of his campaign in contending for the rights of the lower animals, in which purpose he persevered with zeal, tempered with wisdom, until the righteousness of his cause was recognized and the best of the community came to his assistance and he was finally clothed with the power and invested with the badge of an officer of the law. Among many interesting incidents in connection with the prosecution of his work, cited by the writer of the article referred to, is the following, which will appeal to the sympathy of all who understand the nature of the case:

It was in a certain incident occurring on Fourth Avenue and Twenty-second Street one morning that Mr. Bergh's conduct was the most like the conduct of the gentle and dignified Don from la Mancha, whom he so resembled in face and figure. Gloved, caned, perfectly gotten up, with flowering button-hole and all, he was walking briskly to his office, when from behind him he heard such frantic mooring from a cow as told plainly of suffering and wild excitement, and now and then the weaker sound of the half bleat, half bawl of a very young calf.

He stopped, faced about, and saw a thick-set, sturdy man who, with the aid of a rope, resounding blows, and many oaths, dragged a struggling, protesting cow down the avenue, while, hunger-crazed and thirsty, a weak-kneed little calf stumbled along trying to keep up with the frantic mother. Nor was the cow's misery merely maternal excitement—she was suffering cruelly. She was fevered, overweighted, her udder so swollen, so distended that the milk dripped and trickled to the pavement as she moved, a condition, according to those who understand cattle, of excruciating pain. Hence Mr. Bergh to the rescue.

He halted the man and asked "Why he did not allow the cow relief?"

The man glowered stupidly, then sullenly repeated, "Relafe? Relafe? Relafe from what? I've druv' no finer cow thin that these five year!"

"You know she suffers," went on Mr. Bergh, "and so does that calf—it's weak with hunger."

The sulky drover was all the time keeping the small creature away from the tempting milk. "Hungry, is it?" he grunted. "Well, what of it? Sure, it's nothin' but a calf—it's no good!"

"Well, the cow's some good, isn't she?" went on the interfering gentleman. "Why don't you ease her pain? Just look at those dripping udders. It's shameful. Let the calf go to her!"

But fairly dancing with rage the man refused, crying out that that condition would bring him a better bargain in selling the animal. Then Mr. Bergh declared officially, "This calf is going to—" Perhaps he did not know the technical term, or perhaps its sound was offensive—at all events, what he said was, "This calf is going to breakfast right here and now! Tie the cow to this hydrant! You won't? Do you wish, then, to be arrested?" and he showed his badge, and taking at the same moment the rope from the ugly, but now stupefied man, he himself led the cow to the corner and tied her with his own neatly-gloved hands; and as the frantic moos had brought the neighbors to their windows, there were many laughing lookers-on at the unusual picture of an elegant and stately gentleman standing guard over a red cow with brass buttons on her horns, while her spotted baby calf began the milk-storage business with suck reckless haste that the white fluid drizzled from either side of its soft, pink mouth, and the mother meantime, not to waste the blessed opportunity, hastily but tenderly made its toilet. And though to the human eye she licked the hairs mostly the wrong way, the two most interested seemed to be satisfied with the result.

And there the tall man stood in patient, dignified waiting, while the enraged owner, with a few sympathizing male and female patriots, made the air blue about them—stood, until at last baby-bossy let go and faced about, when two long, contented sighs, and the calmed glances of two pairs of big soft eyes told their protector his work was done and to their complete satisfaction. Then he loosed the rope, gave it into the owner's hand, and having in a public avenue superintended a young calf's breakfast and toilet, he calmly resumed his way, and all unrumpled entered his office, the whole thing being like a page torn from Don Quixote.

MARKETS.

Every reader is invited to write something for this department that other farmers ought to know. Do it while you think of it. Put it on a post card if you haven't time to put it in a letter.

FARM GOSSIP.

Notes of Women's Institute Work.

BY SUPT. G. C. CREELMAN.

The Women's Institute movement as started last year has developed to considerable proportions. At the end of 1901 we had received a list of 1,602 members, while the total attendance of women at the meetings, as reported by the secretaries, was over 5,000. The ladies are commencing the new year well, and we take pleasure in publishing some extracts from their reports.

WEST HASTINGS.—Miss C. Spafford, Sidney Crossing, reports meetings held at Gilbert's Schoolhouse, Turner's Schoolhouse, Glen Ross Schoolhouse and Harder's Schoolhouse, on the 7th, 8th, 9th and 10th of January. At these meetings and 900 at the evening meetings, Mrs. Elizabeth Torrance, of Chateaugay Basin, gave a practical demonstration in cooking at the afternoon meeting and in the evening discussed "Housekeeping as a Business" and "The Object of True Education."

AMHERST ISLAND.—Mrs. S. K. Tugwell writes that the first meeting of the year was well attended, and that the interest is keeping up splendidly. Miss E. Fleming, a member of the Institute, discussed the subject of "Economy in Cooking," and Mrs. Allen read an excellent paper on "Dust and Its Dangers." Both subjects were well discussed, and the members are looking forward to the regular Institute meetings and are having good meetings. Miss Munro, the secretary, writes on January 14th, enclosing a list of 52 members for 1902. Miss Munro also reports successful meetings at Lakelet, with 225 present, and 475 at the meeting held at Clifford. Mrs. Colin Campbell, of Goderich, was the principal speaker, her subjects being "Aims and Objects of Women's Institutes," "Home Economics," "Breadmaking," and "Home Influence." The secretary writes that Mrs. Campbell evolved some excellent ideas, and good discussions followed her addresses. "We had instrumental music at each meeting, and we feel that our Institute is now on a good footing and on the high road to prosperity."

UNION.—This is a part of the West Wellington Farmers' Institute, and the women there have organized and are having good meetings. Miss Munro, the secretary, writes on January 14th, enclosing a list of 52 members for 1902. Miss Munro also reports successful meetings at Lakelet, with 225 present, and 475 at the meeting held at Clifford. Mrs. Colin Campbell, of Goderich, was the principal speaker, her subjects being "Aims and Objects of Women's Institutes," "Home Economics," "Breadmaking," and "Home Influence." The secretary writes that Mrs. Campbell evolved some excellent ideas, and good discussions followed her addresses. "We had instrumental music at each meeting, and we feel that our Institute is now on a good footing and on the high road to prosperity."

HALTOUN.—The regular monthly meeting of this Women's Institute was held at Milton on January 14th, there being 50 ladies present. Miss McGregor, of Milton, prepared an excellent paper on "The Work of the Country Home." This was thoroughly discussed by the ladies present, after which a business session was held and arrangements made for the next meeting.

LINCOLN.—The secretary, Mrs. E. W. Fry, Vineand, writes that they had a most interesting meeting at Campden on the 13th inst. Miss Maddock, one of the regular delegates to the Farmers' Institutes, addressed a separate meeting of ladies in the afternoon, at which 90 ladies were present. This gave the local officers much encouragement. Miss Maddock gave her talk on "Breadmaking." Mrs. Staff, of Jordan, gave a paper on "Celery Culture" after which Miss Maddock took up the subject of the "Home Dairy," which occupied the rest of the afternoon. Good practical discussions were brought out by the papers presented, and the Campden ladies went away more than pleased with the work of the Women's Institute in that district.

At Queenston, the next day, Miss Maddock again spoke on "Dairying," at the afternoon meeting, to a mixed audience. Many questions were asked, and it was necessary to stop discussion in order to hear the other speakers who were advertised for the meeting. It is Miss Maddock's opinion that a good branch might be formed at St. David's, and the ladies of that district are agitating the energetic secretary of this Institute, Miss May Tolton, Walkerton, writes that on the 9th of January they had a meeting in Walkerton, at which Mrs. Colin Campbell, Goderich, was the principal speaker. Miss Tolton says that Mrs. Campbell made a splendid impression and enabled them to secure many new members, as well as renewals of last year's membership. At the afternoon meeting, Mrs. Campbell spoke on "Household Economics," when there was an attendance of 60 ladies. At the evening meeting, which was a union meeting of Women's and Farmers' Institutes, there were over 700 people present.

NORTH GREY.—Mrs. Wm. McGregor, secretary of this Institute, succeeded last year in securing the largest membership in the Province. In reporting the meeting held at Kemble on January 7th, Mrs. McGregor writes: "At this meeting we secured 38 new members. It was decided that we hold a meeting here at least once in three months, and that we further make arrangements to exchange papers and essays with other Institutes, so that in this way we may be mutually helpful. Some of the subjects discussed were 'House Sanitation,' 'Poultry,' 'Special Occasions,' and 'Success in Life.'"

British Columbia.

The Central Farmers' Institute of the Province of British Columbia held a very interesting and profitable convention in Victoria, Feb. 26th to 28th. The meetings were well attended, and a number of important topics of interest to farmers, dairymen and stock breeders were intelligently discussed, among which were travelling libraries, transportation rates, irrigation, the securing of wholesale supplies of blasting powder to clear land of stumps, railway fencing, the preservation of insectivorous birds, the unreliability of the tuberculin test to cattle, the arranging of circuits of fairs, and the acceptance of expert judges from the east. The two last-named subjects elicited spirited discussion, some of the members speaking in strong terms of dissatisfaction and disapproval of both, as it was found that with the same judges at a series of shows, the exhibitors who were not successful under the ruling of the judge at the first show would not follow on to the next, as they knew beforehand what their fate would be, while if there were different judges, the first judgment might not be sustained, and the second might be as justifiable as the first. Others were inclined to give the innovation a further trial.

At the meeting of the dairymen's section of the convention, an able address was delivered by Hon. C. L. Smith, of Minnesota, detailing his experience in

the organization of factories in that State, and the success that had followed up-to-date dairying, making it one of the most profitable branches of farming.

The following officers were elected for the ensuing year: President, Mr. A. C. Wells, Chilliwack; Vice-President, Major Mutter, Cowichan; Secretary, Treasurer, Mr. L. W. Paisley, Chilliwack; Directors: Vancouver Island—Messrs. W. P. Jaynes, Cowichan; Vancouver Sangster, Saanich; C. R. King, Victoria; J. T. Collins, Salt Spring; and Fred Turgoose, Saanich. Lower Mainland—Messrs. Thos. Shannon, Surrey; Shelton Knight, Chilliwack; H. J. Kirkland, Delta; W. H. Ladner, Delta; and T. J. Trapp, New Westminster. Interior—Messrs. H. W. Raymur, Kelowna; Isaac Heard, Armstrong; Andrew Robb, Kamloops; Daniel Rabbitt, Armstrong; and Donald Graham, Armstrong.

A vote of thanks to the retiring officers and directors, offered by Mr. Thos. Cunningham, Mr. T. J. Trapp seconding it, was carried. The latter gentleman, in a short address, paid an eloquent tribute to the retiring secretary, Mr. G. H. Hadden, whose efforts, met by so many obstacles, had been exceptionally successful in surmounting them all, and bringing the operations of the Association to the excellent position which the Association now occupied. In these remarks Mr. J. R. Anderson and Major Mutter most heartily concurred, as did also Mr. Wells and several others.

A vote of thanks was also tendered to Mr. J. R. Anderson for his labors and courtesies on behalf of the Association and its members, not only in convention, but throughout the whole year.

Notes from Ottawa.

(Special.)

POULTRY PICKINGS.

A visit to the Poultry Department of the Central Experimental Farm during the day is to witness a busy scene. Mr. A. G. Gilbert says that lawn clippings make an excellent form of green stuff for fowls. When steamed they are of a much greener color than clover-hay similarly treated, and are eaten by the hens with very great relish. They have also the very great merit of being a form of waste. Mr. Gilbert says that the hens have done exceedingly well during the past winter season. On being asked as to which breed was the best layers, he said "Plymouth Rocks—both Barred and White, White and Buff Leghorns, and the Wyandottes." Three Buff Orpington pullets had made a splendid record for the winter. He speaks enthusiastically of this variety as a farmer's fowl, for the reason that the females promise to make good winter layers and the cockerels rapid value out of a farmer, unless it makes money for him in winter and summer, and he says that the Barred Rocks and the White Wyandottes still hold a foremost place, and will be hard to rival. The farmer who makes money by only raising chickens in summer to sell to the large purchasing companies or to private customers, Mr. Gilbert thinks is only getting half value out of his hens. He should have them so comfortably housed and intelligently fed that they will begin to lay in November, and continue to do so all winter, the period of high prices. This necessitates having birds not over two years of age, and so managed as to be over their moult by the middle of October.

There are two new breeds on trial in the Poultry Department, viz., Buff Orpingtons and Faverolles. The latter base their claim on their merit as a superior market fowl. At this advanced age, when an early rapid flesh-maker, with small breastbone and fleshy breast, thighs and legs, is called for, it will be interesting to learn of their development. Mr. Gilbert says that the pullets are ideal market fowls, but he is rather doubtful as to whether it will pay to ship pullets to ship to England, although he thinks it would in certain breeds. Three Buff Orpington pullets have laid remarkably well during the past winter. The record, when published, should do much to establish this variety in the favor of farmers and breeders. Mr. Gilbert says the farmer who only breeds poultry in summer for shipment or home market is only using one string to his bow and only taking advantage of one opportunity. He thinks that a farmer's aim should be to get eggs from his fowls in winter time, and early and many chickens in the mild seasons.

Regarding eggs, Mr. Gilbert said: "The price of new-laid eggs in the cities of the Dominion was never better than during the recent winter. What a farmer should aim at is to secure the high winter price for eggs, and then hatch and rear as many chickens as he can and as early as he can. If he cannot raise the chickens in quantity early enough with hens, let him get an incubator and brooder. The early three-month-old chick is the bird that will command the highest price now, and it ought to come without any difficulty by the middle or end of July. In some districts winter egg production may be attended with less difficulty and expense than in other sections. Do the farmers in this section send their eggs to the market, and where they can command the highest price, or are their hens non-productive at that time? Our hens lay their eggs well during our long and cold winter, and I cannot understand why other farmers cannot make their hens do the same, especially farmers living in more congenial climates."

Speaking of new-laid eggs in summer, Mr. Gilbert said: "As the tastes of our people become better cultivated, there will be a good market for strictly new-laid eggs in the summer season. There is a great difference in the taste of the new-laid and the stale eggs. There is also a great difference in the flavor of eggs, which is affected to a much greater extent by food than is supposed. People who are accustomed to eat eggs laid by their own hens, which are carefully fed and yarded, are disinclined to eat eggs from hens running at large. The fowls that are allowed to run about filthy premises or ill-kept barnyards, pick up a great deal of objectionable stuff. The flavor of eggs laid by hens so kept is not as satisfactory as the clean-fed fowls, and yet every spring people will leave the dealer they have dealt with all winter, when they could obtain eggs nowhere else, to buy the cheaper article, and ten to one a very inferior one. Eggs from hens fed on wholesome rations and kept in clean houses and confined to runs are worth fully five cents per dozen more than the others. It is only a matter of education. If people only knew on what some hens are fed, the eggs from which are regularly sold in the city, they would be more anxious to know something about where they come from."

Mr. F. C. Hare, Chief of the Poultry Division, intends visiting the different Provinces, with a view of establishing hatching stations in each. He is of the opinion that there will be an enormous demand for well-fattened poultry this fall, and that farmers who have the right kind of stock will have no difficulty in commanding from 12 to 15 cents per pound for same. While in Montreal a few days ago, he interviewed a dealer who said he would pay ten cents per pound for 500,000 pounds of well-fattened poultry properly dressed for the British market. Referring to the danger of over-supply, Mr. Hare states that it simply means that as the quality improves the consumptive demand will increase also. It will be many years before the market will ever be glutted with good poultry. As a matter of fact, we cannot meet the demands of the home market at present, which requires identically the same kind of stock as the

foreign market. Mr. Hare is a firm believer that chickens can be made to weigh from four to five pounds when they are three months old, providing they are properly fed from the time they are hatched.

CORN FOR THE SILO.

In the chemical laboratory, a large number of experiments of more or less importance are being conducted by Prof. Shutt and his able staff of assistants. At present, the principal one under way is to ascertain whether it is more profitable to sow corn intended for ensilage in hills or in drills. The experiment will not be finished for some time yet, but so far the results have been in favor of having the corn planted in drills, because it will give a larger amount of real cattle food. Four varieties are included in the experiment, viz.: Longfellow, Mammoth Cuban, Selected Leaning, and Canadian White Flint. The samples were all taken from the crop harvested last fall. Prof. Shutt states that sunflower seed and clover of the second crop should be cut and mixed with the corn before it is put in the silo. The clover should be cut when just in bloom. Mr. Shutt strongly recommends that the corn should be cut as fine as possible, so that it will pack well in the silo, for he states that air deteriorates the feeding value of the ensilage rapidly when it is exposed too much. Of the thirty-four varieties of corn grown on the Farm, Comptom's Early and Longfellow have given the largest yields and in every case the best results, as they mature about the proper time.

LIVE STOCK NOTES.

The officials have secured the services of Mr. Thos. Bradshaw, who had charge of feeding the Canadian Ayrshire herd which competed in the milking test at the Pan-American. Mr. Bradshaw, who commenced duties on the first of March, will have charge of the feeding experiments.

The imported yearling Shorthorn bull, "Lord Dundale," which Prof. Grisdale purchased in England last summer, is growing rapidly, and if nothing happens will make a very handsome animal. If his typical points are any criterion to go by, he will in all probability be, when full-grown, as fine an animal as the Marquis of Zenda, owned by W. C. Edwards. He will be ready for service this summer.

The imported cow Marchioness, which was also purchased in England last summer by Mr. Grisdale, calved recently, and is giving about forty pounds of milk daily, which tests four and one-half per cent. of butter-fat. Sixteen other cows have also calved, among them being Dora, which gave twelve thousand pounds of milk last season.

No experiments are being carried on with the pigs. A large number of the sows have farrowed, among the litters being some very fine pigs.

Dr. W. E. West, manager of Dr. Seward Webb's breeding stable at Shelburne, Vermont, was in Ottawa about two weeks ago arranging for the transportation of the four bay horses purchased by his employer from the Governor-General. These are the horses which were specially secured for the royal carriage used during the visit of the Prince and Princess of Wales. They were bred at the stock farm of Robert Beith, M. P., Bowmanville, Ont.

The correspondence at the Farm is exceedingly heavy, as many as 1,300 letters arriving in one day recently. The daily average is about 800, and the most of them contain requests for seed grain.

A large number of samples of grain, on the straw and threshed, in bottles, were shipped this week to be put on exhibition at the coming fairs at Cork and Wolverhampton.

Samples of seed wheat, oats and corn were shipped recently to Lovedale, Cape Colony, for testing in that climate, and a few samples of spring wheat sent to Prof. A. D. Hall, of the South-eastern College of Agriculture at Wye, England.

MEETINGS.

An agricultural meeting under the auspices of the South Onslow Farmers' Club, was held at Quyon, Que., at which the speakers were Mrs. Jos. Yuill, of Carleton Place, and Mr. N. G. Somerville, President of the North Lanark Farmers' Institute. Mrs. Yuill, who is a thoroughly practical speaker, dwelt at length on the importance of cleanliness about a cow stable where milch cows are kept. The cans should be rinsed and scalded with religious fervor and put where the flies could not get around them. In milking, the cows' udders should be thoroughly cleaned with a dry cloth and the milk strained through two ply of cheese cloth. No butter-maker could make good butter from old milk which had been mixed with fresh milk. Both should be kept separate. She was of the opinion that it would be only just for any cheese or butter maker to return milk which was not pure. The man who steals the strippings and gets caught, is not so big a thief or half such a fool as the man who, turning the whole thing, milk, hairs, and straws, to the factory, steals the flavor by lack of cleanliness. Mr. Somerville delivered a well-pointed address, which was open to many questions. In dealing with the relative merits of the production, he openly stated that there is already an overproduction of cheese, and he thought that the future of the farmer lay in the direction of the creamery. He advocated the general adoption of the silo system.

Mr. W. W. Hodson, Live Stock Commissioner, has arranged a series of agricultural meetings under the auspices of the different farmers' clubs: At Calumet, March 19th; Quyon, March 17th; Shawville, March 18th; Buckingham, March 20th; and Lachute, March 21st. The meetings will be addressed by Mr. J. Fixter, farm foreman of the Central Experimental Farm, and Mr. H. L. McMurray, Ottawa.

Mr. W. N. Hutt addressed a number of meetings in this section since the first of the month. At Smith's Falls he confined his remarks to the lawn, and said its arrangement must largely be governed by its size. Grass should occupy the most of the space. The seed should be sown thick and the lawn uncut the first season. Shrubs ought to be planted in clumps for good effects and trees without order. Back yards, instead of being a dumping-ground for rubbish, ought to be clean and shaded, as an outdoor retreat in summer.

B. C. Fruit Prospects.

Mr. H. Percy Hodges, of Vernon, B. C., who was recently in Toronto, said that at Vernon is Lord Aberdeen's "Coldstream" ranch, containing 13,000 acres, of which 160 acres is now in fruit, chiefly apples, pears, plums, and prunes. These fruits are doing very well in the Okanagan Valley, and considerable quantities are now shipped to the Northwest Territories and Manitoba. Mr. Hodges thought British Columbia apples and pears as good as Ontario fruit, while in plums and prunes he thought the Western fruit excelled. British Columbia peaches are not equal in flavor to those he has seen in Ontario. The fruit industry in British Columbia never looked better than at present, but not many settlers are going in to take up fruit raising. As a matter of fact, Ontario or Manitoba people cannot realize how small a part of British Columbia is suited for agriculture. Much of the land that is available is held in large blocks, and until these are broken up, the small farmer has little chance to acquire land. Mr. Hodges looks for big developments in these lines, but it will come gradually, and by men who know British Columbia and its conditions.

Argentine Republic Exports.

In looking over the exports from Argentina during the past year, we notice that hides show a steady increase; also in sheepskins, hair, tallow, goatskins, wool; this latter being double the amount sent forward in 1900. There is a good increase in frozen mutton, and nearly one hundred per cent. increase in quarters of beef; butter shows a 25 per cent. increase. In agricultural products there was a decrease of one million tons of wheat, but an increase of a million tons of corn and one hundred and seventy thousand tons of linseed; flour, bran, and pollards (coarse flour) show large increases; oil seed is down on account of the bad peanut crop; hay shows an increase of nearly half a million bales, due to the large shipments to South Africa; quebracho (medicinal bark) shows a falling off, and sugar shows a very large increase. Taken all round, the exports for 1901 compare very favorably with those of previous years, and show that Argentina is steadily finding a place in the consuming markets of the world.

Lambton County.

Clover and wheat are looking well, as the plants have been constantly protected by a good coat of snow from the fore part of December to the 1st of March. Not much wheat was sown last fall, on account of the Hessian fly, and what was sown was put in very late, with the result, from present appearances, of having largely escaped the ravages of that destructive pest. Since the appearance of the fly a great deal of land has been planted to beans, which proved a very paying crop last season to those who marketed early, but at present the price of beans is rather flat, which, if it continues so, will no doubt considerably curtail the acreage planted to that crop this season, which otherwise would have been very large. Hogs are again considerably lower in the market, although there is not a great deal of this stock on hand amongst the farmers of this section. The frequent big drop in prices by the packers, just as farmers have a nice bunch on hand ready to market, retards many from going very strongly into hog-raising. If the packing houses desire a steady, continuous supply of hogs of just the right type, they must give better assurances of a less fluctuating market, as farmers are inclined to hold their hogs too long if the market is low, in the hope of a gradual rise in prices. This is the principal cause of the thick fats that are so much complained of.

On the other hand, if the market is high, many are anxious to sell before fully fitted, for fear of a sudden drop in prices. There are few who have not frequently lost from one to two dollars per hog by holding their bunch just a week or two until fully fitted. An assurance of more steady prices would greatly obviate this.

The growing of sugar beets is claiming much of the attention of farmers in the vicinity of Alvinston village.

Last season a large acreage of roots was grown and shipped to a factory at Bay City, Mich., for the consideration of \$3 per ton, f. o. b. This price is very low, considering what growers in other districts are receiving. Still, many claim to have made good profits, even at this low price. This season large contracts are being signed to grow roots for the Wallaceburg factory, now in course of construction, at \$3.50 per ton, f. o. b.

Alvinston is making a big bid for the establishment of a factory in the village, and we believe capitalists could not find a better site for a factory,

as farmers have demonstrated their ability to grow beets of a high percentage of sugar, as the soil of this locality is very fertile and seems particularly adapted to this crop. All that is now required is capital to build a factory, as farmers are ready and anxious to grow sufficient beets for a factory of large capacity.

A number of very successful farmers' institute meetings have been held in this county, which were largely attended by a progressive class of farmers. Mr. McNash, Biologist, of Toronto, gave a most interesting and instructive address upon "Insect pests and their extermination" and "Birds and their usefulness" which was worth travelling many miles to hear. Mr. McNash made a strong plea for the protection of birds, which every individual, whether in country or town, would do well to follow. E. A.

Toronto Markets.

The Western Cattle Market was fairly brisk; the run of cattle small. Demand good for all classes. Prices steady; unchanged, except for hogs, which were easier. At last, owing to the efforts of the "Farmer's Advocate" and the city newspapers, the improvements at the Western Cattle Market are under way. New cattle sheds and shelter barns have been erected, and \$11,500 set aside for the building of new offices for the drovers and commission buyers. Foundations are being dug for the erection of a commodious new bank on the Stanley Park side of Wellington Avenue. The City Commissioner, Mr. Coatsworth, is pushing on the work, and promises to have the whole of the buildings ready for the season's business.

Export Cattle.—Choice lots of export cattle in demand, and sold at \$5.50 per cwt.; extra choice picked lots at \$5.60; medium class, \$4.75 to \$5 per cwt.

Butchers' Cattle.—Choice butchers' cattle, weighing 1,000 to 1,050 lbs., were in good demand and met ready sale, at from \$4.50 to \$4.60 per cwt.; fair to choice mixed loads, \$4.35 to \$4.50 per cwt.

Bulls.—Choice heavy export bulls sold at \$4 to \$4.60 per cwt.; light bulls, \$3.60 to \$3.90 per cwt. Not many offered, but all sold.

Feeders.—Good demand for choice heavy feeders; not many on offer. Steers weighing 1,000 to 1,200 are wanted to fill space at the byres. Prices firm and steady at quotations, at from \$4.50 to \$4.75 per cwt. Light feeders weighing from 900 to 1,000 lbs. are freely offered, but there is not a great demand, at \$3.75 to \$4.25 for choice, well-bred animals.

Stockers.—Yearling stockers are not so freely offered as formerly; those weighing from 500 to 800 lbs. sold at from \$3.30 to \$3.75 per cwt. Mixed colors, black and white, half-bred Holsteins, are quoted at \$2.75; no demand.

Sheep.—The deliveries light. Prices firm on all offered, at \$3.50 to \$3.75 per cwt. for ewes, and from \$2.90 to \$3.25 for lambs.

Lambs.—Prices firmer, at \$3.75 to \$4.50 for very choice spring lambs; not many offered. Messrs. Brown Bros., of St. Lawrence Market, had a pair of spring lambs purchased from Mr. L. White, of Guelph, for \$15.

Milk Cows.—A good demand for choice milkers. Fifteen on offer sold at from \$30 to \$50 per head.

Hogs.—Best selected hogs are all wanted, and quoted at \$6 per cwt.; light and thick fat at \$5.75 per cwt.; uncured car lots are worth about \$5.87 per cwt. The market will bear watching for the next

few weeks, and farmers are advised to market all hogs at the first favorable opportunity. There are indications of a fall in the near future, and fresh rumors of sickness amongst a number of herds. Watch out for the first signs of sickness. (See "Farmer's Advocate" for March 1st, page 166, on the Simcoe County outbreak of hog cholera.)
Calves.—About 100 calves on offer, and sold at from \$3 to \$6.50 per head for choice veals.

	Extreme comparative prices to-day.	Two weeks ago.	Same date last year.
Export cattle.....	\$ 5 60	\$ 5 50	\$ 4 90
Butchers' cattle.....	4 60	4 50	4 35
Export bulls.....	3 90	4 35	4 25
Feeders.....	4 75	4 75	3 50
Stockers.....	3 75	3 60	3 25
Sheep (per cwt.).....	3 75	3 75	3 50
Lambs (per cwt.).....	4 50	4 90	4 70
Hogs.....	6 00	6 12½	6 50
Milch cows.....	52 00	52 00	45 00

PRODUCE MARKET.

The grain offerings light, owing to bad roads. Wheat.—Price steady; one load on offer at 78c. per bushel; goose wheat at 67c. per bushel; buckwheat at 66½c. per bushel.

Oats.—In good demand; 500 on offer, at 45c. per bushel.

Barley.—Good malting barley wanted; only one load on offer, at 63c. per bushel.

Seeds.—Alsike, choice No. 1, \$8; Alsike, No. 2, \$7.50; red clover seed, \$4.90; timothy, \$3. There is a good demand, and all choice varieties met ready sale. Seedsmen are all busy.

Hay.—Thirty loads of hay on offer; market overloaded. Prices ranged from \$10 to \$14 per ton for timothy. Clover hay sold at from \$8 to \$10 per ton.

Dressed Hogs.—Prices show wide range, from \$7 to \$8.25 per cwt.; about 200 carcasses on offer last market day.

Chicago Markets.

Chicago, March 12.—Cattle—Strong to 10c. higher; good to prime steers, \$C.50 to \$7; poor to medium, \$4.25 to \$6.30; stockers and feeders, \$2.50 to \$5.25; bulls, \$2.50 to \$4.90. Hogs 5c. to 10c. higher; closed weak; mixed and butchers', \$6 to \$6.50; good to choice heavy, \$6.35 to \$6.55; rough heavy, \$6.10 to \$6.30; light, \$5.95 to \$6.25; bulk of sales, \$C.10 to \$6.40. Sheep—Steady; good to choice wethers, \$4.50 to \$5.25; western sheep, \$4.60 to \$5.75; native lambs, \$4 to \$6.40; western lambs, \$5.25 to \$6.50.

Buffalo Markets.

East Buffalo, March 12.—Cattle—Receipts light; steady to firm. Hogs—Fairly active demand, and 5c. to 10c. higher; Yorkers, \$6.45 to \$6.50; light do., \$6.20 to \$6.35; mixed packers, \$6.55 to \$6.60; choice heavy, \$6.60 to \$6.65. Sheep and lambs—Sheep and yearlings steady; lambs slow and 10c. to 15c. lower; choice lambs, \$6.55 to \$6.65; good to choice, \$6.40 to \$6.50; culls to fair, \$5.65 to \$6.26; sheep, choice handy wethers, \$5.50 to \$5.75; common to extra mixed, \$5.10 to \$5.50; culls and common, \$4 to \$5; mixed heavy export ewes, \$4.75 to \$5.25; yearlings, choice wethers, \$5.95 to \$6.

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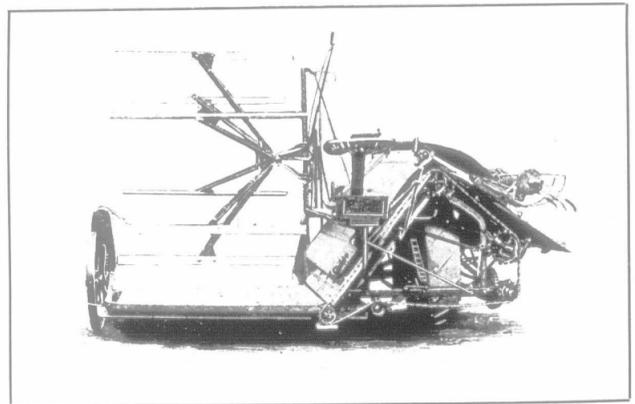
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By the pride deposed and the passions slain,
And the vanquished ills that we hourly meet."

On Some Practical Topics.
NO. III.

THE PARENTS' OPPORTUNITY.

Whilst truly thankful to know that fairer and more enlightened methods are in process of completion, consequent upon a clearer and wider understanding of the true significance of education, not only to the individual but as a factor in our national prosperity, we recognize that the awakening should not be all on one side. No education can be perfect which begins and ends at school, and no parents can claim exemption from the duty nature has assigned them, simply because the State has stepped in and, with wisdom and forethought, is preparing to make ample provision for the fullest development of the capacities of their children. In this onward march, home and school must go hand-in-hand. The need of home influence and home training is felt by all workers, whether for the reformation of morals, the repression of existing evils, or for the furtherance of all efforts for good. "It lies at the very root of national life, for out of families, nations are spun," whilst outside efforts, if unaided and unsupported by the home-rulers, whose influence should always be on the side of good, become paralyzed and checkmated. The standard of excellence, mental, moral and spiritual, which both school and home should set before the sons and daughters of our nation cannot well be too high, and this standard is more likely to be reached if co-operation between parents and teachers be assured. It is to the former we look first of all for the firm foundation, without which the structure of the future may be but as a house of cards. There must be careful training of the sapling if the sturdy oak is to become its crowning glory.

The destinies of a country are very largely in the hands of the fathers and mothers of that country. If they are as loyal and patriotic as they ought to be, they would think no effort, no self-sacrifice, too large a price to pay for the uplifting of its home life, which is the channel through which the national life can rise to higher levels. So let them dig the foundation wide and deep upon which others may build by and bye, not forgetting that to precept should be added example, for, after all, "it is what we are, rather than what we say, which influences our children. A lax Eli will not be likely to train up devout sons." Personal influence is a responsibility which cannot be overlooked or ignored, for it tends to good or to evil, to progress or to down-grade, within the walls of school or home alike. The teacher plays too great a part in the lives of those entrusted to her care for her to think lightly of her holy office, and to the influence of the mother, where is there any limit? Her little ones receive from her their very first impressions, their first ideas, their first habits. She stamps "herself" upon her children, therefore she should not be without some knowledge of the principles of education, as apart from instruction, nor be without a keen sense of the God-given honor of having entrusted to her the early training of human souls. The mother's influence has been called "a great reserve force," and it is one upon which many calls are made throughout the whole life of her child, but never more so than during school life. There are some parents who consider that if they feed and clothe their families, give them a home to live in, and send them off daily to the district school, they have done all that should be required of them, not recognizing how helpful to teacher and taught alike would be the mother's ready entering into the daily records of what has been learnt in the class-room, riveting the lessons upon the impressionable mind by an intelligent and understanding comment upon them. Who can invite a child's confidence so readily as a loving mother, and through its means safeguard that child from much which may influence it wrongly? Let the mother know all about the little playground differences, as well as the schoolroom ambitions; let her know all about her children's friendships, choice of story books, and so help to form tastes which may be of inestimable value and of far-reaching results to themselves and others whom they in turn may influence hereafter. Both parents should study the individuality of their children, for knowing it, they can help the teachers to understand it too, the teachers on their side gladly availing themselves of the kindly hint which may lessen some hitherto unexplained difficulties. There are, we

hope, many homes in our favored land where parents strive to develop all that is best in the nature of each child, realizing that parental authority has the sanction of the Father of all, and is established for the child's own safety; homes where the social and generous virtues are nourished, where joy and sympathy flourish, and where "good manners" are not a mere veneer, but are become a part of the child's habit of life. Children sent out from such homes into the "larger room" of the school are already fortified by noble example, by earnest and tender sympathy, by the loving and close parental watchfulness which can alone foresee the pitfalls into which they may stumble, or the daily recurring temptations which beset even the most guarded school life. And who can estimate the value to the teachers of finding that home influence following their pupils into their new surroundings, pervading with its sanctity every corner of the schoolroom, for "the school is but an extension of the home," the interests and responsibilities of each being so closely linked as to be almost one.

To sum up, then, our plea is that the parents should free themselves from their old-time apathy, their too-ready acceptance of things as they are; that they should recognize the claim of the whole child to specific training according to sex and capacity, instead of its being offered an accumulation of indigestible figures and facts which its nature could not assimilate, and which, therefore,



From the painting in the Diploma Gallery of the Royal Academy.
By Hubert von Herkomer, R. A.
"ON STRIKE."

could afford it no mental nourishment. Now that the veil has been lifted and the stage of cecil and demur passed, the hour has come when the fathers and mothers of Canada should put out the glad hand to those who are inaugurating a system which means so much to the future of our country.

"On Strike."

This picture has been called "a commentary on modern economics," giving the sadder side of one of the many conflicts between capital and labor. The artist shows us the wage-earner, doggedly determined to fight for what he considers "his rights," and in the attitude of the wife, upon whom with her children must fall the heaviest part of the burden, we can read a despairing certainty that no further appeal in words can avail to alter his determination. The very babe in its mother's arms seems to know intuitively that something is amiss, while the child in the background is old enough to realize that a climax of sorrow has been reached. The dramatic aspect of the subject is apparent without any exaggerated appeal to one's sympathies, its chief pathos lying in its truth to nature. The question it enforces is the old, old one, "Can two wrongs ever make a right?" H. A. B.

Travelling Notes.

I believe I have more than once asserted that I had settled down for a quiet winter with my dear old relative at Tunbridge Wells, and I really have done so, to our mutual satisfaction, with the exception of one or two flights to London on such a special occasion as that of which my last "Notes" told you, or just a visit here and there at the kindly urgings of hospitable relations and friends. "So you call that a quiet winter, do you, Madam Mollie?" say you. My reply is that, considering Mollie's temperament, her inquisitive (or shall I modify it by calling it her enquiring) mind, her many temptations, and the unselfish arrangements made for her by the dear aunt whose home she shared, it has been a fairly quiet winter, after all. Besides, if Mollie never went anywhere, what would she have to tell you about. Now, having made my confession in the third person, I am going back to the more simple and comfortable form of the first person singular. If I do not, I shall get grammatically tangled up, to your confusion and my own.

I have sometimes heard remarks made as to the formality of the English people, their want of cordiality to strangers and so forth; but as far as my experience goes—and this is my third visit to the dear old land—I have never found it so. Never, anywhere, have I received more hearty kindness and hospitality than on this side of the Atlantic. I have been a visitor in many homes, and shall always carry in my heart sweet memories of the hearty welcomes extended to me in all alike. One great pleasure derived from travelling is that it constantly brings you in contact with those who may either know someone you know, even if they are not already personally known to you, or whom you may have met elsewhere in one or other of your meanderings, perhaps thousands of miles away. For instance, when I was in Scotland, last summer, I came across a lady whom I had met at Banff, in the Rocky Mountains, the year before; and one afternoon, when taking a cup of tea at Buzzard's—that king of cake-makers—I espied a lady and gentleman from Tasmania, who were also taking their tea at another of the little marble tables, and with whom I had travelled in the same Pullman car across the Rockies. It was a pleasant surprise to us all, and our meeting was almost that of old friends. Again, one of the most delightful visits in Scotland was the outcome of a good-comradeship established by a month's companionship on board the steamer from Australia. Although by manner, tone, and every mark of culture, I had known that my fellow travellers were unmistakably gentle-people in the truest acceptance of the term, yet I was hardly prepared for what I found awaiting me—the stately magnificence of the country house and its surroundings, and the aristocratic names and titles of my fellow guests. For a few minutes the simple Mollie within me was a little bit staggered, especially when the trim maid asked which dress should she lay out for dinner—and I had only one for evening wear—and that not so new as it once was! Taking my courage in both hands, I dismissed, with thanks, the kindly offer of service, decked myself as best I could, and presented myself, rather nervously, at the drawing-room door. If it had not been for the somewhat absurd notion that I should uplift my Canadian head somewhat more self-assertively than was at all necessary, I should have seen those Japanese curtains, which caught me by the elbow-lace of my sleeve, and that monster tiger's head on the floor, which nearly pitchforked me into the arms of the group in front of it, and thus I might have been spared some mortification, but have perhaps missed a wholesome lesson which will not be lost upon me. I need not say how self-created was my embarrassment, for no eyes could have appeared less observant of my clumsiness, and no hands could have been extended in more cordial greeting than those of my host and hostess. I found Admiral S., who took me in to dinner, a most interesting conversationalist—one who did not absorb all the talk to himself, but led me gently on to tell my own little story, with an air of being duly entertained thereby. The quaint old custom, at bedtime, of handing to each guest her bedroom candlestick, has not died out, and one takes it gravely, after the kind good-night has been said, just as if, in this age of electricity and everything-made-easy, one depended upon it for its original uses. Now, if I had been a stay-at-home Mollie, I should not have the pleasant episode to record, of which, after all, I have not told you the half.

The year of gloom which heralded for the British nation the opening of a new century having passed away, a great change has come over the face of all outward things. Bright colors prevail, and perhaps seem all the brighter from the contrast. There are festivities which mark the new epoch and give new life to trade, and perhaps this latter consideration has not been wholly lost sight of in the arrangements for the various Court ceremonials, more especially for those of the coming coronation, the very smallest details of which will be elaborate and costly.

The King is virtually his own Master of the Ceremonies, and he has a very decided wherefore and why for each order given. One hears everywhere a tone of satisfaction and confidence in the wisdom and good sense of His Majesty, a confidence all the better grounded that in all essentials he carries out much of what he knows to have been the mind of his mother, Queen Victoria of honored memory, in whose footsteps he does not disdain to tread.

I am not going to foreshadow my next comings or goings, but I doubt if I shall date my "Notes" for the next issue from Tunbridge Wells. I shall be sorry to bid farewell to its broad, gorse-covered commons, almost ready to burst into full gold-colored bloom, and its quaint old Pantiles, which always seem to have another and still another old-time incident to tell me. I have had most tempting invitations to France and Hannover, and my aunt and cousins want me to come to Australia, to live! Is not that nice? But I am afraid I cannot venture to say, as did the old woman who was struck by lightning, "you see what comes of being so attractive."

MOLLIE.

A writer in the Liverpool Post tells the following story: At one of the railway construction works in Glasgow the other day, a Roman Catholic clergyman, who takes a great interest in the members of his flock engaged at the cutting, saw one of them entering a "pub." He hailed him, but Pat simply looked, and walked in. Waiting till he came out, the reverend gentleman accosted him thus: "Pat, didn't you hear me calling?" "Yes, your reverence, I did, but—but I had only the price of one."

THE CHILDREN'S CORNER.

"Twopenny Halfpenny."



I'm a naughty little kitten,
Though I'm almost one year old;
I stole the cream and sugar
And don't do what I'm told.
My name is Twopenny Halfpenny—
A funny name for a cat,
But I'm worth a golden sovereign—
My mistress told me that.
My fur is black and silky,
My shirt front always clean;
When there's company at dinner
I'm nearly always seen.
You'd be shocked at my behavior—
I'm in mischief all the day;
I go into other kitchens,
And with other cats I play.
But now it is my bedtime,
And I must stop my chat,
Or I will lose my supper,
And you know I shan't like that.
I'm sorry for my mischief,
And for my wicked ways,
Oh, mistress dear, I do repent,
And will be good these days.

The Legend of St. Christopher.

To-day I am going to tell you the beautiful legend of St. Christopher. The name means "bearer of Christ," and you may have seen a picture of him—a giant, carrying the child Jesus over a rushing stream. The way he is said to have won his name is this:

A giant, called Offero, made up his mind that he would serve the greatest master he could find. Being a heathen, he knew nothing of Christ or Satan, but when he saw the king, his master, cross himself in fear when Satan was named, he said he must go away. "The master I serve must not know what it is to tremble at the name of any foe," said the giant, "so I will leave your service, and journey till I find this stronger king."

So he wandered, seeking Satan, over moun-

tains and deserts. At last he found him, and prostrated himself with his face to the ground, crying out, "I offer my services to you, for you are the mightiest master I know."

Satan accepted him as a servant, very willingly indeed, and they journeyed on together. One day they stopped to rest near a little wayside fountain, with a cross carved above it. It was just a little cross, with a figure hanging on it, but to drink from that fountain even Satan did not dare.

When the giant asked why he trembled before this cross, Satan answered that the Saviour of the world, who died on the cross, was the Lord of earth and heaven, greater than all other kings, with both death and hell beneath Him.

"Then I must leave your service," said the giant, "and seek this great King, who is stronger than you."

So he left Satan, and wandered far and wide, asking where he could find this Saviour who had died on the cross. At last a hermit taught him about the Lord Jesus, and Offero asked how he might serve this new Master. The hermit told him to stay beside a deep, wide river, a river rushing down between rocky precipices. Many people wanted to cross, but were afraid, and he could help them with his mighty strength.

So Offero built a hut of branches close beside the river, and carried many a weak and fainting pilgrim through the stormy water, while all the time he was thinking about that Figure on the Cross.

"Thou art doing well, brave giant: keep thy faith in Him who died": these words rang always in his ears, so he worked on untiringly, feeling neither pain nor fear.

One night he was sleeping in his hut when he heard a childish voice calling, "Wake, good Offero, please carry me across the stream."

The waves were tossing wildly and the wind was fierce and high, yet he could hear above the roar of winds and waters that childish cry. "I am weary," it kept calling, "come and bear me safely in your strong arms!"

"I am coming," called Offero, "don't be frightened, little one."

Then he took the child in his arms, laid the golden head on his breast, and stepped into the raging water. The waves rolled higher and higher, and the child seemed to grow heavier every moment. Yet the giant struggled on, and with the help of his palm-tree staff safely reached the other side.

Falling on his knee as he looked into the shining face of the Child, he asked wonderingly, "Who art thou?"

Then the child answered: "I am the Master thou hast served so long and faithfully. To-night thou hast borne Me, and I bless thee with My love. Plant thy palm-tree staff here, and it shall burst into new life, the type of thy new birth."

Offero obeyed, and instantly green branches burst forth, covered with clustering dates. Then the stormy wind died into silence and a sweet voice whispered, "He who bore the Christ shall be called Christ Offero." The giant stood by the river, but the little child had vanished.

When the German children, tired of play, ask their mothers for a story, they like nothing better than this legend, told over and over again, of how the giant's name was changed to Christopher or Christopher—which means Christ-bearer.

Is not that a beautiful story, children? And you too may bear a burden for Christ, and so deserve the name of Christopher. Any little kindness done for love of Him, any burden carried bravely and cheerfully for His sake, He will gladly accept. We, like the giant, want to serve the greatest master we can find, and there is none greater than our Lord and King.

"I cannot do much," said a little star,
In making the dark world bright;
My silvery beams cannot struggle far
Through the folding gloom of night;
But still I'm a part of God's great plan,
And I'll cheerfully do the best that I can."

"Oh, what is the use," said a fleecy cloud,
Of these tiny drops I hold?
They will hardly freshen you lily proud,
When caught in her cup of gold;
But still I'm a part of God's great plan,
And I'll cheerfully do the best that I can."

A child went merrily forth to play,
But a thought, like a silver thread,
Kept on winding in and out all day
Through the baby's golden hair;
Mother says I'm a part of God's great plan,
I must try to do the best that I can."

"So she helped a poor neighbor's child along,
Though tired her own small feet;
And she sang from her heart a little song,
Her father thought so sweet!
And he said 'I too am part of God's plan,
And though weary, must do the best that I can.'"

Small Courtesies in Home Life.

[This paper was read by Mrs. Gardner at a recent Institute meeting in North Grey, Ont.]

"A man or woman's good breeding is the best surety against another's bad manners."—Lord Chesterfield.

Temperance in speech is no less a virtue than self-restraint in any other direction. Our conversation bears so important a part in social intercourse, and some attempt is made at it whenever we meet our friends, 'tis strange we are not more proficient in this art. In the home circle, however, too much is often taken for granted, and the graces of true politeness are sometimes entirely dispersed with. The charm of agreeable conversation is appreciated by all, its cultivation is within the reach of everyone, and we may be our own teachers. Nothing so quickly opens hospitable doors or shows a warm welcome. Entertaining conversation does not depend so much upon a well-stored mind, a ready wit or a broad culture, but shows qualities of heart as well as of head, and should reveal sympathy, sincerity and simplicity.

Sympathy and adaptability are in a measure created by a desire to please; but it is not merely from a desire to please in society that good manners should be studied; but from the wish to consider the feelings of other people. "Manners" includes courtesy to all, patience under severe strain, and a calm and modest personality. We must be sensitive to the mood of our listeners, and quick to perceive when someone else wishes to speak. There are talkers who seem to take the bit between their teeth and run away with it. When they do finally cease, the subject is so exhausted that no one else has anything to say.

The common defect of the talkative woman is the habit of repeating the same statement several times during a single conversation. Whether she suspects you of deafness, stupidity or inattention, it is hard to say; but she will inform you five or ten times in an hour that her children were all born very clever; or, that she is extremely nervous; or, that she never eats porridge; etc., etc.

Without simplicity no conversation has any charm. The moment we perceive that the speaker is trying to produce an effect, that moment do we feel contempt for the affectation and pretense. Truth has a marvellous power of making itself felt, no matter what may be said or done; and frankness is admired by every honest man or woman.

The qualities which put us in wrong positions towards life, and cause much unhappiness, are selfishness, vanity, and a desire for popularity or public favor. We all know people whom we may not come near without feeling that to interest them we must pay tribute to their vanity, or limit our conversation that it may please them or pamper to their conceit.

Another class equally disagreeable are those that censure everything and attempt to belittle the efforts or remarks of everyone else, that their own virtues may shine in comparison.

Happiness lies in self-forgetfulness, and to secure it we must cheerfully accept the conditions of our lot, hope for the best, have faith in the future, and try to do all we can for ourselves and those about us without looking to consequences. It is the natural reward of right living, and shows itself in breadth of character and broad charity towards all.

Self-consciousness is but vanity under a less severe name, and self must be forgotten before we can add to our speech the grace and dignity of simplicity. Dignity is the chief charm of woman, just as constitutional brightness is her chief accomplishment.

Gossip has gone out of fashion. It is no longer considered nice to say a word against any one. An ill-natured remark is a social blunder as well as a moral one in good society. We should not allow lapses of manners or levity, and, above all, the careless expression of a low grade of thought.

To be able to say a few kind words is an accomplishment any of us may acquire. Even exchanges of civilities cement friendship. True culture carries with it an atmosphere of breadth: the world, and not the village. Women more than men are in danger of becoming narrow; women lacking breadth are said to betray, by their conversation, minds of narrow compass; bounded on the north by their children, on the south by their servants, on the east by their ailments, and on the west by their clothes. The mind grows narrow when occupied with trifles. When ignorant of our ignorance, we do not know when we betray ourselves.

To sum up the matter: we should never lose sight of the fact that we are likely to be failures

unless we are good comrades. Our friends and neighbors should be able to rely on us for qualities of fidelity, faithfulness and affection which make life worth living. To be over-sensitive, to be rude in reply or contradicting in disposition, is to be altogether unfitted for comradeship; and the good comrade has something to add to the common fund: some fun, some fancy, some bit of song, and thus the days go on in brightness and nobody minds if the road be rough.

"If you wish for kindness, be kind; If you wish for truth, be true; All that you give of yourself, you find; Your world is a reflex of you."

Kemble, Ont. C. L. GARDNER.

Ingle Nook Chats.

My dear Guests,—

There is not even time to say "How do you do?" to each of my Guests, they are so numerous, yet there are a few whose letters require a special word. First, I must offer a hearty hand-shake to our two friends from England and Vermont; both are very welcome, and I trust we may have the pleasure of frequent calls from them.

Some questions have been asked regarding Contest XVIII., to which I shall here reply. I believe I originally stated that all drawings should be in pen and ink, but as this may be too difficult for children, I shall also accept them in pencil. Drawings may be copied from pictures if desired, but must be on paper sufficiently heavy to prevent tracing. Any contributor may send in two or more drawings, if desired, but only one is necessary. In compliance with the request of some of our Guests, the time for closing this contest will be extended to April 15th instead of March 15th, as first announced.

A. D. C. H.—I shall try to have a contest such as you suggest some time in the near future.

"Queenie"—Yours was a nice letter, and your attempt at the puzzle very good, although you are not a winner this time.

"Vera"—I, too, am sorry we did not meet when there was such a good opportunity, but better luck another time. I am at S—n now; "so near, and yet so far."

"Jewess"—I do not wonder you have not much time to compete so often, as Fifth Class work is heavy for a little girl. Yes, I once took charge of the puzzle column for a time, but we had not so many contributors as now. I hope you will enjoy the correspondence formed through the medium of the Ingle Nook.

Mary H.—I am sorry you got "stuck" in the other contest. You have done well this time, although not one of the successful ones. Try again.

A. H.—Still the old name, old fellow-puzzler, as I see you have also. Indeed one does grow attached to persons through correspondence and otherwise. I should certainly be delighted to meet any of the old paper-friends of Uncle Tom days.

"The Baby"—I hope your prize has reached you ere this; let me know whether it has or not. Now, "Baby" dear, bend near and I'll whisper a secret: I have heard an old proverb that says "flattery is the food of fools," so be careful how you apply such a doubtful compliment. The expression is inelegant, yet it contains much truth. I agree with you about liking people we have never seen—why, I like ever so many of my Guests, "The Baby" among the number. How happy you will be to have your big brother home! Sensible man to take the "Advocate"; he'll do. There is not more than room enough now to publish the big list of contributors to

CONTEST XVII.

Excelsior! We have broken the record, and beaten, in point of number, the palmist days of puzzlement, even under Uncle Tom's regime. Number XVII. was an unparalleled success, some two hundred and twelve having contributed to it. Doesn't each of you feel elated to belong to such an important crowd? I am very proud of it. Several seemed to misunderstand the rules which I thought were explicit enough, and used the letters any and every way, but most of the work was correctly done, and many excellent papers were received from quite young children.

The following is a correct list of animals:

Table with 4 columns of animal names and numbers: 1 ai, 6 dog, 11 hog, 16 lynx; 2 ape, 7 eland, 12 horse, 17 ox; 3 arua, 8 elk, 13 lion, 18 rat; 4 bear, 9 fox, 14 llama, 19 sai; 5 deer, 10 hare, 15 moose, 20 yak

Fred L. Sawyer, Mitchell, Ont.; Allan Smith, Southcote, Ont.; Roy Harris (Box 56), Caledonia, Ont.; and Miss Bessie Broad (ties) are the successful competitors. The papers of the last two were equal in every way, so we shall allow a prize for each. The following is a complete list: Elizabeth Collier, Harry Ottaway, Karl Brydon, Gertrude Butler, P. T. McDermid, Harvey E. Brown, Reta Smith, Finlay B. Entwistle, May Cordingley, Alice Nixon, Roy Arnold, Charlotte D. Hinds, "Fragilein," S. L. Lloyd, C. Smith, Wadlington Mason, Lizzie Conner, Mrs. W. C. Homuth, "Fancy," Ethel Burnett, Wm. Reid, Lillian May Blair, Roy Harris, Maurici E. Woodley, Eva M. Barbour, Gladys Van Blaricorn, Mary J. Hope, Bessie Broad, Helen M. Smith, Nettie Morton, Mrs. W. G. Maddock, "Nancie," Henry Smyth, Kate Drew, Nellie Wakeling, "Leo Carleton," Jas. McIlmoyle, "Thayer," Edith Cronkrite, Millen H. Cameron, Lizzie Kitson, J. A. McNiven, M. Jessie McLean, Ethel Beattie, Mary Hunter, Nettie Barber, Millie Sneed, Ezra B. Homuth, M. Spies, Herb. Davidson, Chester L. Ives, Mary M. Purvis, Wm. A. Webb, Wm. Phillips, Hercel Sourie, Florence Fields, Hartley Loree, Elsie E. McDonald, Roy McKenzie, "Brownie," Geo. Gowan, Russell, Ferguson, Allen Wheeler, B. F. Boothby, Clark Johnston, Frank B. Leslie, Gertie Bishop, Fred Becksted, Bridgid McKinnon, Susan I. Gould, Archie McLean, Jessie Muir, M. Thomas, Martin Mullen, "Flossie," Louisa Harkness, Willie E. Brown, Chas. Bellhouse, Eddie R. Leskie, Harold Sutherland, Katherine Boyver, Walter

Willoughby, J. Virgil McLeod, Emily Starr, Alice Lunan, Wm. Coulson, Grace Lynn, Alberta B. McLaughlin, R. Yetts, Catherine J. McKnight, Pearl Parnell, Bruce Clarke, Geo. J. McCormac, Grace Sanderson, F. G. Semple, Mabel Clarke, B. Steinman, Lillie Thornber, Sarah K. McDonald, Fanny Tram, Carrie Walsh, John Usher, Ernest Sutherland, Albert Parkin, Alvin Greely, Bessie Davis, Fred Trebilcock, Annie Lamont, Claire Gibbons, Arthur Burr, Delphine Essery, Mrs. Jos. Campbell, Eva L. McConnell, Violet E. E. Honey, Sarah Murphy, Edna Warrion, Ethel Wardell, Carman Pratt, Wm. J. Moak, "Country Sis," Roger T. Hedley, Arden L. Litt, Mattie Marshall, Kate Ryckman, Larina Peacock, Florence Bourn, Olive Whiler, John Dunlop, Mabel K. Keeping, Eva Mitchell, Chris R. Gerber, Lucy Cruickshank, E. M. Isaac, M. A. Anderson, Beatrice Christian, Clarence Craig, Flossie Rea, Jas. McMullen, Austin Bunn, Levia Smyth, Edna Steele, Ross Doan, Allan Smith, Lawrence Conn, Walter Martin, Effie Thomson, Chester Mayhew, Gordon Mayhew, Herbert S. Spears, Floyd Libley, Alex. Nixon, "The Servant," A. D. Lloyd, Mary L. Ker, Ethra Walker, Wm. F. Fleming, Ewart Jamieson, Nellie Taylor, "Elm," F. Chas. McKenzie, Bertha Barnard, W. F. Lucas, Wm. C. Black, Mrs. Carman Timmins, Homer Bagshaw, W. P. McKarlane, G. H. Kisk, D. R. McComb, Freeman Coleman, Christina A. Turner, May Wilson, Rachel Paterson, Lillian Nixon, Grace Thornicroft, L. Love, Dora Wagg, Mary Muir, Helena V. Fowler, Jennie Crosby, Evelyn Stott, Garfield Sills, Russell Moffatt, Elymer Wright, George Keachie, Gordon R. Peart, Rolenia McDougall, Annie Macdougall, Martha Riley, Amelia Bourn, Cecile Brown, Etnel Jose, Harper, Shields, Maggie L. Betts, "Vera," Jessie Sorley, Elizabeth Chase, Maurice Erb, Wm. Gleason, Alice Hume, Janet Williscroft, Myrtle Roberts, Carry Hilles, Alonzo McKnight, "Jewess," "Queenie," Eliza J. Munro, Bella I. Blair, Mabel Cook, Edith Livingstone, Susie A. Crowe, Mabel L. Young, Alex. Cann. The above are just in the order in which the letters were opened, and without regard to merit.

Remember the drawing contest does not close till April 15th. See last issue and this for particulars.

THE HOSTESS.

Ingle Nook Chats, Pakenham, Ont.

A March Song.

Blow, March! and toss in anger Gray clouds across the blue; What care we, housed and happy, For an old blowhard, like you?

We miss some fragrant flavors— A flower or two of spring. But what's the odds? It's summer Where the oak logs crack and sing!

The red flames lick the chimney, And up the blithe sparks go, And glitter in the darkness Like diamonds in the snow.

What care we for your clamor? Blow out your trumpet blast! For Joy's at home with Love to-night, And Love shall hold him fast!

—Atlanta Constitution.

THE QUIET HOUR.

Conversation.

"A kindly word and a tender tone: To only God is their virtue known; They can lift from the dust the abject head, They can turn a foe to a friend instead; The heart close-barred with passion and pride Will fling at their knock its portals wide; And the hate that blights, and the scorn that sears, Will melt in the fountain of childlike tears. What ice-bound barriers have been broken, What rivers of love been stirred, By only a word in kindness spoken, By only a gentle word."

True as these words might be, and sometimes are, I am afraid most of our conversations do not help the world very much. Is it really true that speech is silver and silence golden? We ought to be ashamed of ourselves if it is true, for certainly the power of speech is a very valuable talent, for which we must some day give account. The unprofitable servant was not punished because he misused the talent committed to him, but because he didn't use it at all. Our Lord not only says that we shall be condemned by our words, but also, "By thy words thou shalt be justified." A great deal of our time is spent in conversation, but does that conversation seem likely to justify us? The gift of speech is a very solemn responsibility, and we may well feel afraid when we remember that we must give account for each idle, useless word. But total abstinence from speech is not the best remedy for evil or unprofitable conversation. Our Lord did indeed give us an example of the power of silence, but only on one day of His earthly life—how many times did He cheer and strengthen by His words! Now, preaching is one thing and conversation is another. "Goody-goody" talk is always objectionable, doing a great deal more harm than good, and anyone who deliberately sets himself to edify others by his conversation, is very apt to be priggish or conceited. Conversation should be like the fruit on a tree, growing naturally out of the thoughts, and revealing the real man underneath. "A good man out of the good treasure of the heart bringeth forth good things; and an evil man out of the evil treasure bringeth forth evil things." A man's words will sooner or later show what his character is, no matter how carefully he chooses them and tries to make them the means of hiding his thoughts.

How naturally our Lord begins the conversation with the woman at the well of Samaria. Tired and thirsty, He asks her for a drink, and in a very few minutes they are talking together of the very highest truths. Weariness and thirst are forgotten in the eager desire to help this poor

woman—a chance acquaintance, as we might say, as though chance had anything to do with our lives. Again, on the road to Emmaus, the two disciples were drawn quite naturally into conversation by the Stranger who joined them on the way. He began by a simple question, and, in the short walk, opened their eyes to the great truths concerning the Messiah, which were written in their own Scriptures. Because their conversation went far below the surface of ordinary talk, it was not for that reason wearisome, but quite the reverse. How many other disciples since then have found that their hearts burned within them when talking earnestly about the Master. One such talk will stand out as a bright spot in the memory for years, when hundreds of commonplace conversations have been forgotten, and surely it is true that at such times He "makes, unseen, a third." It is written in the book of Malachi that the Lord hearkens and hears, when they who fear Him speak often to one another, "And they shall be Mine, saith the Lord of hosts, in that day when I make up My jewels."

There is no need to talk all the time as though we were in church; but neither is there any need to let all our conversations be light, frothy, frivolous and unprofitable. I have had a good deal of experience with boys, and they are generally supposed to be shy of talking about the inner spiritual realities of life. Just try them, and see. They are very quick to detect any shadow of cant or hypocrisy, but they are for that very reason most satisfactory to talk with—if you really mean every word you say. They enjoy a conversation about invisible, eternal things all the more because they so seldom indulge in it. But give your companion a chance sometimes. It is not conversation at all when one person has the floor all the time. Probably you think I don't practice what I preach, as I certainly keep the floor every fortnight at least. That is very true, yet I am always glad to hear your opinion on any subject, whenever you are willing to express it.

Another very important thing is to know when to stop. The longest talks are not usually the most satisfactory. This is one of the cases where the most valuable goods are generally put up in small parcels, like valuable jewels. "A word fitly spoken is like apples of gold in pictures of silver." Words are not very bulky, neither are seeds, but we never know what harvest may spring from them.

"I dropped a sympathetic word, Nor stayed to watch it grow, For little tending 's needed when The seed is good we sow; But once I met the man again, And by the gladness way He took my hand, I knew I sowed The best of seed that day."

We know something of the harvest which sprang from that conversation by the well. First the conversion of the woman and many of her townsmen. Later on we read that St. Philip found the Samaritans very ready to accept the truth. Surely the harvest did not end then, for seed has a fashion of multiplying. Think what our conversations too often are. How little we should like it, sometimes, if they were taken down in shorthand, and published. People who are considered very good-natured often do terrible mischief with their tongues, as Cowper says:

"Her superfluity the Poor supplies: But if she touch a Character—it dies!"

Here is a recipe for making a scandal, and some of the ingredients named occasionally find their way into ordinary conversations, I am afraid: "Take a grain of falsehood, a handful of runabout, the same quantity of nimble-tongue, a sprig of herb backbite, a teaspoonful of 'don't-you-tell-it,' six drops of malice, and a few drachms of envy. Add a little discontent and jealousy, strain through a bag of misconstruction, cork it up in a bottle of malevolence. Let a few drops be taken before walking out, and the desired result will follow."

There was a good deal of sense in an old Polish law, according to which anyone found guilty of slander was compelled to walk on all-fours through the streets of the town in which he lived, as a sign that he was unworthy of the name of man.

When our Lord promises to confess before His Father those who confess Him before men, does He mean only a public profession of faith in the Church, or does He mean also the everyday confession of our lives (which sometimes contradicts the confession in church)? And when He says He will deny before His Father those who deny Him before men, may it not be equally true that empty, frivolous talk is a virtual denial of Him? If God is not in all our thoughts, we are sure to show it by giving Him no place in our words.

One thought more. In conversation, as in everything else, if we want to accomplish anything worth the doing, we must ask God to give us the best words to use, and to fill them with living power.

How sure it is— "That if we say a true word, instantly We feel 'tis God's—not ours." HOPE.

40 AYRSHIRES.

EXTENSIVE DISPERSION SALE.

Comprising the entire well-known "Highlands Farm Herd," owned by John H. Douglas, Warkworth, Ont.: 3 bulls, including the famous Blair Athol of St. Annes; 25 cows, including Miss Bonnie Doon, Alice of Hatton (imp.), and others of equally high-class breeding. A number of yearling heifers and spring calves, **MAKING IN ALL OVER 50 HEAD.** The entire herd will be offered without reserve on

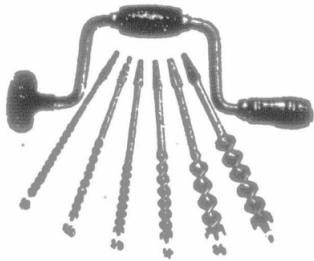
WEDNESDAY, APRIL 2nd, 1902.
CAMPBELLFORD STATION, G. T. R., EIGHT MILES FROM FARM.

Conveyances will meet trains for the accommodation of intending purchasers. **CATALOGUES**, containing terms and full information, on application.

GEO. JACKSON,
AUCTIONEER,
PORT PERRY.

JOHN H. DOUGLAS,
WARKWORTH,
ONTARIO.

SEND FOR ILLUSTRATED PRICE LIST.



Brace and 6 best Auger Bits,
only \$1.50; postpaid anywhere in the Dominion for \$2.00.

Combination Shoemaker's, Tinsmith's and Harnessmaker's Outfit.
Should be in the possession of everyone.
Only \$1.85.



Revolvers,
\$1.50; postpaid, \$1.65.

Threshers' Supplies, Belting, Etc.,
at wholesale prices.



WILKINS & CO., 166 and 168 King St. East, **TORONTO, ONT.**



Bruce's Giant Half-Sugar Beet
NEW.

We offer this fine novelty in two colors, white and rose. It is a splendid variety for stock feeding, not only on account of its heavy cropping, but also on account of the large amount of sugar it contains. In comparative trials with the older varieties of Sugar Beet, it has outyielded them by fully one-half as much again, and all growers of Sugar Beets and Mangels should give it a trial. 1 lb., 10c.; 1 lb., 35c.; postpaid.

Grass Peas, Bug Proof.

Owing to the depredations of the pea bug, this valuable pea has been extensively used the past two years, and with good results. Sown early, on good strong land, they do remarkably well, and are fully as good a cropper as the regular varieties of field peas, which cannot be used now in most districts, owing to their being infested with the bug. Peck, 25c.; bushel, 50c.; by express or freight; 2 bushel cotton bags, 18c. each extra.

Our beautifully illustrated seed catalogue, 80 pages, mailed free to all applicants.

JOHN A. BRUCE & CO.,
SEED MERCHANTS,
HAMILTON, CANADA.
Established over half a century.

E. JEFFS & SON, BOND HEAD, ONT.
BREEDERS OF
High-class Shorthorns, Leicesters and Berkshires.
Young bulls and heifers; young boars and sows for sale. Write, or come and see.

FOR SALE:
A Clydesdale stallion, rising 3 years old. In splendid condition; excellent bone and action; a prizewinner wherever shown last fall and fall before.
L. BRADLEY, COLUMBUS, ONTARIO.

Nitrate of Soda
THE STANDARD AMMONIATE FERTILIZER FOR
MONEY CROPS
CORN, FRUIT, HAY, SUGAR BEETS, AND WHEAT.
Send post card for formulas and free bulletins.
William S. Myers, Director,
Dept. A, 12 John Street, New York.

NOTICES.

"ROYAL SEEDSMEN."—Half a century's experience in the seed business means knowledge. On this point the reader is referred to the John A. Bruce & Co. advertisement elsewhere. They mail seeds to every part of the Dominion.

"GOOD SEEDS—GOOD CROPS."—That is the way D. M. Ferry & Co., Windsor, Ont., put it in their announcement on another page. They are again sending out their famous seed annual free.

SELECTED SEEDS.—Established in 1856, the J. A. Simmers seed house, Toronto, are still to the front in the garden and farm seed trade. Their valuable 1902 catalogue will be mailed free to any inquirer.

NORTHERN-GROWN SEEDS.—The Harry N. Hammond Seed Co., of Bay City, Mich., make a specialty of high-class farm and garden seeds and seed potatoes, their crop last year aggregating 274 carloads! A request on a post card will secure one of their beautiful 100-page catalogues.

"RELIABLE SEEDS."—The year 1902 will witness a greater area of farm and garden sown with seeds in Canada than ever before. Among the houses catering to this great trade is Wm. Ewing & Co., Montreal (successors to Wm. Evans Seed Co.). Write for their free catalogue.

WAVERLEY OATS AND SPELT.—Among the notable new farm seeds announced by Wm. Rennie, of Toronto, are Waverley oats and the much-talked-of spelt. Another speciality is the Giant sugar mangel. The advertisement on another page will repay careful study. This old and deservedly popular seed house aim first, last, and always, at quality.

THE PAINTING SEASON.—With farmers and others the painting season is at hand. The Canada Paint Company, who have extensive works in Montreal and Toronto, assist in making painting a genuine pleasure. Their well-known brand of mixed paints, stains, enamels, implement paints and varnishes are put up in a handy form, ready for use, and any dealer who desires to extend his business is in touch with the Canada Paint Company, Montreal, and sells their manufactures.

CANADIAN PORTLAND CEMENT.—The use of cement in the construction of walls, floors, cisterns, sidewalks, culverts, etc., is only in its infancy in this country. More cement concrete walls will be erected, and more floors laid in 1902 than in any previous year in Canada's history. Portland cements made in Canada are coming to the front. The "Star," "Beaver" and "Ensign" brands are manufactured by the Canadian Portland Cement Co., for whom the sales agents are the Rathbun Co., 310-312 Front St., Toronto. Write them for prices and other information as per advertisement elsewhere in this issue.

ZANZIBAR PAINTS.—Thousands of new farm buildings will be erected this season. Their durability and appearance will be vastly enhanced by a thorough application of good paint. Sheds, wagons, implements and windmills also need paint. It increases the value of the farm at little cost. In case of existing buildings, etc., the work should be done at once. The Zanzibar Paint Co., of Toronto, make an announcement elsewhere that "Farmer's Advocate" readers are interested in. Note what they say: "Weatherproof, waterproof, rust-proof." Ask your local dealer for their paints, or write them for particulars.

GOSSIP.

Dr. Gallanough, V. S., of Toronto, recently purchased, in Middlesex Co., Ont., a carload of delivery horses averaging from 1,000 to 1,200 lbs. in weight for the Toronto City Dairy. They were all bays and were pronounced by the Toronto papers the finest lot for the purpose that ever arrived in that city.

H. C. Graham, Ailsa Craig, Ont., who advertises two young Shorthorn bulls of milking strains, writes: "The drandam of the bulls we advertise for sale has been giving milk since May last, during which period she has raised two excellent calves, giving, in addition, what would be considered a good flow of milk, and even yet, though due to calve in May, is giving twenty pounds of milk of good quality per day, though being fed entirely on dry food, getting neither roots nor ensilage; only mixed hay, cut straw, and clover chaff, with two pounds of oat chop twice a day. She is not by any means the much-talked-of typical dairy cow, as she is a good specimen of the beef Shorthorn, weighing, when last weighed, in ordinary condition, sixteen hundred and thirty pounds. Though we exhibited only the heifer, which won first place at the Provincial Dairy Show at Guelph, and which made at one test the highest percentage of butter-fat reached by any animal in the dairy, viz., 5.6 per cent., it was not because she was our best, but because she was the only cow milking except the old cow, which was suckling a calf. We are now milking a third cow which, on food similar to the above, makes twelve pounds of butter in a week. The bulls, in addition to having the milking ancestry on both lines of the pedigree, are of the smooth, thickly-fleshed, blocky form so much sought after present."

Hy. Wade, Parliament Buildings, Toronto, has issued the prize-list for the eighth annual Canadian Horse Show in Toronto Armories, April 10, 11 and 12. Write for a copy. Entries close on Monday, March 31st. Reduced railway rates are offered, and a splendid list of cash prizes and valuable cups will be awarded.

AN IMPORTANT AYRSHIRE DISPERSION SALE IN VIEW.

As announced in an advertisement in this issue, an unusually important dispersion sale of Ayrshire cattle is slated for Wednesday, April 2nd, when the entire herd of about 50 head of high-class cattle belonging to Mr. John H. Douglas, M. P. P., will be disposed of by auction at his farm at Warkworth, Ont., eight miles from Campbellford Station, on the Peterboro & Belleville branch of the G. T. R. Mr. Douglas is regarded as one of the best judges of Ayrshires in Canada, having frequently been called to judge the class at provincial and other leading exhibitions, and has imported many excellent animals personally selected from leading herds in Scotland. The herd was established over 40 years ago, and has been bred strictly on dairy lines, always considering that size, dairy conformation, large teats, with well-shaped udder, was essential in a profitable dairy cow. The herd has been strengthened in later years by such imported cows as Fairy Queen of Douglas, Alice of Hatton, Violet of Park, and others of equal merit, imported and home-bred, among which is Miss Bonnie Doon, daughter of Amy, who was sweepstakes cow at Toronto Industrial in 1893. The bulls used in the herd have also been of the highest class, both in breeding and conformation. The present stock bull is Blair Athol of St. Annes 9995, also White Prince (imp.), Glencairn of Burnside, Dainty Lad, Dominion Chief, and Prince Wellington, alias Gladstone. Blair Athol of St. Annes is a large bull, of great substance and of ideal dairy conformation. His calves, about 20 of which will be sold, are strong and vigorous, and possessing the finest dairy type. The modern Ayrshire is a model dairy cow in form, vigor of constitution, milk vessel, and capability to utilize farm forage profitably in the production of large quantities of milk, and when dry puts on flesh rapidly. Mr. Douglas's herd measures well up to the standard of the best of the breed in all essentials, and dairymen will find in this sale a rare opportunity to secure high-class cattle of the breed at their own price. The catalogue, giving fuller information, will be sent on application as per the advertisement.

Wanted: The address of John McNaughton, farmer, who crossed the Atlantic in the fall of 1897, in the S. S. Sardinian. If Mr. McNaughton or anyone else would give this information we would be obliged. Address **Farmer's Advocate, London, Ontario.**

Barn Painting.



THIS illustration is from the latest catalogue of the Spramotor Co., showing the way to paint a barn with their machine. If you want to know what other things it will do, send for the new book—it's free, and will be ready in a week.

SPRAMOTOR CO.,
BUFFALO, N. Y. LONDON, CAN.

EGGS: from heavy-laying, prizewinning strains of S. C. Brown Leghorns, S. C. Black Minorcas, and Barred Plymouth Rocks. See "Gossip" column, Advocate, April 1st. Write for circular before purchasing elsewhere. **JOHN B. PETTIT, Fruitland, Ontario.**

A BARGAIN! A LARGE CONSIGNMENT OF
Basic Slag
 FROM SCOTLAND, TO BE SOLD AT HALF PRICE.
 \$17.00 per ton, Toronto.

The best fertilizer for grasses, clover, roots, corn, etc. Used more in Great Britain than any other manure. Write for pamphlets.
GEORGE KEITH, Seed Merchant, TORONTO.
 Send for Seed Catalogue and for samples of pure clover and timothy seed.

MAPLEWOOD HACKNEYS.
 PROPERTY OF FREDERICK C. STEVENS,
 ATTICA, N. Y.,

Have won more challenge cups, more championships, more first prizes, and more value in prizes during the past seven years than all the other Hackneys of America combined.

THIS IS THE PLACE TO BUY FOUNDATION STOCK.
 Stallions of all ages, mares in foal, young mares and fillies. The best three carriage horse sires in America at the head of this stud: Langton Performer, Clifton 2nd, and Fandango.
SEND FOR CATALOGUE TO E. T. GAY, MANAGER, ATTICA, N. Y.



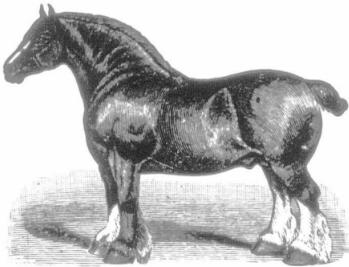
LATELY IMPORTED A FRESH LOT OF

Glydesdale Stallions,

Comprising sons and grandsons of many of the most noted Scotch showyard winners and sires, all in the pink of condition without surplus flesh, and personally selected to meet the best Canadian markets, having, without exception, the best of bone, hair, feet, and action, coupled with true Clyde character. I will make further importations as the times demand. Inspection invited.
Prices consistent with quality.

ROBERT GRAHAM,
 Ringwood P. O., Ont.
 Stouffville Station, G. T. R., and telegraph office.

Imported Stallions for Sale.



FOURTH consignment, per steamship from Glasgow, due to arrive end of February, 1902.

DALGETY BROS., DUNDEE, SCOTLAND, the largest importers and exporters of horses in Canada, have on hand just now a choice selection of above, including several prizewinners. Our fourth consignment this season. Largest and best lot from Glasgow show. They combine size, quality and action, and all good colors; age, from two years upwards; and will be for sale at

BLACK HORSE HOTEL,
 FRONT STREET, TORONTO, ONT.,
 on Wednesday, March 5th, for one week; after that at our own stables, London, Ont. Any one in need of a good stallion should not miss seeing our stock before buying. Prices right. Apply to

JAMES DALGETY, 229 HYMAN STREET, LONDON, ONTARIO.

HAMMOND'S EARLY MICHIGAN POTATO

This Marvelous Extra Early Potato originated by **HARRY N. HAMMOND SEED CO. Ltd** Box 225 BAY CITY, MICH.

Largest growers of seed potatoes in America. 30 best varieties. Northern Crown always best. Blight proof. enormous yielders, highest quality. Lowest price for lb., bbl., or carload. Elegant no-charge Bargain Seed Catalogue FREE. Write for it today.

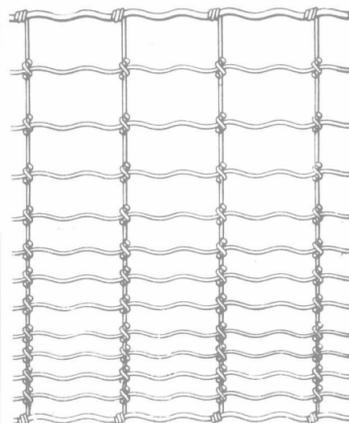
FOR SALE:
 Jersey bull, 8 months old; dam purchased from Mrs. E. M. Jones, Brockville; sire owned by Mrs. Jones. Solid color; a beauty. Apply to
ARTHUR ROBB,
 NEWRY P. O., ONT.

"ORCHARD HILL" SHORTHORNS.
 Herd comprises representatives of best Scotch-bred families, with Lord Lavender at head. Young animals of both sexes for sale.
 om **ARTHUR JOHNSTON, Vandeleur, Ont.**

LAKE VIEW STOCK FARM.
 SCOTCH SHORTHORNS, both sexes, all ages. As good as the best.
 Meaford Station, **JAMES BOWES,**
 G. T. R. North, om **Strathclairn P. O.**

PLEASE MENTION FARMER'S ADVOCATE.

LAMB FENCE



A ready-made fence, complete in the roll. The high carbon wire used in the "Lamb" will better retain the spring and has more tensile strength than common hard wire. The large hard wire upright in one piece gives the fence greater support than a small or soft wire could do.

H. R. LAMB,
 LONDON, ONT.

GOSSIP.

John Miller & Sons, importers and breeders of Clydesdales, Shorthorns, and Shropshires, Brougham, Ont., write: "Since last report we have sold to J. B. Milson, Newtonville, the roan bull calf, Pretender, sired by Royal Prince 71190, and out of Pium Girl 2nd. Herbert Wright, Guelph, gets the red imported yearling bull, Royal Hope, bred by John Marr, Cairnbrogie, from same foundation as our Strathallan family; he should make a valuable sire. Frank Quibell & Co., Mount Albert, get a good bull in Roosevelt. He should answer their purpose well, as they have no pure-bred cows, and just want him for crossing on grades. David Barr, Jr., Renfrew, Ont., gets a good heifer in Mina Gloster; he is just starting a small herd, and made a good selection. We still have six young bulls left, and will sell them very reasonable, as we need the room for our young calves. We have ten nice ones thus far, and expect ten more this spring. We have an extra good Clyde stallion rising three years, from imported stock, that we will sell very reasonably."

THE FARNHAM FARM OXFORDS.

The Farnham flock of Oxford, owned by Mr. Henry Arkell, of Arkell, Ont., is perhaps the largest flock of this breed of sheep in Canada. There are at present in the flock 300 head, all of which are either imported or from imported stock. The flock is headed by that grand stock ram, imported Bryan. This ram, individually, could scarcely be duplicated in any country. In ordinary breeding condition he weighs 325 lbs., is an exceptionally heavy-boned animal, graced with a perfect covering, is very even in his make-up, and chuck-full of quality. As a stock-getter he is a pronounced success, his get being very even, well covered, with plenty of bone and quality. On three different occasions Mr. Arkell has reused \$200 for this ram. In the flock there are a number of choice ram and ewe lambs sired by this ram and out of imported and home-bred ewes that are for sale, among them being many that are fit to head any flock. His second in service is the imported ram, Hampton Hero 5th, bred by J. T. Hobbs, Maiseyhampton, Gloucestershire, Eng. He is also a low-set heavy-boned, well-covered sheep, very evenly built, and showing lots of quality; in fact, Mr. Arkell will use nothing on his flock but the best procurable. The result of this far-seeing policy is amply demonstrated in the superior individuality of his flock in general. There are about 75 breeding ewes, a number of whom have already dropped their lambs this season. The little fellows are doing well, and growing nicely. In the flock there are 120 rams for sale, 50 of which are extra good ones, and fit to head any flock. There are also about 70 ewe lambs for sale, better than which there are none, so that no matter what a man wants in the Oxford line, he can get satisfied here. Last year Mr. Arkell's sales totaled the high number of over 400, a number which he expects to exceed this year. He is also offering for sale 4 young Shorthorn bulls out of cows that were bred on Bates foundation, topped with Scotch bulls.

ABERDEEN-ANGUS BULLS.
Daubeny oats. The best very early variety grown at O. A. G. Most suitable for growing with barley. 60c. per bush; 10 bush. or over, 55c. Grass peas. — \$1.00 per bush.; entirely bug-proof.

Orders booked now for Pearl of Savoy seed potatoes: \$1.00 per bag; 2-bush. bags, 20c. each; f.o.b. Guelph, C.P.R. or G.T.R.
JAMES BOWMAN, GUELPH, ONT.

White Australian Seed Oats.
 60c. per bush. Good bags, 20c. Write:
ROBT. CHAMBERS, o FENWICK, ONT.

Warranted to give satisfaction.

GOMBALD'S CAUSTIC BALSAM

A safe, speedy and positive cure for
 Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a **HUMAN REMEDY** for Rheumatism, Sprains, Sore Throat, etc. it is invaluable. Every bottle of Caustic Balsam 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, testimonials, etc. Address:
THE LAWRENCE-WILLIAMS COMPANY, Toronto, Can.

Blood will tell

When an animal is all run down, has a rough coat and a tight hide, anyone knows that his blood is out of order. To keep an animal economically he must be in good health.

DICK'S BLOOD PURIFIER

is a necessity where the best results from feeding would be obtained. It tones up the system, rids the stomach of bots, worms and other parasites that suck the life blood away.

Nothing like Dick's powder for a run down horse.
 50 cents a package.
Leeming, Miles & Co., Agents, MONTREAL.
 Write for Book on Cattle and Horses free.

BRITISH COLUMBIA FARMS
 If you are thinking of going out to the Pacific Coast, try British Columbia. A delightful climate; no extremes of temperature; fertile land; ample rainfall; heavy crops, rapid growth, and splendid market for everything you raise, at good prices. The celebrated valley of the Lower Fraser River is the garden of the Province. Write for farm pamphlet telling you all about it, and containing a descriptive list of farms for sale.
The Settlers' Association of B. C., box 540, Vancouver, B. C.

SPECIAL OFFER IN BARCLAY'S PATENT ATTACHMENT

FOR THE CONTROL AND CURE OF BALKING AND KICKING HORSES.

We will send our "Attachment," charges paid one way, to any part of Canada, C. O. D., and subject to examination and approval of method. When satisfied it will do all we claim for it, pay the express agent our price, \$5.00. If not, the return freight will cost only a few cents. Our article will control any vice known to a horse, and is giving splendid satisfaction wherever used. Full illustrations and directions are enclosed. A boy can adjust it, and it can be used with any harness, vehicle or implement. If you have a troublesome horse, or a colt you wish to break in, write at once to



THE BARCLAY MFG. CO., BROUGHAM, ONTARIO.

JOHN BRIGHT,
 MYRTLE, ONTARIO.
 BREEDER OF
Clydesdale Horses
 AND
SHORTHORN CATTLE.....



SHORTHORNS.
 For Sale: 16 head of bulls and bull calves; also a large and choice lot of cows and heifers of all ages.

CLYDESDALES.
 11 registered mares, 6 of which are in foal to such notables as Royal Cairnton, Prince Patrick and Lord Lyndock; also 2 young stallions.

Myrtle P. O. and R. R. Stn., G. T. R. and C. P. R.

CANADA'S GREATEST

CLYDESDALE and HACKNEY

ESTABLISHMENT.

The Home of the Winners at the Four Leading Shows of America in 1901.
The Greatest Winnings on Record:

Toronto Industrial Exhibition — Ten Firsts, Four Seconds, and One Third.

Ottawa Central Exhibition — Eight Firsts, Four Seconds, and One Third.

We also won every championship in both stallions and mares, except one which we lost thro' accident.



Buffalo Pan-American — Six Firsts and One Third.

Chicago International Exposition — Five Firsts, One Second and Two Thirds.

MACQUEEN, greatest living Clydesdale sire and show horse in the world, is now at the head of our stud.

We have now on hand and for sale more prizewinning, high-class young stallions and mares than can be found in all other stables in Canada.

30 HEAD OF STALLIONS

From two to five years old; home-bred and imported; of choicest breeding; of ample size, combined with quality and action.

TERMS AND PRICES TO SUIT PURCHASERS.

Intending buyers will consult their own interests by calling on us before purchasing elsewhere. Correspondence and an examination of our stock solicited.

Graham Bros., Claremont, Ont.

Claremont is 25 miles east of Toronto, on the C. P. R. Farm one mile from station.

DR. PAGE'S ENGLISH SPAVIN CURE



For the cure of Spavins, Ringbone, Curbs, Splints, Windgalls, Capped Hock, Strains or Bruises, Thick Neck from Distemper, Ringworm on Cattle, and to remove all unnatural enlargements. This preparation (unlike others) acts by absorbing rather than blistering. This is the only preparation in the world guaranteed to kill a Ringbone or any Spavin, or money refunded, and will not kill the hair. Manufactured by DR. FREDRICK A. PAGE & SON, 7 and 9 YORKSHIRE ROAD, LONDON, E. C. Mailed to any address upon receipt of price, \$1.00. Canadian agents: J. A. JOHNSTON & CO., DRUGGISTS, 171 KING STREET, EAST, TORONTO, ONT.

EIGHTH ANNUAL Canadian Horse Show

UNDER THE JOINT AUSPICES OF The Canadian Horse Breeders' Association and The Toronto Hunt, Limited,

WILL BE HELD AT The Armouries, Toronto, Can., THURSDAY, FRIDAY and SATURDAY, April 10, 11, 12, 1902

Entries close on Saturday, March 29, 1902, and should be addressed to HENRY WADE, Parliament Buildings, Toronto.

Corn Planting



must be well and carefully done, as the future crop depends upon it. For all purposes, in any soil, on all kinds of ground nothing equals the SPANGLER CORN PLANTER. It saves time, labor, money and insures the crop. You know when it is working, you can see the corn on its way to the ground. Made with or without fertilizer attachment. New device for sowing peas, beans, radishes, corn, etc. We also make the famous Spangler Lawn Mower and Fertilizer Drill. Write for catalog and circular. SPANGLER MANUFACTURING CO., 518 Queen St., York, Pa.

CLYDESDALE AND HACKNEY STALLIONS AND MARES



FOR SALE: THE CLYDESDALE STALLION CHARMING LAD 2923 Rising 3; large size and very smooth; has won 6 prizes and a gold medal at Ottawa Exhibition. LORD STANLEY 2537, rising 2, also a prizewinner. CLOTH OF GOLD 2959, 5 years old; first-prize winner at Toronto and first and sweepstakes at London. Also brood mares and a number of very fine foals of both sexes. TWO HACKNEY stallions; two mares rising 4 and 5 years old; large, handsome, high-steppers, well broken to drive. Size, action and quality combined in all. Inspection invited.

O. SORBY, GUELPH, ONTARIO. Shires, Shorthorns, and Leicesters. Young stock of both sexes for sale. Imported Prince Louis = 32082 = heads the herd. Write for prices or come and see them. John Gardhouse, Highfield P. O., Weston, G. T. R. and C. P. R.

FOR SALE: CLYDESDALES AND SHORTHORNS.

Stallions from sucking foals up. Brood mares and fillies of superior quality and breeding. A few grand young Shorthorn heifers, bred in the purple. Special mention, the great four-year-old stallion "Prince Lyon." THOS. GOOD, Richmond P. O., Ont. R. R. Station, Stittsville, C. P. R.



PLOWING MADE EASY

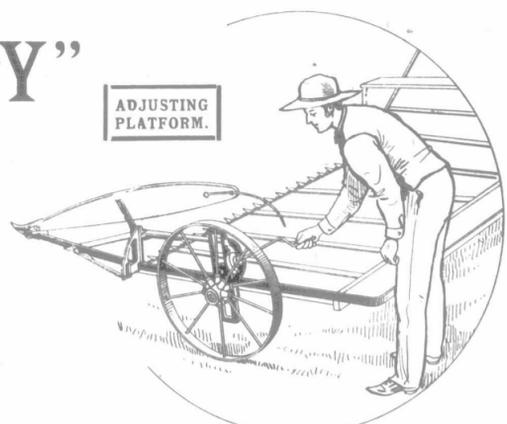
The Wonder Plow Attachment can be attached to beam of any plow; regulates depth and width of furrow; saves one-third draft on horses; relieves all labor of man, as you need not hold plow handles to do perfect plowing. 10-year-old boy can plow in hardest soil. Agents Wanted. Fast seller everywhere. Good money for enterprising agents. Address at once.

WONDER PLOW CO., Room 10, Hiscox Building, London, Ontario.

"YOU'RE EASY"

says the well-pleased farmer to the Platform Lever on the

Massey-Harris Binder.



No tugging at chains—a boy can turn the crank to raise or lower Platform.

NOTE.—"By developing our industries we build up the nation. We should patronize our home industries, and only buy abroad what is not made by our countrymen in Canada."

Clydesdales for Sale. Imported and Canadian-bred stallions for sale, also registered Clydesdales. Fillies from one to three years old. Terms reasonable. JAMES PATON, Swinton Park, Ontario.

FOR SALE: A Pure-bred Clydesdale Stallion Bred from imported stock; five years old; brown in color. GEORGE MARTIN, CROMARTY P. O.

4 Imp. Clydesdale Stallions 4 Amphion, Vol. 24, 2 years old, bay; Brecpholus, Vol. 24, 2 years old, black; Voyageur, Vol. 24, 2 years old, brown; Lord Gartly, Vol. 23, 4 years old, brown. Representing the blood of Golden Sovereign, Sir Christopher, Montrave Matchless, and Royal Gartly. GEO. G. STEWART, ROSERBANK FARM, P. O. and Station, Howick, Quebec.

Clydesdale Stallions FOR SALE. One seven-year-old. One three-year-old. Three two-year-olds. Also a few mares and fillies of good size and good quality. I. Devitt & Sons, Freeman P. O., Burlington Junction Station 1/2 mile from farm.

WM. SMITH, COLUMBUS, ONT., IMPORTER AND BREEDER OF Clydesdale Horses & Shorthorn Cattle

OAKLAWN FARM THE GREATEST IMPORTING AND BREEDING ESTABLISHMENT IN THE WORLD.

PERCHERONS, FRENCH COACHERS. On hand over 500 HEAD. Our late importations included the Principal Prize Winners at the Great Shows of France. At the recent INTERNATIONAL LIVE-STOCK EXPOSITION at Chicago, the Oaklawn Percherons won every Championship, First Prize, and Gold Medal and every Second Prize in classes. Notwithstanding the superior quality of our horses and the amply fair and certain terms of our breeding guaranty, backed by our well-known responsibility, it is a fact that our prices are lower than can be obtained elsewhere in America. Catalogue sent on application.

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

IMP. CLYDESDALES AND AYRSHIRES. The three imp. stallions, Copyright, Baron Frederick and Baron Laing, and the Canadian-bred stallion, Laurentain. Ayrshires all ages; and poultry, utility breeds. Eggs for sale. ROBT. NESS & SONS, Howick, Que., P. O. & Sta.

PLEASE MENTION THE FARMER'S ADVOCATE

CLYDESDALE STALLION Kinellar Stamp (3044). One-year-old bay. WM. BRASH, ASHBURN, ONTARIO.

FOR SALE: One Imported Cleveland Bay Stallion Registered pedigree. Address: Hamilton Canning, Inverness, Que. Reedsdale, Que.

Smith & Richardson COLUMBUS, ONT., IMPORTERS OF CLYDESDALE STALLIONS.

Our latest importation of 4 stallions is the best we ever made, weighing from 2,000 to 2,200 lbs., and of the well-known Darnley and Prince of Wales breeding. We have a number of pure-bred mares; also some young Canadian-bred stallions and fillies. Write for prices. Railway Stations: Oshawa, G. T. R.; Myrtle, C. P. R. Long-distance telephone at Columbus.

4 Imp. Clydesdale Stallions 31 Imported Shorthorn Cows and Heifers. 7 Canadian-bred Cows and Heifers. 3 Imported Shorthorn Bulls. 5 Canadian-bred Bulls. GEO. ISAAC & BROS., BOMANTON, ONT. COBOURG STATION, G. T. R.

Clydesdales

Two stallions for sale, rising two and three years old. Correspondence solicited. Josiah Hallman & Sons, Washington, Ont.

HIGH PARK STOCK FARM. GALLOWAYS of the choicest breeding and most fashionable strains. Inspection or correspondence invited. A. M. & ROBERT SHAW, P. O. Box 294, Brantford, Ont.

INGLESIDE HEREFORDS.

A few choice heifers and young bulls by Mark Hanna, sweepstakes bull at Pan-American. Shropshire Sheep and Tamworth Swine. H. D. SMITH, Compton, Quebec, Ont.

The Sunnyside Herefords.

Imp. Sunny Slope Tom 1st at head. The blood of Lord Wilton, Garfield, Grove 3rd, Beau Real and Diplomat represented. Special offering: 3 bulls, 8 to 14 mos; 6 young cows and heifers. Inspection and correspondence solicited. 2 choice registered Berkshire boars, price \$10.00 each. O'NEIL BROS., Southgate, Ont. Lucan station, G. T. R. Ilderton station, L., H. & B.

High-class Herefords

We have for sale the following choice young stock, which have been bred from imported and American sires. Intending buyers will do well to inspect the following: 18 young bulls, 2 aged bulls, 20 young heifers. Correspondence invited.

A. S. HUNTER, DURHAM, ONT. 6-POLLED ANGUS BULLS—6 Six young bulls, from 6 to 16 months old; prize-winners among them. All for sale. Alex. McKinnon, Hillsburg P. O. and Station.

STOCKMEN THE SALE OF

Hersee's Reliable Stock Food The past two weeks was the largest in its history, the sales being one-third more than any two previous weeks. We like this, showing us that it is doing the work you want it to do. It is made to be of some use, and we ask every stockman to give it a trial, and get some of the profits others are getting. Ask your dealer about it. Stock book free. E. HERSEE, MANUFACTURER, WOODSTOCK, ONT.

BELLEVUE SHORTHORNS.

Both sexes. IMPORTED AND HOME BRED. All ages. Prizewinners at home and abroad. EDWIN BATTYE, GORE BAY P. O. AND PORT. MANITOULIN ISLAND.

Mercer's Shorthorns for Sale

BULLS and heifers from such families as Matchless, Claret, Missies, Stamford, Fashions, Buttercup, Isabellas, Princesses, Beatrices, and other choice families. Herd headed by Village Squire = 24993 = (he by Abbotsford), assisted by a son of old Royal Sallor (imp.). Cows and heifers in calf. Four nice young bulls. Our herd stands at the head of the show-ring in this northern country. Over 40 head now in the herd. Intending visitors drop a card and they will be met at the C. P. R. station, Markdale, one mile from farm. Write for prices. No business, no harm. Our motto: "The best is none too good." THOS. MERCER, MARKDALE, ONT.

JOHN DRYDEN, BROOKLIN, ONTARIO.

BREEDER OF CRUICKSHANK SHORTHORNS AND CHOICE SHROPSHIRE SHEEP. Choice Young Bulls and Ram Lambs for sale. Write for prices.

A QUICK, SHARP CUT hurts much less than a bruise, crush or tear. Done with the DEHORNING KEYSTONE KNIFE. On the safest. Quick, sharp cut. Cuts from four sides at once. Causes crush bruise or tear. Most humane method of dehorning known. Took highest award World's Fair. Write for free circulars before buying. Owned and Manufactured by R. H. McKenna, V. S., Pictou, Ont.

FOR SALE:

Nine Shorthorn bulls, from 8 to 15 months old. Also pure-bred Clydesdale stallion, bred from imported stock, rising 2 yrs.; brown in color. **McDONALD BROS., WOODSTOCK, ONT.**

1833 **Wm. Linton,** 1902
AUROREA, ONT.,



Has for sale three imported Shorthorn bulls and a few heifers, various ages; also a few home-bred bulls fit for service. This is one of the herds that the late Amos Cruickshank used to resort to for stock bulls.
Aurora is 24 miles north of Toronto, by Metropolitan R. R. Can leave Toronto any time during the day, and be back in Toronto in two hours and a half.

J. & W. B. WATT,
SALEM, ONTARIO
(POST AND TELEGRAPH OFFICE),

BREEDERS OF—
Shorthorn Cattle, Clydesdale Horses, Leicester and Oxford Sheep, and Berkshire Pigs.

Our herd contains such families as Matchless, English Ladies, Mildreds, Village Buds, Misses, Stamford, Clares, and Marthas. Royal Wonder = 34632— junior champion of 1901, now heads the herd. A choice lot of young bulls and a few females for sale. We offer our whole flock of Leicesters for sale—thirty-five ewes and ewe lambs and fifteen rams.
Farms 2 miles from Elora Stn., G.T.R. and C.P.R., 12 miles north of Guelph.

FOR SALE:

SHORTHORNS: 7 young bulls, from 8 to 10 mos. old, sired by Leta's Lad and out of deep-milking cows. **H. E. HIND, Hagersville P. O. and Station, G. T. R. and M. C. R.**

SHORTHORNS, SHROPSHIRE, COTSWOLDS.
We are now offering a number of heifers and heifer calves; a few bull calves; a number of cows; all bred in the purple and as good as the best. Also Shropshire and Cotswold sheep.—**JOSEPH BELL ESTATE, Bradford P. O. & Sta.**

WE HAVE FOR SALE

10 SHORTHORN BULLS
From 6 to 18 months old. Nearly all from imp. dams, and sired by the imp. Golden Drop bull, Royal Prince. Catalogue upon application.

John Miller & Sons, Brougham P. O.
CLAREMONT STATION, C. P. R.

J. R. McCallum, Iona Station, Ont.
Offers young **SHORTHORN BULLS** and **HEIFERS**, of choice breeding, at reasonable prices. Iona Stn. on M.C.R., half a mile from farm.

SHORTHORNS AND LINCOLNS.
A. D. MCGUGAN, RODNEY, ONT.

Herd headed by the great sire and sweepstakes bull, Abbotford. Grand crop of calves from imported and home-bred cows. Bulls one year and under for sale—reds and dark roans. Ram and ewe lambs for sale at reasonable prices.

High-Class Shorthorns
and **YORKSHIRE PIGS.**

2 GRAND show bulls, 16 months old, by Imp. Sirius; 8 bulls from 8 months old up; low-down, thick, fleshy fellows; all bulls of great substance. A few cows and heifers in calf. Yorkshires—A lot of young pigs 3 months old and down.

JAS. McARTHUR, Goble's, Ontario.

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

ROSEVALE SHORTHORNS

Are of the up-to-date sort. We have for sale a number of young bulls and heifers of all ages. Marengo Heydon Duke (imp.) heads the herd.
W. J. SHEAN & CO.
Owen Sound, Ont.

Shorthorn Bulls.

Scotch-bred, good color, lots of size and style—rare good ones. Also females all ages. Write for particulars, or, better, come and see them.
DAVID MILNE & SON, ETHEL P. O.,
Huron Co., Ont.
Ethel Station, G.T.R., half mile from farm.

PLEASE MENTION FARMER'S ADVOCATE.



T. DOUGLAS & SONS, STRATHROY, ONT.,

BREEDERS OF
Scotch Shorthorns.
100 HEAD TO SELECT FROM.

Herd headed by Imp. Diamond Jubilee = 28861 = and Double Gold = 37852. March offering: 10 grand young bulls and cows and heifers of all ages. Farm 1 mile north of town.

MAKE THE GROCER'S PROFITS.

Why pay your local storekeeper \$1 for 85 cts. worth of goods? Buy direct from the manufacturer and importer and save one seventh of your grocery bills.

The average family spends \$280 a year for groceries; we can save you \$40 of this. At the end of each year put this \$40 in the bank at the regular bank interest of 6% and when you are twenty years older you will have a nest egg of \$111.13 to your credit.

Do not lose any more of your hard-earned money, but write at once for price lists and we will astonish you. Bank references.

CRIGHTON & CO.
Wholesale Grocers, 102 Church Street, Toronto, Ontario.

Shorthorns and Leicesters.

Herd Established 1855.

A number of young bulls, cows and heifers for sale. Imported Christopher = 28859 = heads the herd of large cows of grand milking qualities. Also a number of Leicesters of both sexes, from imported foundation.

JAMES DOUGLAS,
CALEDONIA, ONT.

Maple Lodge Stock Farm.

ESTABLISHED 1854.

SHORTHORNS.—First-prize milking strains, best Scotch breeding. Young bulls and heifers for sale. **LEICESTERS.**—A grand lot of ewes, bred to our imported rams, and a few choice rams, now for sale. Also Bronze turkeys.

A. W. SMITH,
Ailsa Craig Station, Maple Lodge P. O.,
G.T.R., 3 1/2 miles.

MILKING SHORTHORNS.

2 young bulls of good milking strains and A1 quality for sale. Come and see them. Stn. 3 1/2 miles from farm. **H. C. GRAHAM, AILSA CRAIG, ONT.**

GREEN GROVE HERD OF SHORTHORNS.

This herd is headed by the famous show bull, Spicy Robin = 28239 = (bred by J. & W. B. Watt), grandson of Imp. Royal Sailor, and of the noted English family, and contains such noted tribes as Nonpareils, Crimson Fuchsias, Mysies, Butterflies, and Languishes. Shorthorns of both sexes. Also a choice litter of Yorkshires, about 4 mos. old, for sale. Address: **George D. Fletcher, Binkham P. O., Ont.** Erin Shipping Station, C.P.R.

SHORTHORNS.

Fashionably bred, of both sexes and all ages. Nothing reserved.
H. PARKER, Durham P. O. and Station.

JAMES A. CRERAR, Shakespeare, Ont.
BREEDER AND IMPORTER OF
HIGH-BRED SCOTCH SHORTHORNS

SHORTHORNS FOR SALE:

Seven choice young bulls, from 9 to 12 months old. Also a few choice heifers in calf to the grandly-bred Marr bull, Spicy Marquis (imp.)
JAS. GIBB, Brooksdale, Ont.

FOR SALE:

3 choice Shorthorn bulls 11 months old. Also Barred Rock eggs from prizewinning stock, Millar's strain, \$1 per setting. Write
C. & J. CARRUTHERS, Cobourg P. O. & Stn.

12 SHORTHORN BULLS.

ALL UNDER TWO YEARS OLD.

PRICE, FROM \$100 UPWARDS.

At the Toronto Industrial, 1900, the herd was awarded first for aged cows, three-year-old cows, two-year-old heifers, sweepstakes for female any age, first for herd (bull and four females), and first for breeder's herd.

Yonge Street trolley cars, from Union Station, Toronto, pass the farm several times a day.

J. & W. RUSSELL,
RICHMOND HILL, ONT.

Bonnie Burn Stock Farm. 40 rods north of Stouffville Station, Ont., offers Shorthorn bulls and heifers with calf, Shropshire ewes with lamb, and Berkshire pigs. All at farmers' prices. Inspection invited.
D. H. RUSSELL, Stouffville, Ontario.

DR. HESS' STOCK FOOD

IS A GUARANTEED MILK PRODUCER.

W. T. S. Bear, manager of the Oregon Dairy Farm, Franklin, Pa., has the following to say:

DR. HESS & CLARK, ASHLAND, O.:
Dear Sirs,—Ten days ago we began feeding Dr. Hess' Stock Food to a dairy herd of 35 cows, part grade Jerseys and part Red Polls. All were suffering from indigestion, owing to heavy feeding of grain through the entire summer; all were falling away in milk; some were so bad as to bloat, and refused to eat for several days. Tried all manner of feeds and combinations, but only partially succeeded in checking the decrease in milk. Two days after we began feeding Dr. Hess' Stock Food they began to mend and increase in milk, until they are now gaining an average of two pounds of milk per head per day, without any increase of feed or change of feed or any other conditions. I think the improvement wonderful, especially when we consider that it was done while the temperature was between 10 and 20 degrees above zero, and the first cold snap at that, which is always the worst. Yours truly, **W. T. S. BEAR, Manager Oregon Dairy Farm.**

Feed Dr. Hess' Stock Food to your cows; if it don't pay, your money will be refunded. 7-lb. sack, 65c.; 12-lb. sack, \$1.00.

SOLD BY DEALERS GENERALLY, OR ADDRESS:

THE GREIG MANUF'G COMPANY, CANADIAN AGENTS, MONTREAL, QUE.

FREE.—Dr. Hess' scientific veterinary work, giving the symptoms and latest treatment on stock diseases, will be mailed you for the asking. Address:

DR. HESS & CLARK, ASHLAND, OHIO.

"BIBBY'S CREAM EQUIVALENT"



A common-sense preparation for rearing calves. The outcome of extensive experimental tests. No drugs. Excellent results and entire satisfaction.

Specially adapted for feeding with separated or skimmed milk.

Price: 50-lb. bag, \$2.00; 100-lb. bag, \$3.50; freight prepaid to nearest railroad station.

TO BE OBTAINED FROM LOCAL DEALERS OR DIRECT FROM

J. BIBBY & SONS,

10 BAY STREET, TORONTO, ONT.

Kills the Bugs. Feeds the Plant.

Insure Your Crop



Against destruction by bugs or worms by using **BUG DEATH.**

It kills potato, squash and cucumber bugs; currant, gooseberry and tomato worms, and all bugs and worms that eat the leaves of plants.

BUG DEATH increases yield. It pays to use in every way.

Send for free Booklet.

Bug Death Chemical Co., Ltd.,
ST. STEPHEN, N. B.

Pat. in Canada Nov. 2, 1897, Jan. 25, 1900.
NON-POISONOUS. PREVENTS BLIGHT.

"VIGILANT" NEST

SLIDING-ADJUSTABLE
(Patented Can. & U.S.)

The only nest in the World which positively prevents hens from eating their eggs.
Simple-Efficient-Durable
No springs-Eggs cannot break. The inclined nest gathers them safely in lower section. Prevents fleas, or parasites, etc. Everlasting, never failing, comfortable. Thousands now in use. Ask your dealer for it or write to **L.P. Morin**, Inventor, Mfr., 12 Antoine St., St. Hyacinthe, Que.
Price 45c. each. AGENTS WANTED.



\$33.00 to California, Oregon and Washington

Chicago & North-western R'y.: from Chicago daily, March and April, only \$6.00 for berth in tourist car. Personally-conducted excursions Tuesdays and Thursdays from Chicago, and Wednesdays from New England. Illustrative pamphlet sent on receipt of two-cent stamp, by S. A. Hutchison, manager, 212 Clark street, Chicago.—Advt. —o

SHORTHORNS.

THORNHILL HERD. ESTABLISHED 27 YEARS.

Imp. Prime Minister and Sailor Champion now at head of herd, which are all bred on straight Scotch lines, and are of the up-to-date kind. Present offering: some choice young bulls.

REDMOND BROS., Millbrook Sta. and P. O.

10 SHORTHORNS FOR SALE

Sired by Scottish Chief and (imp.) Chief of Stars, and from prizewinning dams. Also cows, heifers, and Berkshire pigs.

ALEX. LOVE, - EAGLE P. O.
BISMARCK STATION ON M. C. R.

Shorthorns for Sale.

6 heifers (all in calf), from Imp. British Statesman; also two young bulls, 18 months old. Write for prices. **LOUIS ELLARD**, Loretto P.O., Beeton Stn.

HIGH-CLASS SCOTCH SHORTHORNS

of the following families, for sale at moderate prices: Village Girls, Broadhooks, Beaufort Roses, Missies, Claretts, Marr Floras, Nonpareils, Minas and other choice families. Write for catalogue. Shropshire rams and ewes for sale as usual.

ROBERT MILLER, Stouffville, Ont.

W. G. PETTIT & SON,

FREEMAN P. O., ONT.
IMPORTERS AND BREEDERS OF

Scotch Shorthorns and Shropshire Sheep,

Are offering 10 Imp. bulls from 10 months to 2 years old; 10 home-bred bulls from Imp. stock, 10 to 15 months old; 40 Imp. cows and heifers, all ages. Home-bred cows and heifers all ages. Also a grand lot of ram and ewe lambs and yearling ewes for sale.

Burlington Jct. Stn. Tele. & Phone, G. T. R.

Shorthorns and Berkshires

Four young bulls, 6 to 12 months old. Pigs, 2 to 6 months old. Pairs supplied not akin.

MAC CAMPBELL, NORTHWOOD, ONT.

A FEW CHOICE

SHORTHORNS
YOUNG COWS AND HEIFERS

In calf to Imp. Prince of the Forest and Prince Ramsden; also a few young bulls fit for service.

G. A. Brodie, - Bethesda, Ont.

SHORTHORNS

We are offering for sale 8 bulls, from 8 months to 3 years old, by Mungo 2nd and Scottish Bard. Also a few cows bred to Baron's Heir.

ROBT. GLEN, Owen Sound, Ontario.

SHORTHORNS (IMP.)

Cows and heifers, imp. and home-bred. Bulls, imp. and home-bred—all ages. Representing the fashionable blood of Scotland.

EDWARD ROBINSON,
MARKHAM P. O. & STN.

Charles Rankin

WYEBRIDGE, ONT.,
IMPORTER AND BREEDER OF
SHORTHORNS,
OXFORD DOWNS
AND
BERKSHIRE PIGS.
Young stock always on hand.



NOTICES.

CABLING FOR SPRAMOTORS.—A few days ago the Spramotor Co., of London, Ont., received a cable message from Sydney, New South Wales, ordering 100 outfits, complete, of spramotors for use in that distant part of the world. The transmission of the message alone cost the parties ordering \$20. They knew, from previous experience, the merits of the apparatus.

IT PAYS TO DRAIN.—The Drainage Journal of Indianapolis, Ind., has issued an attractive 30-page booklet called "Land Drainage Profit," which tells in a convincing way how tile drainage has paid farmers and gardeners, large and small. A request for it or a post card will secure a copy. It is handsomely printed.

PLOWING MADE EASY, IS WHAT is claimed for the Wonder Plow Attachment advertised in this issue. It is simply an attachment of wheels, which can readily be attached to the beam of any plow, regulating the width and width of furrow, saving greatly in the draft required, and relieving the labor of the man. Since skilled help is now so difficult to obtain, this device should prove very helpful, as a boy can do a man's work, and do it well. See the ad. and write for particulars.

COW PEA.—"The Cow Pea" is the title of the latest publication issued by the Experiment Farm of the North Carolina State Horticultural Society at Southern Pines, N. C. This pamphlet, neatly bound and illustrated, in plain and concise manner discusses the value and uses of that important crop, the cow pea. Any reader interested in the subject can get a copy free by writing to the Superintendent of Experiment Farm, Southern Pines, N. C. It is claimed that the cow pea will grow wherever corn succeeds, but requires a long period of growth. The grain does not seem to be well suited to Canada.

SPAVIN CURED, AND HORSE A PACER.

Elwood, Ind., July 30, 1901.
The Lawrence-Williams Co., Cleveland.

Last September we were compelled to take from training, "Job Edison," on account of a spavin. I got a bottle of your GOMBAULT'S CAUSTIC BAL-SAM, and gave him a good blister, and renewed it two different times, then turned him out for the winter. Gave him one light blister in March. Entered him July 20 at Marion, Ind., in the 2.35 class with 14 starters, in which he got the last three heats in 2.21 1/2, 2.21 1/2, 2.20 1/2. How is that for a cripple?

FRED HATTMAN.

UP-TO-DATE INCUBATORS are advertised in this issue by Mr. C. J. Daniels, Toronto, who has had 16 years' experience in the poultry and poultry-supply business, and is thoroughly versed in all the modern requirements for the production of the most successful incubator, a high-class and durable machine at a reasonable price. The incubator cases are made of the highest grade Canadian whitewood, same as used in piano cases; there is no warp, twist or crack to them, and no smell of turpentine. These cases are put together by the best workmen in one of the largest and best furniture factories in Canada. The inside and working parts of the machines are put together by skilled workmen, under the supervision of Mr. C. J. Daniels. The poultry business warrants the use of the most improved and skillful methods in preparing for the market that is assured. See the advertisement and send for catalogue, mentioning "Farmer's Advocate."

GOSSIP.
PROLIFIC PIGS.

A Berkshire sow belonging to Mr. W. D. Graham Menzies, of Hamilton, recently gave birth to a litter of no fewer than 19 pigs, all of them born alive. Mr. Sanders Spencer, St. Ives, reports 177 pigs farrowed by 11 sows, and sired by 8 different boars, an average of 13 1/2 pigs per litter.

DEATH OF PRIDE OF MORNING.

Mr. Wm. Duthie, Collynie, recently sent to the butcher his noted Shorthorn breeding bull, Pride of Morning 64546, a very successful show bull in his young days, and an eminently impressive sire, his progeny ranking very high as prize-winners and breeders. He was a roan, calved May 29th, 1892; bred by Mr. Duthie; sired by the Collynie-bred Star of Morning 58189; dam patience, of the Cruickshank Clipper tribe. Pride of Morning, as a yearling, won first premium at the Royal Northern Show at Aberdeen. The Shorthorn Society had, for the first time, offered a special prize of £20 for the best yearling bull bred in the northern countries and Pride of Morning won it. In 1894, as a two-year-old at the Highland Society's Show at Aberdeen, Pride of Morning, at 25 months old, won first in his class and the championship. He has been described as of ample scale and great length, with imposing fore end, top and loin, and nicked well with the Aberdeenshire females, especially with the Missies. He was the sire of many valuable bulls, among which was Pride of Collynie, of the Prince of Wales' (now the King's) herd, and of Hon. Mr. Cochrane's Joy of Morning, which cost him 450 guineas.

Short Talk on Separators.

IN order to draw attention away from the shortcomings of their hollow bowl machines, competitors make a lot of words over the "Alpha Discs" simply because they can not use them in their own separators. We could leave them out—but they increase the capacity of any given size hollow bowl, five times. They make absolute clean skimming under adverse conditions, possible. The "Alpha" bowls travel from one-third to one-half slower than any other, thereby saving power and wear and tear.

Space is limited—more about it next week.

The De Laval Separator Co.

77 York Street,
Toronto.

LESS LABOR AND MORE MONEY ON THE FARM.

BUY A LOW-DOWN, THICK-FLASHED

Hillhurst Shorthorn Bull,

Scotch-topped, from Cumberland, Gloucestershire, or Canadian dairy strain, and raise DEEP-MILKING, BIG-FRAMED COWS AND BABY BEEF in nature's way. Many cows that do not pay board at the pail will give a handsome return in growing beef. Four handsome young bulls, seven to nine months old, reds and roans, by the celebrated imported sires, "Joy of Morning" and "Scottish Hero," for sale at moderate prices. Low freights.

M. H. COCHRANE, COMPTON CO., P. O.,

G. T. R., 117 MILES EAST OF MONTREAL. HILLHURST STATION.

Scotch Shorthorns

BREEDING FEMALES ALL IMPORTED.

Imp. Golden Drop Victor our present stock bull. Eleven young bulls and some young cows for sale at reasonable prices.

H. CARGILL & SON,

Cargill Station, G. T. R. CATALOGUE FREE. Cargill, Ontario.

SHORTHORN BULLS

Good ones. Choseily bred. Moderate prices. Send for bull catalogue. Also Scotch-bred cows and heifers.

H. SMITH, HAY, ONTARIO.

Exeter station on London and Wingham branch of the G. T. R. adjoins the farm.

SHORTHORNS: We are offering 3 extra choice yearling bulls, all from imported sires, straight Cruickshank, with Lavendar and Miss Ramsden dams. **THOS. ALLIN & BROS.,** Oshawa, Ont.

Shorthorns, Berkshires, Leicesters
Am offering at present the grand stock boar, Crown Prince; also some young ones.

ISRAEL GROFF, ALMA, ONTARIO.

MAPLE GROVE SHORTHORNS.
I am now offering 5 bulls from 10 months to 2 years old; imp. and home-bred; of the low, fleshy sort. Write for prices. **W. B. CAMPBELL,** Campbellcroft P.O. Garden Hill Station.

SHORTHORNS FOR SALE.
Three dark red bulls, 12 mos. old, got by Diamond Jubilee (Imp.). One rich roan, 10 months old, got by Favorite 21690. For prices write—
E. & C. PARKINSON,
Thornbury P. O. and station: G. T. R.

PLEASE MENTION FARMER'S ADVOCATE.

HAWTHORN HERD
of deep-milking Shorthorns for sale. Six young bulls of first-class quality and breeding and from 11 dairy cows. **WM. GRAINGER & SON,** Londesboro, Ont.

SHORTHORNS (imported)
One bull, 2 years old, and 1 imported cow, and 7 home-bred heifers.

THOS. RUSSELL, EXETER, ONT.

For Sale: Very heavy, massive cows of Bates and Cruickshank breed. Two-year-old heifers in calf. Stock bull, Imperial 2nd, No. 28883. Bull calf, 11 months (Cancopper Boy 2nd = 39878=), dam Flora = 32974=; also dark red heifer calves. **John McFarlane, Dutton, Ont.**

Scotch-bred Shorthorns AT OAK GROVE ARE famous for size and quality. Eight bulls from 10 to 15 months old; reds and roans. Several heifers at prices that will save you money. Also Collie pups. **L. K. WEBER,** Hawkesville P. O., Ont., Co. Waterloo, St. Jacob's Station, G. T. R.

TROUT CREEK HERD OF Shorthorns

Won first prize for herd and the championship for best bull and best female, any age, at Toronto Industrial and Pan-American Exhibitions, 1901. We keep constantly in our herd a choice lot of imported and Canadian-bred cattle of both sexes. Personal inspection invited. Parties desiring to see the herd will be met on arrival of trains if notice is given. Visitors always welcome. Address:

JAMES SMITH,
Manager,
MILLGROVE, ONT.

W. D. FLATT,
378 HESS ST., SOUTH,
Hamilton, Ontario.

NOTICE:

I desire to thank the farmers and others for their ever-increasing patronage. We are changing the process of manufacture and improving the quality of Queenston cement from year to year, and beg to assure my patrons that the improvements I am making this winter will still add to the wonderfully good reputation of Queenston cement. I will do all in my power to assist the farmers in getting up first-class buildings that are cheap and labor-saving, with first-class sanitation by a proper system of ventilation held under my own patent. Until the 15th day of April, 1902, Queenston cement will be sold at a reduced price. On and after Feb. 1st I will add a draughtsman to my office staff, and to all patrons of Queenston cement pencil sketches of the most approved farm structures will be furnished free of charge. For particulars write me at this office, or see my agents.

Isaac Usher, Queenston, Ontario.

ARTHUR JOHNSTON, GREENWOOD, ONTARIO.

BREKDER OF POST OFFICE AND TELEGRAPH OFFICE. IMPORTER OF

SHORTHORNS ONLY.

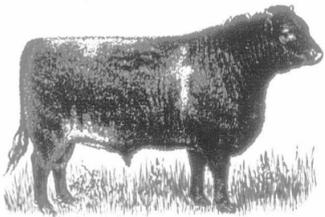
FOR SALE: 9 imported bulls and bull calves. 11 home-bred bulls and bull calves, from imported cows and by imported bulls. 17 home-bred bull calves. A large and excellent lot of young cows and heifers of various ages.

RAILWAY STATIONS: PICKERING, G. T. R., 22 MILES EAST OF TORONTO. CLAREMONT, C. P. R., 28 MILES EAST OF TORONTO.

Spring Grove Stock Farm.

Shorthorn Cattle
AND
Lincoln Sheep.

HERD prize and sweepstake at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by the Marr Missie bull, Imp. Wanderer's Last, last of the



get of the great sire, Wanderer, of the Cruickshank Brawith Bud tribe. High class Shorthorns of all ages for sale. Also prize-winning Lincolns. Apply

T. E. Robson,
ILDERTON, ONT.

Rapids Farm Ayrshires.

REINFORCED BY RECENT IMPORTATIONS of 2 bulls and 20 cows, selected from noted Scotch herds, and including the male and female champions at leading Scottish shows last year. Imported Douglasdale of Dam of Aber, champion at the Pan-American, heads the herd. Representatives of this herd won the first herd prize at the exhibitions at—

Toronto, London and Ottawa in 1900, and at the Pan-American in 1901.

Come and see or write for prices.

Young Bulls and Heifers for Sale, bred from High-class Imported Stock.

Robert Hunter, Manager

for W. Watson Ogilvie, Lachine Rapids, Quebec.

Shorthorns, Cotswolds & Berkshires



FOR SALE: Nine young bulls from 6 to 18 months old, sired by Prince George = 28973 =, a Scotch-bred bull of the Miss Ramsden family, and from good milking dams. Cows, heifers and heifer calves. A choice lot of ewe lambs. Young pigs of the bacon type from 2 to 6 months old.

F. DONNYCASTLE & SON, CAMPBELLFORD, ONTARIO.

Centre Wellington Scotch Shorthorns

Young bulls, heifers and young cows for sale. Farm adjoining town on G. T. R. and C. P. R. Correspondence solicited.

H. B. Webster,
Box 66. FERGUS, ONT.

SCOTCH SHORTHORNS.

We are now offering a few young bulls, from 6 to 11 months; also a few heifers, from 6 months to 2 years; all showing No. 1 quality.

W. G. HOWDEN, om COLUMBUS P. O.

FOR SALE: 5 Scotch Shorthorn Darhams (bulls), 5 to 16 months; 5 young cows and heifers. Berkshire pigs, both sexes. Prices reasonable. "Camden View Farm." A. J. C. SHAW & SON, CAMDENVILLE P. O.

Scotch-bred Shorthorns FOR SALE—One 3-year-old Gloucester dam; three from 9 to 16 months old, from Cecelia dams. Prices right. N. A. STEEN, om MEADOWVALE STATION AND POST OFFICE.

HOLWELL MANOR FARM

SHORTHORNS, SHROPSHIRE, YORKSHIRE, SCOTCH COLLIES.

D. G. GANTON, ELMVALE, ONT.

SHORTHORNS.

One bull, 1 year old; two bulls, 7 months old; a few heifers of choice breeding and superior quality.

AMOS SMITH, Listowel station, Trowbridge P. O., Ont.

SHORTHORNS FOR SALE.

Two bulls ten months old, two heifers one year old, one three years old in calf. Write for prices.

JAS. RIDDEL, BEETON P. O. and STN.

R. Mitchell & Son, Nelson, Ontario.

Scotch Shorthorns.

Twenty-five (imp.) bulls and heifers of following families: Jill, Roan Lady, Augusta, Rosebud, Mayflower, Rosemary, Beauty, Victoria, Orange Blossom and Princess Royal. Also home bred heifers in calf to imp. bulls and choice bull calves.

Burlington Jct. Station and Tele. Office.

QUEENSTON HEIGHTS SHORTHORNS

SCOTCH AND SCOTCH TOPPED

In service: Derby (imp.) = 32057 =; Lord Montalis, by Collynie Archer (imp.) = 28860 =. A few young cows with calf at foot or in calf to imported bull. Also two bulls, 10 months. Moderate prices.

HUDSON USHER,
QUEENSTON, ONT. om
FARM 3 MILES NORTH NIAGARA FALLS

Hillside Shorthorns and Shropshires.

Bulls, from 8 to 18 months old; heifers, various ages, of true type and fashionable breeding; also 25 ram lambs and 15 ewe lambs, from imp. sire. Will quote prices right for quick sales.

L. Burnett, Greenbank P. O., Ont.; Uxbridge Stn., G. T. R.

Shorthorn Cattle, Lincoln Sheep

Imp. Prim. Minister at head of herd. Imp. Clippers, Miss Ramsdens, and other Scotch families. Lincolns won more than half the money and first for flock at the Pan-American; International, Chicago, 1901 and 1902.

J. T. GIBSON, om DENFIELD, ONT.

4 HOLSTEIN BULLS 4

FOR SALE: From 4 to 7 months old, having sires in their pedigrees from such strains as Inka, Netherland, Royal Aggie, and Tritonia Prince, and out of imported females that have proven their worth at the fair. THOS. B. CARLAW & SON, Warkworth.

Brookbank Holsteins

16 to 25 lbs. of butter in 7 days' official test are the records of this herd of Holstein cows. Heifers of equivalent records. Bulls for sale whose sires and dams are in the Advanced Registry, with large official butter records.

GEO. RICE, Currie's Crossing, Ontario, OXFORD COUNTY.

HOLSTEINS.

Maple Grove offerings are of the richest breeding, combined with greatest individual merit. Young stock of both sexes. For particulars address:

H. BOLLERT, Cassel, Ontario.

25 HOLSTEIN CALVES

For March, April and May delivery, from such noted strains as Homestead De Kol, Abbecker Chief, and Corelia Ykema, imported, and others. We have spared no expense in getting the best pedigrees furnished. Express prepaid. Safe arrival guaranteed.

H. GEORGE & SONS,
CRAMPTON, ONT. om

Riverside Holsteins

Five bulls, 9 to 11 months old, for sale. Victor De Kol, Pieterje and Johanna Rue 4th's Lad head the herd.

MATT. RICHARDSON & SON,
HALDIMAND CO. CALEDONIA, ONT.

Spring Brook Holsteins, Tamworths, B. Rocks

One bull, 11 mos. old; 2 calves, 6 weeks old; 4 yearling heifers in calf; 2 cows; also heifer calves, all DeKols. Two Tamworth boars ready for service. Sows and young pigs ready to ship.

A. C. Hallman, Breslau, Ontario.

SUCCESS WITH HOLSTEINS

depends on starting right. Brookside has furnished foundation stock for some of the best herds in the country. We have 250 head, and if you want to establish or strengthen a herd, can supply you with animals of the right sort. We have 50 young bulls on hand, and females bred to the best sires living. Let us know just what you want. Catalogue of bulls now ready. We also have six fine thoroughbred Jersey Red boars, 6 months old, for sale, \$9 to \$10 each.

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

RIDGELING CASTRATION.

om- DR. J. WILSON, V. S., WINGHAM, ONT., Specialist in the castration of ridgeling horses and colts. Terms and testimonials on application.

Maple Glen Stock Farm.

EXHIBITION OFFERING: Two bull calves under 1 year. Also a Sylva and an Abbecker bull calf, with spring and fall-heifer calves of Sylva breeding, bred from winners and ones that will make winners. Prices according to quality.

C. J. GILROY & SON,
Brockville, on C.P.R. and G.T.R. Glen Buell, Ont.

SUNNYLEA FARM.

For sale: any age. Tamworths—30 boars and sows, different ages. Shropshire sheep—rams and ewes of good breeding. Prices reasonable.

H. E. WILLIAMS, Knowlton, P. O.

Ridgedale Farm Holstein-Friesians for Sale.

2 yearling bulls; also bull and heifer calves; all of choice breeding. Prices always reasonable. Write, or come and see them. R. W. WALKER, Utica P. O. Shipping stations: Port Perry, G. T. R.; Myrtle, C.P.R. om

F. L. GREEN,

BREKDER OF

Jersey Cattle and Yorkshire Pigs.

Choice stock of each sex for sale.

PICKERING STATION, G. T. R. GREENWOOD P. O. CLAREMONT STATION, C. P. R.

CHOICE JERSEYS.

Am offering 1 cow 5 years old, due to calve Feb. 6, and very choice; bull calf 11 months old, registered, and cheap.

WM. N. HASKETT, Avon Manor, Markdale, Ont.

We have now on hand young females sired by

Nero of Glen Rouge 50241,

and cows and heifers bred to him.

E. B. HINMAN & SON, GRAFTON, ONT.

FOR SALE: A SPLENDID LOT OF

Jersey Cattle.

41 HEAD TO CHOOSE FROM.

Close descendants of my most noted prizewinners, and closely related to many animals I have sold that have won easily in the Northwest and all over Canada. My shipments last summer ranged from Manitoba to State of Delaware, U. S.

MRS. E. M. JONES,

BOX 324. BROCKVILLE, ONT., CAN

BRAMPTON JERSEY HERD

Offers: 3 St. Lambert bulls from 6 to 14 months old, out of high-testing cows; 1 yearling and 5 bull calves, sired by Brampton's Monarch (imp.). Four young bulls sired by him won 1st, 2nd and 3rd prizes under one year, and 1st prize under six months, also 1st, 2nd and 3rd at London and Ottawa, in 1901. The best is none too good. These young bulls have never been beaten. Get one to head your herd.

B. H. BULL & SON, BRAMPTON, ONT.

G. T. R. and C. P. R. Stations.

ADVERTISE IN THE

FARMER'S ADVOCATE.

FOR SALE: JERSEY BULL

Eight months old; of richest blood; solid color. Dam purchased from Mrs. E. M. Jones, Brockville. Sire owned by Mrs. E. M. Jones. A beauty. Apply to ARTHUR ROBB, CO. PERTH. o NEWRY P. O., ONT.

JERSEYS FOR SALE

A few choice Jersey bulls and bull calves for sale at very low prices. Choice breeding; good colors. Write for prices.

W. W. EVERITT, CHATHAM, ONT., "Dun Edin Park Farm," Box 555. om

Exmoor Jerseys for Sale. Heifer calf. One bull calf by Sirdar of St. Lambert. Also a registered cow four years old. White Leghorn and Plymouth Rock hens' eggs, \$1 per setting. o A. Norman Smith, Mesford P. O. and Stn.

LAWNRIIDGE STOCK FARM.

JERSEYS FOR SALE: Yearling bull, 5 bull calves, also some very fine registered cows, heifers and heifer calves - fresh calved and springers. One hundred head to select from. Cows a specialty. J. L. CLARK, Norval station: G. T. R. Norval P. O.

Wm. Willis, Newmarket, Ont.

Breeder of A. J. C. Jerseys and registered Cotswold sheep. Have yet two fine young bulls from Count, fit for service; also Yorkshire swine. -om

"Here's Your Calf. Get Your Tag On." No need to slit the ear of your animals to mark them. Mark all your stock with the Alumina "Stay There" Ear Marker. Contains your name, address, and consecutive numbers on each tag. No rusting or wearing off, inexpensive, and perfectly easy and simple to attach. We send free sample and prices upon application. WILCOX & HARVEY MFG. CO. 194 Lake St., Chicago, Ills.

To Rid Stock of Lice AND ALL SKIN DISEASES, Also to Keep Poultry Healthy

WEST'S FLUID

Which is also a SURE CURE OF CONTAGIOUS ABORTION. STANDARD SHEEP DIP IS CHEAP AND GOOD. Pedigree forms free to customers. Manufacturers:

The West Chemical Co'y, TORONTO, ONT.

FOR SALE: Three grandly-bred Ayrshire bull calves, 12 to 15 mos. old. Also young calves, by Napoleon of Auchinbrain (imp.), whose dam has a record of 72 lbs. of milk per day. A few choice young Berkshire and Yorkshire sows could be served before shipping. Collie pups, from Perfection Queen. Address - T. D. McCALLUM, Nether Lea, Danville, Que.

FOR SALE: IMPORTED AND HOME-BRED AYRSHIRES, including cows, heifers and young bulls out of our prize and sweepstakes cows. Foundation selected with due regard to quality and productiveness. Come or write. WM. WYLIE, - HOWICK, QUEBEC.

AYRSHIRES AND YORKSHIRES. We always have on hand choice individuals, male or female, of above breeds. Write us. om- ALEX. HUME & CO., Menie, Ontario.

Maple Cliff Dairy and Stock Farm. BREEDERS OF AYRSHIRE CATTLE, IMPROVED BERKSHIRE AND TAMWORTH PIGS. FOR SALE: 5 bull calves, a few heifers; young pigs, pairs not akin; 2 boars, 4 months old; young pigs. Farm adjoins Central Experimental Farm, Ottawa. R. REID & CO., Hintonburg, Ont.

HOMECROFT, a farm for dairying and pure-bred stock: AYRSHIRES, IMPROVED CHESTER WHITES, BARRED PLYMOUTH ROCKS. SOME FINE YOUNG BULLS. J. F. PARSONS & SONS, Barnston, Quebec.

TWO AYRSHIRE BULLS. Eleven months old, fit for service. From deep-milking cows with good large teats. Registered. Prices right. Apply at once. JAS. A. JAMES, Nitestown, Ont.

AYRSHIRES. I offer four choice August (1901) bull calves, two yearling heifers due to calve next August to imported bull, and a pair of March and April heifer calves. All bred from imported stock of choice milking strains.

W. W. BALLANTYNE, Stratford, Ontario. "Neidpath Farm" adjoins city, main line G.T.R.

PLEASE MENTION FARMER'S ADVOCATE

GIGANTIC ADVERTISING

Grand Trunk arranges Plans for Picture Exhibit. TOUR COVERS TEN WEEKS.

Though the Grand Trunk Railway system carried over 30,000 tourists and sportsmen into one district of Canada's summer playgrounds last year, the Company is starting out this year with a vigorous policy of advertising to still further increase the influx of pleasure-seekers who annually travel over this system. The company has now decided to give the populace of some of the larger cities in the States of Ohio, Michigan, Indiana, Kentucky and Pennsylvania an opportunity of seeing the series of photographic views it had on exhibition at the Pan-American Exposition at Buffalo. There will be over 100 pictures in the collection, each measuring 3 feet 6 inches by 4 feet 2 inches, in addition to one of the finest collections of mounted fish that has ever been shown. The fish include specimens of black bass from the Highlands of Ontario, dore and muskies from the St. Lawrence, landlocked salmon from their native waters, and other specimens of rare value. A representative of the Grand Trunk will accompany the exhibit, and the art gallery will be installed in the business portion of the cities visited. Thousands of copies of literature, describing the several regions to be advertised, will be distributed. The exhibit will open at Saginaw, Mich., March 10, and goes from there to Grand Rapids, thence south to several points in the other States. The tour will occupy ten weeks, two days being allowed in each city. -Advt.

Free for five wrappers: Lee's book, containing 386 pages, 3,000 recipes for home and farm. Prof. A. V. M. Day's English Tonic Powders (5 separate packages) for horses, cattle, hogs, sheep, and poultry. They make health and flesh. Mail us the front part of five wrappers and receive book FREE. Price: 35c. a package, 5 for \$1.50.

For Dairy Cows Feed Day's Butter-fat Producer.

It makes more milk and butter-fat; gives the butter color; imparts a flavor to the butter that is not obtained by any other feed. Write us a post card for free sample. Warranted purely vegetable.

The Day's Stock Food Co., Toronto.

Ayrshire Bulls from 1 1/2 years to 6 months, from special milking stock, sired by the sweepstakes bull, Cock of the North - 9997 - also females all ages. Shropshire sheep. Berkshire pigs, either sex, and B. C. Rooks. For particulars write -om J. YUILL & SONS, Carleton Place, Ontario.

LIVE STOCK EAR LABELS REDUCED. Send for a circular and order early, before the rush. Large and small lots and odd numbers supplied. om K. W. James, Bowmanville, Ont.

Tredinnock Ayrshires.

Imported bulls at head of herd: Glencairn 3rd, Napoleon of Auchinbrain, and Lord Dudley. Forty imported females, selected from leading Scotch herds, and their produce from above-named bulls. Size combined with quality and style, well-formed udders, good-sized teats, and capacity for large milk production. Bull calves for sale; also a few young cows and heifers. For prices and particulars address JAMES BODEN, Mgr., St. Anne de Bellevue, Quebec. Farm close to St. Anne Station, G.T.R. & C.P.R., 20 miles west of Montreal. om

DAVID A. McFARLANE, Breeder of high-class AYRSHIRES. Young stock for sale from imported and home-bred foundation. Prices reasonable. -o

AYRSHIRES. Five bulls ranging from 11 to 23 mos., from such noted cows as Jean Armour, Lady Ottawa, Sprightly and Primrose (imp.), and from the best sires procurable. Also heifers and cows all ages, and poultry. WM. STEWART & SON, MENIE, ONT.

WE OFFER THIS MONTH FOLLOWING CHOICE BULL CALVES:

- Ayrshires: OUT OF Sired by Wee Earl (Imp.), Matchless 7560, Matchless, Napoleon of Auchinbrain (Imp.), Guernseys: OUT OF Sired by Roseland III. (Imp.), Masher (Imp.), Princess May (Imp.), Masher (Imp.). ISALEIGH GRANGE FARM, J. N. GREENSHIELDS, Prop. o Danville, Que.

GOSSIP.

Mr. Henry Dudding, Riby Grove, England, the noted Lincoln breeder, reports that up to date about 950 ewes have lambed out of 1,350 with most satisfactory results, the loss amongst ewes amounting to less than 1 per cent., which is very good, considering the busiest time was when the weather was snowy and frosty. The ewes have been well off for milk, and the small mortality amongst them is attributed to the fact that the turnip crop was a very small one, so that the flock has had but few roots carted to them on the grass all the winter, and a liberal supply of trough food. The lambs have come very good and strong, with about 25 per cent. twins now standing. The sires of some of the biggest and strongest lambs are Quarrington Prizeman 4832, Mere Riser 6326, Biscathorpe Gordon 5992, Riby Selection, and Riby Expectant - the last two having won the championship at the great Yorkshire Show in 1901.

From the O. A. C. Review, we learn that important additions have recently been made, by purchase to the pure-bred live stock at the College farm at Guelph. One of the latest additions is an imported Hereford bull calf, bred by Mr. John Price, "Courthouse," Penbridge, Herefordshire, England, one of the oldest and best known Hereford breeders in the Old Country. Being the choice of his herd, this animal was the highest-priced calf at Mr. Price's dispersion sale, fetching the sum of 120 guineas. He was selected by J. W. Barnett, herdsman for W. C. Edwards, Rockland, and formerly herdsman at the O. A. C. The Ayrshire herd has been strengthened by the addition of a fine yearling bull, imported in dam by Robert Reford, St. Anne's, Quebec. The Shorthorn herd has also been replenished by the purchase at the late Provincial sale at Guelph of the choice red yearling bull, King Edward, the highest-priced bull in the sale, contributed by Mr. Chas. Rankin, Wyebridge, Ont.; imported in dam by Mr. John Young, Tibouries, Scotland; sired by Scottish Prince, of the favorite Princess Royai family, and bred by Mr. Duthie, dam Rothnick Rose, by Allan Gwynne, by the noted Star of Morning. A team of Clydesdales, weighing 3,200 pounds, has been added to the number of horses.

THE PERTH ABERDEEN-ANGUS BULL SALE.

Three hundred and sixty-eight bulls were entered for this sale, on Feb. 12th. The feature of the sale was the spirited demand for and the fine prices realized by the animals figuring in the name of that Nestor of Aberdeen-Angus breeders - Sir George Macpherson Grant, of Ballindalloch. All the "big" buyers seemed determined on securing some of the blood which has won such world-wide celebrity for the Ballindalloch cattle, and as a consequence the eight entries listed from that herd excited remarkably keen competition. For the first of them to make an appearance in the ring, Mr. Calder, of Newcastle, gave 200 guineas; Mr. George Grant, of Finlarrig, gave 150 guineas for the second; the third went to Mr. Cran, of Morlich, at 50 guineas; but the fourth, the much-admired bull, Eviator, which headed his class in the judging ring the previous day, Colonel Smith Grant, of Auchinrochan, had to give 350 guineas ere he could claim him as his own. Another made 210 guineas, yet another 100 guineas, and the remaining pair 70 and 46 guineas, respectively, so that the net average for the lot worked out at £154 - the best figure yet reached at these sales. Outside of the Ballindalloch lot, the only animal to run into three figures was the bull, Elmslie, with which Mr. Chalmers had won second prize the previous day; for this animal Sir George Macpherson Grant gave 210 guineas.

C. B. JEFFES' SHORTHORN SALE.

Owing to the severe storms, a very cold day, and the almost impassable condition of the roads, the dispersion sale of the Shorthorn herd of Mr. C. B. Jeffes, Bond Head, Ont., on Feb. 18th, was only a partially successful. Following is a list of purchasers and prices: Myra's Lilly, 12 years; W. C. Henry, Thornton... \$ 72 Maid of Honor 6th, 6 years; W. D. Monkman, Bond Head... 105 Zora 23rd, 6 years, and calf; F. H. Doan, Queensville... 107 Jealous Girl, 6 years; F. Martin-Hale & Son, York... 96 Zora D, 6 years, and calf; P. Basingthwaite, Maple... 103 Zora C (cripple); J. McDevitt, Dunkerron... 45 Mara 8th, 2 years; W. R. Chantler, Newton Robinson... 160 Orma, 2 years; Selby Evans, Tottenham... 86 Fairy Belle, 2 years; J. W. Laidman, Barrie... 128 Fancy Maid, 1 year; H. T. Baycroft, Bond Head... 115 Zora 49th, 1 year; H. T. Baycroft... 107

Bulls. Heir Apparent, 2 years; A. Graham, Pomeroy, Man... 77 Arthur's Lad, F. Martindale & Son, Pickwick, 6 months; R. Linton, Aurora... 72 Zora's Granger, 1 year; A. Graham... 70 The Southdowns were secured by W. C. Henry, Thornton; D. F. Kidd, Cookstown; J. Lennox, Newton Robinson.

For Singers and Speakers.

The New Remedy for Catarrh is Very Valuable.

A Grand Rapids gentleman who represents a prominent manufacturing concern, and travels through Central and Southern Michigan, relates the following regarding the new catarrh cure. He says: "After suffering from catarrh of the head, throat and stomach for several years, I heard of Stuart's Catarrh Tablets quite accidentally, and like everything else, I immediately bought a package, and was decidedly surprised at the immediate relief it afforded me, and still more to find a complete cure after several weeks' use."



"I have a little son who sings in a boys' choir in one of the prominent churches, and he is greatly troubled with hoarseness and throat weakness, and on my return home from a trip I gave him a few of the tablets one Sunday morning when he had complained of hoarseness. He was delighted with their effect, removing all huskiness in a few minutes, and making the voice clear and strong."

"As the tablets are very pleasant to the taste I had no difficulty in persuading him to use them regularly. Our family physician told us they were an antiseptic preparation of undoubted merit, and that he himself had no hesitation in using and recommending Stuart's Catarrh Tablets for any form of catarrh."

"I have since met many public speakers and professional singers who used them constantly. A prominent Detroit lawyer told me that Stuart's Catarrh Tablets kept his throat in fine shape during the most trying weather, and that he had long since discarded the use of chestnut lozenges and troches on the advice of his physician that they contained so much toxic, potash and opium as to render their use a danger to health."

Stuart's Catarrh Tablets are large, pleasant-tasting lozenges, composed of catarrhal antiseptics, like red gum, blood root, etc., and sold by druggists everywhere at 50 cents for full treatment.

They act upon the blood and mucous membrane, and their composition and remarkable success has won the approval of physicians, as well as thousands of sufferers from nasal catarrh, throat troubles and catarrh of the stomach.

A little book on treatment of catarrh mailed free by addressing F. A. Stuart Co., Marshall, Mich. -Advt. -om

\$33.00 to Pacific Coast.

Chicago & North-western U'y.: during the months of March and April, \$30.00 from Chicago to Helena, Butte, Anaconda, Ogden and Salt Lake City; \$30.50 Spokane; \$34.00 Los Angeles, San Francisco, Portland, Seattle, Tacoma, Vancouver, Victoria and a large number of other points. Tourist sleeping cars daily to the Pacific Coast. For maps and particulars apply to nearest ticket agent or address: B. H. Bennett, 2 East King street, Toronto, Ont. -Advt. -om

How a Woman Paid Her Debts.

I am out of debt, thanks to the Dish-washer business. In the past three months I have made \$600.00 selling Dish-washers. I never saw anything sell so easily. Every family needs a Dish-washer, and will buy one when shown how beautifully it will wash and dry the family dishes in two minutes. I sell from my own house. Each Dish-washer sold brings me many orders. The dishes are washed without wetting the hands. That is why ladies want the Dish-washer. I give my experience for the benefit of any one who may wish to make money easy. I buy my Dish-washers from the Mound City Dish-Washer Co., St. Louis, Mo. Write them for particulars. They will start you in business in your own home. L. A. C.

Pat. Can. Dec. 1901. NO HUMBUG! 3 PERFECT instruments in 1 one. Humane Swine V. Stock Marker and Calf Dehorn'er. Stops swine of all ages from rooting. Makes 48 different ear marks, large or small, with same blade. Extracts horns. Testimonials free. Price, \$1.50; or send \$1, get it on trial, if it suits send balance. Patented April 23, 1901, U. S. FARMER BRIGHTON, Fairfield, Iowa.

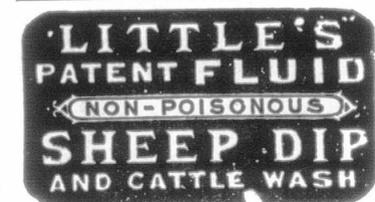
SPRINGHILL FARM.

Importers and breeders of choice, deep-milking
Ayrshires
Males and females for sale.
ROBERT HUNTER & SONS, Maxville, Ont.

5 AYRSHIRE bull calves for sale, from 6 to 12 months old. Sired by Klondyke of St. Ann's 8897. Their dams are heavy milkers, with good udders and teats. Inspection invited.
W. F. STEPHEN, Trout River, Quebec.
(Carr's Crossing, G. T. Ry.)

LIVE STOCK AUCTIONEER.
The undersigned is prepared to conduct pure-bred auction sales. 20 years' experience. References: John I. Hobson and Alfred Stone, Guelph; Jas. Hunter, Alma, and Mossom Boyd, Bobcaygeon. THOS. INGRAM, care Mercury Office, GUELPH, ONT.

AYRSHIRE CATTLE AND POULTRY.
FOR SALE: Royal Star of St. Annes, 1st-prize bull at Toronto and London, also heifer calves, heifers and cows from dams with milk records from 40 to 64 lbs per day. Price from \$35 to \$80 each. Barred Plymouth Rocks, Black Minorcas, Cornish Indian Games, \$1.50 each. Four pair Toulouse geese, \$4.00 per pair. For particulars write
WILLIAM THORN, Lynedoch, Ontario.
Norfolk Co., Front Run Stock Farm.



THE ORIGINAL Non-Poisonous Fluid Dip
Still the favorite dip, as proved by the testimony of our Minister of Agriculture and other large breeders.

For sheep. Kills ticks, maggots; cures scab; heals old sores, wounds, etc., and greatly increases and improves growth of wool.
Cattle, horses, pigs, etc. Cleanses the skin from all insects, and makes the coat beautifully soft and glossy.

Prevents the attack of Warble Fly.
Heals saddle galls, sore shoulders, ulcers, etc. Keeps animals free from infection.

No danger, safe, cheap, and effective
Beware of imitations.

Sold in large tins at 75 cents. Sufficient in each to make from 25 to 40 gallons of wash, according to strength required. Special terms to breeders, ranchmen, and others requiring large quantities.

SOLD BY ALL DRUGGISTS. SEND FOR PAMPHLET.
Robert Wightman, Druggist, Owen Sound.
Sole agent for the Dominion.

EUROPEAN ADVERTISEMENTS.

Ayrshire HERD of 150 cows and heifers, bred from deep milkers, with large teats, of a commercial stamp. Established over half a century. **J. & A. Wilson, Boghall Farm, Houston, Renfrewshire, Scotland.**

PEDIGREE AYRSHIRES. Cows and heifers, all bred from prizewinning stock at the leading shows.
Robert Wilson, Mansurao, Bridge of Weir, Renfrewshire, Scotland.

JOHN BRYAN & SON, Southleigh, Witney, OXON. One of the oldest registered flocks of pure-bred Oxford Down. Annual sale of rams. Oxford ram fair. Rams and ewes for sale at home. Inspection invited.

HAMPSHIRE DOWN SHEEP GREAT ENGLISH PEDIGREE SALES,
July, August & Sept., 1902
Waters & Rawlence, Salisbury, Eng., will sell by public auction, during the season, upwards of
50,000 PURE-BRED EWES, LAMBS, RAMS,
including both rams and ewes from the best registered prizewinning flocks in the country. Commissions carefully executed. Address—
Waters & Rawlence, SALISBURY, ENGLAND.

English Shorthorns.

Booth and Bates Shorthorns, topped with Cruickshank bulls. Young cows, bulls and heifers always on hand for sale. Eligible for the American herdbook. Royal and Highland prizewinners included for the last two years. Close on £400 won in prizes last year and this.
WM. BELL,
Ratcheugh Farm, Alnwick, Northumberland, Eng.

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.

J. E. CASSWELL'S LINCOLNS. Loughton, Folkingham, Lincolnshire, England.
Breeder of Lincoln Long-wooled sheep. Flock No. 46. At the Palermo Show, 1900, 25 rams bred by J. E. Casswell averaged £54 each; 14 of the best averaged £23 each, this being the highest sale of the season in the Argentine. Ram and ewe hoggs and shearlings for sale; also Shire horses, Shorthorns, and fowls. Telegrams: "Casswell, Folkingham, Eng." Station: Billingsboro, G. N. R.

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

WALTON HERD OF PEDIGREE PIGS.
The property of Sir Gilbert Greenall, Bart., Walton Hall, Warrington, England.
This herd is unrivalled for its true type, large size and strong constitutional vigor. It is the premier herd in England at the present day. Its show-yard career is unique, the champion prize for the best Large White pig at the R. A. S. E. having been won by pigs bred in the herd in 1896, '97, '99 and 1901, besides leading prizes too numerous to mention at all the principal agricultural shows in England.
A choice selection of boars and sows for sale. Inspection invited. All purchases carefully shipped. For particulars, apply to the Manager, **MR. J. HALLAS, Higher Walton, Warrington, England.** Railway stations: Warrington (Bank Quay) per L. & N. W. Ry.; (Central) per Midland, G. N. or G. C. Rys. Telegrams, "HALLAS Higher-Walton."

FARMERS! KEMP'S INSTANTANEOUS Sheep Dip
Contains more value for the money than any other Dip on the market. We will send a tin prepaid to any part of Ontario for ONE DOLLAR. Half gallon, Imperial measure, in each tin. It is the cheapest disinfectant for outbuildings, drains, etc.
W. W. Stephen, MEAFORD, ONTARIO.
FAIRFIELD LINCOLNS Imported ewes and lambs. Can supply show flocks.
J. H. PATRICK, ILBERTON, ONT., CAN.
SMITH EVANS, GOUROCK, ONT. Breeder and importer of registered Oxford Down Sheep. Selections from some of the best flocks in England. Stock for sale at reasonable prices. Inspection invited.
COTSWOLD HILL STOCK FARM Offers imp. and home-bred Cotswolds of both sexes and all ages, from the champion flock of Canada for the last six years.
JOHN PARK & SONS, Burgessville P.O. and Stn.
American Leicester Breeders' Association. A. W. Smith, Pres., Maple Lodge, Ont. Pedigrees now being received for Vol. 1. For information, blanks, etc., address:
A. J. TEMPLE, Sec., CAMERON, ILL., U. S. A.

SUMMERHILL HERD OF Large English Yorkshires.



Our winnings at the large shows, for 1901, are as follows: At Toronto every possible first prize and five seconds, two silver medals, and first for pen of pure-bred bacon hogs, also sweepstakes on bacon hogs over all breeds; at London every possible first but two; while at the Pan-American, where our herd was divided, half going to Toronto, we won six out of ten possible firsts, also sweepstakes and medals given; all the Pan-American (Buffalo), Toronto and London there were thirty-six first premiums and medals given; all the medals and every first prize but six won by the Summer Hill Yorkshires. When in need of the best write **D. C. FLATT & SON, MILLGROVE, ONT.** Telephone: Millgrove, Ont.

Large English Berkshires. My herd consists of sows imported from England; three of them (including a show sow) were selected from the herd of Geo. Green and were bred to his show boars.
JNO. LAHMER, VINE, ONT.

IMPORTED COTSWOLDS

We are now offering some choice siredlings of both sexes; also this season's crop of lambs, shairing by Imp. Swanwick.
BROOKS & LANGMAID, COURTICE P. O.
SIX MILES FROM OSKAWA STATION, G. T. R.

JOSEPH FERGUSON, UXBRIDGE, ONT., BREEDER OF Pure-bred Cotswolds—choice quality
om UXBRIDGE P. O. AND STATION.

CHAS. GROAT, BROOKLIN, ONT., OFFERS FOR SALE
Cotswold Ewes and Ewe Lambs of good quality and breeding. Also a registered stallion, 1 year old, and one filly foal. Good ones. A Duchess of Gloster bull, 15 months old, for sale. Write for price and particulars.

OXFORD DOWNS Largest breeder of Oxford Downs in Canada. Have still some fine ewes of different ages for sale. Bred to imported rams. Also 50 superior ewe lambs, and 100 ram lambs. All registered. Prices reasonable. Barred Rock eggs for setting, \$1 per dozen.

HENRY ARKELL, ARKELL, ONT.

SUMMERHILL OXFORDS. Present offering: A choice lot of ram lambs and ewe lambs. Also 50 extra nice yearling ewes.
PETER ARKELL & SONS, Teeswater P. O. and Station.

BROAD LEA OXFORDS. Can sell a few choice ewes of different ages, bred to our imported rams, May King 1st and Earl of Fairford 2nd; also 75 good ewe and ram lambs; and an imported two-shear ram. Come and see our flock, or write us for prices, etc.

HENRY ARKELL & SON, TEESWATER, ONT. MILDMAY, G. T. R.; TRESWATER, C. P. R.

Linden Oxfords and Shorthorns Flock composed of selections from the best English flocks and their progeny. None but the best imp. rams used. Stock for sale.
R. J. HINE, Dutton, Ont.

STOP! LOOK!! LISTEN!!! International Winnings: Of the home-bred Fairview Shropshires in breeding classes. Of the \$551 offered they won \$204. Of \$301 by Shrop. Ass'n to American-bred, won \$156. They won 20 per cent. more money than any other flock. Had 15 of 32 first premium winners in both classes. All winners bred at Fairview except one third-prize ewe. All our first winners sired by Newton Lord-prize but one. And sold out all surplus at the International, except three not then dropped. Even placed orders for lambs not then dropped.
JOHN CAMPBELL, Woodville, Ont., Can.

W. S. CARPENTER, "MODEL FARM," SIMCOE, ONT., IMPORTER AND BREEDER OF Shropshire Sheep. Ram and ewe lambs for sale. Well covered. Station One-half Mile from Farm, Wabash and G. T. R.

50 REG. SHROPS. 50 FOR SALE: Shearling and two-shear rams; also stock ram, bred by John Miller & Sons, and this season's crop of lambs ready for the fall trade. Foundation stock bred by Mansell, England. Prices moderate. A card will bring them.
ROWAT BROS., Phippston station, G. T. R., 5 Hillsdale, Ont. miles east. Simcoe County.

HIGH-CLASS SHROPSHIRE. A flock of 75, of good type. Two-shear rams, shearling rams, ram lambs, ewe lambs, fine lustrous fellows. Flock headed by a fine imported ram. Write for prices. **Abram Rudell, Hespeler P. O., Ont. C. P. R. and G. T. R.**

Imported Poland-China Hogs. We are offering choice, of both sexes, any age (pairs not akin), from imported stock, and of the true type. Easy feeders, rapid growers.
ROBT. L. SMYTH & SONS, Fargo P. O. and Station, M. C. R.

LARGE ENGLISH FOR SALE. YOUNG boars and sows carrying the blood of Baron Lee 4th, Bright Star (imp.), Enterprise and Highclere, on Bow Park, Teasdale and Snell females, with Allandale Boy 5875 and Royal Lad 3rd 4307 heading the herd.
S. DYMENT, BARRIE, ONT.

ROGERS' "S" PEERLESS MACHINE
NOT AFFECTED BY CLIMATE CHANGES. BEST ADAPTED OIL MADE FOR GENERAL USE OF ONTARIO FARMERS. MORE USED, MORE SOLD. JUST AS CHEAP AS THE OTHER AND SO MUCH BETTER. YOU KNOW HOW IT WAS ABOUT OIL LAST YEAR. YOU WANT PEERLESS THIS TIME. ALL GOOD HARDWARES AND GENERAL STORES SELL IT.

QUEEN CITY OIL CO., Limited, TORONTO. SAMUEL ROBERTS, President

SNELGROVE BERKSHIRES We have for sale boars and sows 2 to 4 months old, and sows large enough to be bred. Now is the time to send orders for young pigs to be farrowed in March and April. Sired by the prizewinning boars: Colonel Brant - 5950 - Crown Prince - 5888 - and Norval Hero - 5952 - Prices reasonable.
SNELL & LYONS, Snelgrove, Ont.

WILLOW LODGE BERKSHIRES FOR SALE Two boars 7 months old; several litters, 6 weeks to 3 months. Also a number of young sows ready to breed, sired by Longfellow 10th of H. B. No. 8633, and Gallant Prince No. 7691. Pairs supplied notakin.
WM. WILSON, Snelgrove, Ontario.

Imported and Canadian-bred YORKSHIRES. A number of good young sows in pig, boars ready for service and young pigs from 2 to 3 months old, direct from imported stock. Pairs and trios supplied notakin.
H. J. DAVIS, Woodstock, Ont. Box 290. Importer and breeder of Shorthorns and Yorkshires.

Imported Chester Swine. Our present offering is both sexes, not akin, as good as the country produces. Also eggs from B. P. Rocks, B. B. and C. L. Games, S. G. Dorkings, G. Seabright Bants, Mammoth Pekin ducks—all prize-winners—\$1.50 per 13. Six extra B. B. Game cockerels or pairs for sale.
GEO. BENNETT, CHARING CROSS P. O. AND STATION.

OHIO IMPROVED Chester White Swine. OLDEST ESTABLISHED REGISTERED HERD IN CANADA. Choice young stock, 6 weeks to 12 months old. Pairs and trios not akin. Registered pedigrees. Express charges prepaid. Safe delivery guaranteed.
E. D. George, Putnam, Ont.

IN WRITING PLEASE MENTION FARMER'S ADVOCATE.

A few good **Chester Boars** fit for service. Also some Dorset ewes and ewe lambs. Prices reduced for 30 days. **R. H. HARDING, Thorndale, Ont.**

PINE GROVE FARM
HERD OF
Large Yorkshire and Essex Swine.
The oldest established herd in America.

We bred Hasket 3rd - 1937-, sire of Oak Lodge Conqueror - 2475-, and also sire of Look Me Over, the sire of Summerhill Victor, the champion boar at the Pan-American and the late Chicago Exposition, and sold there for \$700. Personal inspection and correspondence solicited. Nine imported and twenty home-bred sows breeding.

JOSEPH FEATHERSTON & SON,
10 STREETSVILLE P. O., ONT.
Streetsville stn., C. P. R. Clarkson stn., G. T. R.

BOARS FOR SALE.

We have a few choice Yorkshire boars to sell at \$15 each. Sows and younger pigs always on hand. Herd headed by the second prize boar at Toronto, 1901. We still have a few extra fine Shropshire and Suffolk Down ewes at \$25 per pair. We also have a number of Aberdeen-Angus bulls and heifers to part with.

W. R. BOWMAN, Mt. Forest, Ont.

YORKSHIRES FOR SALE.

Sows safe in pig; large, smooth type; due to farrow first part of May; will be about 11 mos. old when they farrow. I have a choice sow due to farrow last of March; will be one year old at that time. Also have a few choice boars fit for service, and sows 4 months old. Prices reasonable. Write—

Jas. A. Russell, Precious Corners, Ont.

Improved Yorkshires

FOR SALE,

of the most popular families. All ages and both sexes; quality right. Eggs for hatching. Barred Plymouth Rocks, White Wyandottes, White and Brown Leghorns, and Buff Orpingtons. Incubator for sale. Also choice pedigreed collie pups.

A. B. ARMSTRONG, CODRINGTON, ONTARIO.

FOR SALE:

Yorkshires and Holsteins
Best type and quality. Young stock constantly on hand. Prices right. **E. HONEY, on Brickley P. O., instead of Warkworth.**

YORKSHIRES

Headed by Oak Lodge Prince 5071. Litters 15 weeks, either sex; 2 sows to farrow.

WM. TEASDALE, Dollar, Ont., 15 miles from Toronto.

Tamworths and Berkshires

A choice litter of young Berkshires, farrowed Jan. 10th, at \$6.00 each, registered (when 6 weeks old); order now. Also collie pups, \$3.00 each.

D. J. GIBSON, BOX 38, BOWMANVILLE, ONT. HAZEL DELL STOCK FARM.

TAMWORTH SOWS AND BOARS

nearly ready to ship. Also a few ready for service, of both sexes. **P. R. Hoover & Sons, Green River, Ont.**

Goldspring Herd Tamworths.

Offer stock Oct. and Nov. boars and sows Also my stock boar, Advance. This is the spot for the best. Write for prices. They are moderate, quality considered.

NORMAN M. BLAIN, ST. GEORGE, ONT. BRANT CO.

NEWCASTLE HERD OF TAMWORTHS

We are now offering several choice boars and sows, 3 and 4 mos. old, and half a dozen choice 2-mos. olds, all from Toronto Industrial sweepstakes herd. Write us for prices before buying elsewhere. **COLWILL BROS., NEWCASTLE, ONT.**

Swine.

not akin, as from B. P. Dorkings, G. B. Game om

STATION.

Improved Swine.

REGISTERED

6 weeks to trios repaid. Safe

ntnam, Ont.

ADVOCATE.

A MILE A DAY
Stretch and staple 40 rods at a time after your posts are set. The ready built **ELLWOOD STEEL WIRE FENCE** is low in price, high in quality. Heavily galvanized. If your dealer hasn't it write to **Canadian Steel & Wire Co., Ltd., HAMILTON, ONT.**



FIRE Safety
is best secured by using **"Safe Lock" Shingles**
on all your buildings. Prevents many fires and makes others easier controlled. The Safe Lock Metal Shingles are lightning proof, too and keep out the snow and rain. Small Shingle showing construction mailed free. **The Metal Shingle & Siding Co., Limited PRESTON, ONT.**



SHREDDED WHEAT BISCUIT.
Doctors Prescribe It.
"As a digestive and in cases of chronic constipation and dyspepsia, it acts as one of the best remedies I have ever prescribed."—**B. P. ANDERSON, M. D., Augusta, Me.**
Send postal for our book of Food Facts and Food Values, containing 262 recipes for preparing and serving Shredded Wheat dishes. Address—**J. C. HEWITT, P. O. Box 511, TORONTO.**

CARRIAGES AT FIRST COST.
By our system of selling carriages direct to the customer, you can purchase a buggy, phaeton or other high-grade carriage, or harness, one-third less than from a local dealer. Why not **Deal Direct With the Maker** and save two profits? We give the broadest guarantee with each purchase. You can return the vehicle, and we will pay freight both ways, if you are not thoroughly satisfied. Our complete illustrated catalogue, showing many styles of vehicles and harness, with detail description of each, mailed free. **INTERNATIONAL CARRIAGE CO., BRIGHTON, ONT.**



Agents Wanted
for the New Pictorial Stock Doctor and Live Stock Cyclopedia, revised to 1901 with the assistance of the Professors of the Ontario Agricultural College, Guelph. The finest illustrated, cheapest and best book of its kind ever published. Large wages to agents. A full-page announcement of this book appeared in the **ADVOCATE** of the issue of June 1st. Particulars mailed free. Address **WORLD PUBLISHING Co., Guelph, Ont.**

GOSSIP.
It may interest old Shorthorn breeders to know that Joseph Culshaw, who for many years had the charge of the Towneley herd, and took the famous Butterflies to victory) is still alive and well, and taking a keen interest in the breed. He is living at Castle Hill, Towneley, Burnley, and celebrates his ninetieth birthday this month, having been born on March 16th, 1812.

Mr. Isaac Usher, manufacturer of Queenston cement, in his advertisement in this issue, extends the time in which reduced rates on cement are offered to farmers to April 15th. This extension is made owing to the fact that the roads in many parts of the country have been so blocked by snowdrifts that teaming was found almost impossible. Mr. Usher reports a large increase in barn building, and a correspondingly large demand for Queenston cement for building basement walls, and for stable floors and silo construction.

Colwill Bros., breeders of Shorthorn cattle and Tamworth hogs, Newcastleton, Ont., write: In a Gossip note in your Feb. 15th issue, Mr. Blain seems to infer that we have been trying to claim some of his well-earned honors, which we can assure him we had not the slightest intention of doing. Mr. Blain's statements are all correct, and so are our own, but suppose we should have stated that our herd of Tamworths took 2nd sweepstakes herd prize, as there were two herd prizes, and while Mr. Blain took 1st on herd and first on yearling sow, he will remember the hard pull he had to get it, and then it was only won by a trio being made up with a sow of our breeding, which we sold Mr. Blain, viz., Thrifty Girl, which won the sweepstakes at Guelph Fat Stock Show in 1900 in Mr. Blain's hands, after having won 1st at Toronto the same year in our hands in the class under 12 months. Now, as Mr. Blain has given you a list of his winnings at Toronto in 1901, we will give you ours: First for boar over 2 years, first and silver medal for best boar any age, first for boar and four of his age under 6 months, second for sow and four of her produce under 6 months, 2nd and 3rd for yearling sows (Mr. Blain first with a sow of our breeding), third for boar under 12 months, second and third for boars under 6 months, second and third for sows under 6 months, and first for pen of four bacon hogs, by the judges appointed to preside over the judging competition of farmers' sons under 25 years of age. Our sales were never so numerous, and we are frequently receiving complimentary letters on the stock we are sending out. Mr. Blain says he will be out at Toronto next fall like Barnum's circus, bigger and lighter than ever before. We shall be delighted to meet him there again, and expect to have the strongest herd we have ever had out.

RECENT OFFICIAL RECORDS OF HOLSTEIN-FRIESIAN COWS.
To February 20, 1902.
Thirteen full-age cows; average age, 7 years; month 11 days; days after calving, 23; milk, 459.5 lbs.; butter-fat 16.014 lbs., equivalent butter 80 per cent. fat 20 lbs. 0.3 ozs., or 18 lbs. 10.9 ozs. 85.7 per cent. fat; quality of milk, 3.48 per cent.
Seven four-year-olds; average age, 4 years 7 months 24 days; days after calving, 25; milk, 409.4 lbs.; butter-fat 14.637 lbs., equivalent butter 80 per cent. fat 18 lbs. 4.7 ozs., or 17 lbs. 1.2 ozs. 85.7 per cent. fat; quality of milk, 3.58 per cent.
Twelve three-year-olds; average age, 3 years 4 months 1 day; days after calving, 38; milk, 370.5 lbs.; butter-fat 12.159 lbs., equivalent butter 80 per cent. fat 15 lbs. 3.2 ozs., or 14 lbs. 3 ozs. 85.7 per cent. fat; quality of milk, 3.28 per cent.
Fifteen two-year-olds; average age 2 years 2 months 22 days; days after calving, 38; milk, 301.3 lbs.; butter-fat 9.993 lbs., equivalent butter 80 per cent. fat 12 lbs. 7.9 ozs., or 11 lbs. 10.5 ozs. 85.7 per cent. fat; quality of milk, 3.32 per cent.

MARY MARSHALL SOLD FOR \$1,000.
The noted Guernsey cow, Mary Marshall, queen of the Pan-American Model Dairy, has recently been sold by her breeder and owner, Mr. Ezra Michener, Carversville, Pa., to Mr. Albert C. Loring, Minneapolis, Minn., for \$1,000. She was born in April, 1891, making her 10 years old at the beginning of the six-months' test. She has had six calves, the last being a heifer, which was sold when young for \$200. She was a large and attractive cow, of contented disposition.
When the final balance was taken, November 1st, it was found that Mary Marshall had, during the six months, eaten 1,010 lbs. hay, 4,456 lbs. silage, 1,283 lbs. bran, 45 lbs. oats, 795 lbs. gluten, 47 lbs. corn meal, 89 lbs. cotton-seed meal, 3,577 lbs. green clover, at a cost of \$29.14. In return for this she had given 5,611 lbs. of milk, with an average test of 5.36 per cent. butter-fat. This showed she had given 301.13 lbs. butter-fat, and the record of churned butter credited her with 354.26 lbs. The value of her butter-fat was \$88.57, leaving a profit of \$59.43. This was the largest profit for butter production of any cow in the herd, and \$7.65 greater than that of the second best cow. From the standpoint of milk production, it was seen that she had produced milk worth (in accord with the test rules) \$75.49, leaving a profit of \$46.35.

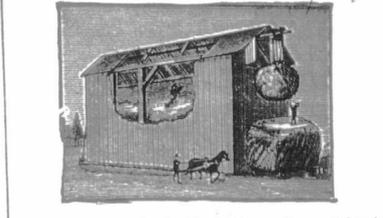
98 CHICAGO CLIPPER
Price Only **\$8.75**
CLIP YOUR HORSES
In the spring. They feel better, look better, work better, and are less liable to catch cold. Don't let your horses stand in the barn all night with a heavy damp coat of hair on. It weakens them and they lose flesh. If clipped they dry out quickly, gain flesh and can be groomed in 1/4th the time. Horses can be clipped in 30 minutes with our machine. Send for Catalogue H. **CHICAGO FLEXIBLE SHAFT CO., 150 La Salle Ave., Chicago, Ill., U. S. A.**



A MACHINE
to weave your own fence of Colled Hard Steel Spring Wire—52 inches high, at **25 Cts. per 100**. \$25 buys wire for 100 rods fence. Agents Wanted. Catalogue Free. **WIRE FENCE MACH. CO. Box 1, Ridgetown, Ont.**



BUCHANAN'S (Malleable Iron's) 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.

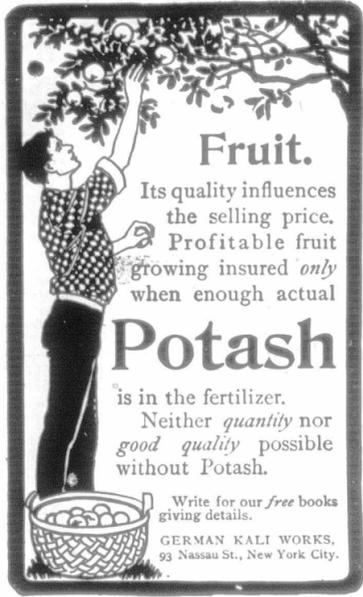
RESPONSIBLE AGENTS WANTED
Circulars, Prices and Terms on application to **M. T. BUCHANAN & CO., Ingersoll, Can.**

The REID Hand Separator
gets the very milking the greatest quantity of cream available for churning; makes more and better butter possible. It is the only perfect hand Separator. Runs lightest, lasts longest. Sent anywhere on 10 days free trial. Send for our new catalogue and revised price list. **A. H. REID, 30th and Market St., Philadelphia, Pa.**



CHAMPION EVAPORATOR.
It requires more than double the amount of material to construct a Champion than an ordinary evaporator. The first Champion Evaporators, constructed twenty years ago, are in use at the present time. Thousands of Champion Evaporators are made and sold annually. We have three factories. Our entire attention is devoted to best methods of handling the maple product. **THE GRIMM MANFG. COMPANY, 84 Wellington Street, Montreal, Quebec.**





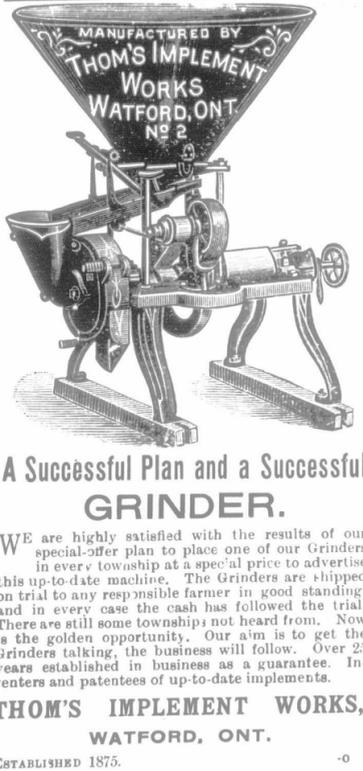
Fruit.
Its quality influences the selling price. Profitable fruit growing insured only when enough actual **Potash** is in the fertilizer. Neither quantity nor good quality possible without Potash.

Write for our free books giving details.
GERMAN KALI WORKS,
93 Nassau St., New York City.



ELECTRIC Handy Farm Wagons
make the work easier for both the man and team. The tires being wide they do not rut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.
ELECTRIC WHEEL CO., BOX 263, QUINCY, ILL.

RIPPLEY'S COOKERS
Are now made in Canada, saving duty and freight for our customers. Made of boiler steel. No flues to rust or leak. Will cook 25 bushels roots or grain in two hours. Fine for heating stock water-tanks, dairy rooms, pig-pens. Can be used outside or attached to a chimney same as a stove. Used and endorsed by the following Canadian breeders and many others: Brethour & Saunders, Burford; W. D. Platt, Hamilton; D. C. Platt & Son, Millgrove; H. J. Davis, Woodstock; Ontario Agricultural College, Guelph; also James Boden, Graham Bros., Newton & Gosh, J. A. McDonald, J. P. Connley, Prices, \$10 to \$45. Took first premium at Toronto and London fairs. Catalogue and prices mailed free. Address:
RIPPLEY HARDWARE COMPANY,
BOX 215, LONDON, ONT.
U. S. Factory: Grafton, Ill.



THOM'S IMPLEMENT WORKS
WATFORD, ONT.
ESTABLISHED 1875.

A Successful Plan and a Successful GRINDER.
WE are highly satisfied with the results of our special offer plan to place one of our Grinders in every township at a special price to advertise this up-to-date machine. The Grinders are shipped on trial to any responsible farmer in good standing, and in every case the cash has followed the trial. There are still some townships not heard from. Now is the golden opportunity. Our aim is to get the Grinders talking, the business will follow. Over 25 years established in business as a guarantee. Inventors and patentees of up-to-date implements.

GOSSIP.
W. W. Everitt, Chatham, Ont., breeder of Jersey cattle, Berkshire pigs, and poultry, writes: "Toulouse geese advertised all sold, going from the far east to Moosomin in the west; could have doubled sales had I had the stock. All stock doing well; Jerseys and Berkshires doing extra. Still have a few choice young bulls for sale at reasonable prices."

The Iowa Agriculturist is the title of a bright monthly journal now issued from the Iowa Agricultural College, Ames. It has a Canadian, Prof. W. J. Kennedy, an old O. A. C. student, as business manager, and ought to thrive and do much to promote the interests of the College.

We are indebted to Mr. W. H. Ladner, Ladner, B. C., for a copy of the Yearbook of British Columbia, and the latest maps of that exceedingly interesting Province. The Yearbook is up-to-date, covering 1901, as well as the history of the Province from an early date. It is replete with interesting and useful information regarding the rich resources of the Pacific Province in agriculture, horticulture, stock-raising, forest wealth fisheries, and the precious metals. A chapter containing much useful information respecting the Canadian Yukon and Northern Territory generally is added. Mr. H. E. Gosnell, Librarian Legislative Assembly, Victoria, B. C., is the compiler.

R. J. Laurie, Wolverton, Ont., in ordering change of advertisement, writes: "My stock of poultry are coming through the winter finely, and I will be in a better position than ever to supply eggs from my prizewinners at Guelph, Ont., Brantford, Woodstock and other places. My birds won 140 prizes on 156 entries last fall. I can supply eggs from Light and Dark Brahmas; Partridge, Buff and White Cochins; B. Langshans; Barred White and White Rocks; Golden, Silver, Brown, Rose Wyandottes; White, Buff and Black Comb and Brown Leghorns; Black Minorcas; Spanish, S. Dorkings; S. S. Black and C. P. Hamburgs; Red Caps, B. B. R., Pile and Duckwing Games; Houdans; Golden, W. and C. B. Polands; Pekin, Rouen and Cayuga ducks. Also can spare a few cockerels yet at reasonable prices. I also enclose a change of ad."

Mr. A. E. Sherrington, Walkerton, Ont., who advertises Barred Plymouth Rocks and eggs, writes: "My sales for the past season in Barred Rocks have been quite satisfactory, both in eggs and fowl, and have given general satisfaction to my customers. This season I am in a better position than ever to meet the demand for eggs and stock of this popular breed of fowl. Having imported two cockerels from a \$75 trio of A. C. Hawkin's Royal Blue strain, these will head the two pens of selected, strongly-barred females. Nothing but first-class stock will be used for breeding purposes. I have sold upwards of fifty cockerels this winter, and have a few good ones to dispose of yet. It is a pleasing fact to see the farmers improving their fowl as well as their other stock. This must tell on the quality of poultry that will go into the markets next season. Success to the Advocate, as one of the best advertising mediums in the Dominion."

In response to inquiries received by the Animal Husbandry Department of the Iowa Experiment Station relative to the feeding value of stock foods as by-products of corn, flaxseed and cottonseed for cattle-feeding purposes, Prof. W. J. Kennedy, through the co-operation of Mr. Albert E. Cook, Odebolt, Iowa, has inaugurated an experiment in which eleven lots of twenty head each are on feed. A uniform bunch of hogs is following each lot. The steers are from two and one-half to three years of age, and are high-grade Shorthorn Hereford and Angus, purchased by Mr. Cook in western Nebraska. Hay and straw will be used for roughage and crushed, snapped corn, to be followed by corn-cob meal, will form the corn part of the grain ration. Lot I. is being fed crushed corn and cob and roughage. Lot II., crushed corn and cob, oil meal and roughage. Lot III., crushed corn and cob, cottonseed meal and roughage. Lot IV., crushed corn and cob, gluten meal and roughage. Lot V., crushed corn and cob, Buffalo gluten feed and roughage. Lot VI., crushed corn and cob, germ oil meal and roughage. Lot VII., crushed corn and cob, dried blood and roughage. Lot VIII., crushed corn and cob, Iowa stock food and roughage. Lot IX., crushed corn and cob, Standard stock food and roughage. Lot X., crushed corn and cob, International stock food and cob, and roughage. This lot to be grazed on a good blue grass pasture as soon as grass season arrives, to be fed in comparison with Lot I., which will be fed the same grain ration, but dry feed for roughage. The feeding period will be of five or six months duration. P. R. Marshall, Assistant in Animal Husbandry, selected the cattle out of a bunch of 700, and made the final division. Mr. R. J. Kimzer, of the Animal Husbandry Department, will do the feeding. The results of this experiment will be published about the first of next September.

DO IT NOW
If you really want to add to your income by starting a business that your wife will take pleasure in helping you with, write and find out about the **PRAIRIE STATE INCUBATOR.**
The new catalogue No. 84, with 700 half-tone illustrations, 4 three-color reproductions from original paintings, and 50 full page tinted plates is sent free. Write now.
PRAIRIE STATE INCUBATOR COMPANY, HOMER CITY, PA.
Or Toronto, Ont., Can., 190 Yonge St.

THE CYPHER'S INCUBATOR
ON SALE BY RESPONSIBLE CANADIAN AGENTS.
Used with uniform success on twenty-six Government Experiment Stations in the U. S., Canada, Australia and New Zealand; also by America's leading poultrymen and many thousands of persons in every walk of life. Guaranteed to give satisfaction or price refunded. The original and only genuine non-moisture incubator, fully covered by patent.
WRITE FOR NAME OF CANADIAN AGENT NEAREST YOU.
Agents carry incubators in stock, duty paid, and can save you money. Complete 180-page catalogue for 1902, finely illustrated, free if you mention this paper. Ask for Book No. 110. Address:
Cyphers Incubator Co., Buffalo, N. Y., Chicago, Ill., Boston, Mass., New York, N. Y.

PROVAN'S PATENT REVERSIBLE Carriers, Fork and Slings
FOR ROUND IRON, WOOD, OR ANGLE STEEL TRACKS,
Have now become a standard of excellence with the farmers of Canada and the United States. At the World's Fair, Chicago, 1893, the only medal and diploma given on hay carriers, forks and slings was awarded to us on these implements. Following is a copy of the judges' award: "AWARD.—For open trip truck to receive the sling car, which has motion in all directions; ingenious design of stop-block, which enables perfect control of load desired; no springs required for locking car, which has motion in all directions; carriage; no springs required for locking car, which has motion in all directions; compact form of fork, which can be tripped in any position; the car is reversible and of double action; for novelty, ingenuity and usefulness, excellence of material and construction." Correspondence solicited. Manufactured by
JAMES W. PROVAN,
Special discount for cash. OSHAWA, ONT., CAN.

FARMERS, ATTENTION!
Concrete walls, floors, cisterns, cheese-factory floors, built by an expert (12 years' experience).
London Cement Construction Company,
419 Ridout St., London Ont.

EGGS FOR SALE. B. P. Rock, W. Wyandotte, B. F. Orington, and Houdan; also Pekin ducks; \$1.25 per setting.
C. W. BEAVER, Presett, Ontario.

Mammoth Bronze Turkeys.
S. G. and colored Dorkings, S. C. Br. Leghorns, Barred Rocks, Toulouse geese—over 500 grand young birds from winning strains. Pairs and trios mated not akin.
ALFRED E. SHORE, White Oak, Ont.

BARRED ROCKS.
A number of choice cockerels: large, strong-boned, robust, healthy birds, bred from famous National strain, noted for large eggs and persistent layers. For prices write
W. C. SHEARER,
BRIGHT, ONTARIO.

BARRED ROCKS AND PEKIN DUCKS.
Best quality. Write for prices.
H. GEE & SONS, Fisherville, Ontario.
HALDIMAND CO.

Better Hatches with Hens
by new method of experienced poulterer; beats incubators; simplifies work with sitters; saves your temper. Directions, 20 cents. Using my method you make many times this much on each setting.
VALLEY POULTRY FARM, Helena, Montana.

EGGS FOR HATCHING
Barred Rocks (exclusively). From two pens headed by two imported cockerels bred from a \$75 trio of A. C. Hawkin's Royal Blue strain; \$1.25 and \$1.50 per setting of 13. **A. E. SHEERINGTON,**
Box 100, Walkerton.

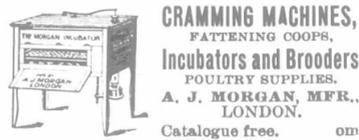
EGGS From prizewinning Brahmas, Cochins, Langshans, Rocks, Wyandottes, Minorcas, Leghorns, S. Dorkings, Spanish, Hamburgs, Red Caps, Pearl Guineas, Houdans, Polands, Games; Pekin, Rouen, Cayuga ducks. Eggs, \$1.00 per setting.
R. J. LAURIE, WOLVERTON, ONT.

Eggs FOR SALE.—White Rocks of the finest strain in country; \$1 and \$1.50 per setting. **J. McEWEN,**
266 St. James St., London, O.

EGGS FOR HATCHING
Barred Rocks (exclusively) from imported stock. \$2 for 13, or two settings for \$3.
J. H. FORDON, Maplehurst Farm, Beachville, Ontario.

White Wyandotte Eggs.
Large dark-egg strain, \$1.25 per setting.
A. M. MINTHORN, QUEENSTON, ONTARIO.

Mammoth Bronze Turkeys
Barred Rocks and W. Rocks, and Red Caps. Chester White swine. Good bacon type. Write for prices.
W. E. WRIGHT, GLANWORTH, ONT.

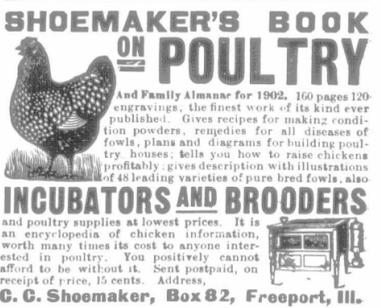


CRAMPING MACHINES, FATTENING COOPS, Incubators and Brooders
POULTRY SUPPLIES.
A. J. MORGAN, MFR., LONDON.
Catalogue free.

R. G. ROSE GLANWORTH, ONT., offers for sale a choice lot of M. B. turkeys from his 40-pound imported yearling tom. Also Black Minorcas, W. Wyandottes, Barred, Buff and White Rocks. Pairs and trios mated not akin.

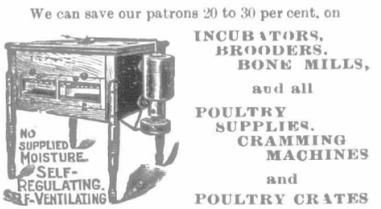


MARILLA.
That's the name which means highest excellence in incubators and brooders—the most perfect regulation of temperature and moisture. Hot air or hot water. Send for catalogue and guarantee. Your money back if you are not satisfied.
MARILLA INCUBATOR CO.,
Box 102, Rose Hill, N. Y.
Machines may be seen at the store of our agents, **C. J. DANIELS, 196 River St., Toronto, Canada.**



SHOEMAKER'S BOOK ON POULTRY
and Family Almanac for 1902, 160 pages 120 engravings, the finest work of its kind ever published. Gives recipes for making condition powders, remedies for all diseases of fowls, plans and diagrams for building poultry houses; tells you how to raise chickens profitably; gives description with illustrations of 48 leading varieties of pure bred fowls, also **INCUBATORS AND BROODERS** and poultry supplies at lowest prices. It is an encyclopaedia of chicken information, worth many times its cost to anyone interested in poultry. You positively cannot afford to be without it. Sent postpaid, on receipt of price, 15 cents. Address,
C. G. Shoemaker, Box 82, Freeport, Ill.

The Daniels Incubator
We can save our patrons 20 to 30 per cent. on **INCUBATORS, BROODERS, BONE MILLS,** and all **POULTRY SUPPLIES, CRAMPING MACHINES** and **POULTRY CRATES**



NO SUPPLIED MOISTURE SELF-REGULATING SELF-VENTILATING

Our aim for past 16 years has been satisfaction to every customer. Our large collection shows we have not failed in our aim. Send for our FREE catalogue. We don't sell catalogues, but straight, honest goods; this, or your money back.

C. J. DANIELS,
196-200 RIVER ST., TORONTO, ONT.
Mention "Farmer's Advocate."

IT'S THE MAN WITH Canadian Incubators
THAT DOES THE WORK.
CANADIAN INCUBATOR & BROODER CO.,
GRT CATALOGUE -OM TORONTO, CAN.

INCUBATORS AND BROODERS.
Guaranteed to give satisfaction. Built to last a lifetime. Absolutely self-regulating, self-ventilating, and perfectly reliable in every way.
For circular giving prices, etc., write the manufacturer: **J. E. MEYER,**
Shipping station: Guelph. **Kossuth, Ont.**

WOODSTOCK STEEL WINDMILLS

Galvanized or Painted. For Power or Pumping.



DANDY Windmill

with Graphite Bearings, runs easy and controls itself in the storm. GRINDERS, PUMPS, WATER TANKS, DRINKING BASINS AND SAW BENCHES.

WOODSTOCK WIND-MOTOR CO., WOODSTOCK, ONT. (Ltd.)

Zanzibar Paints

Weather-Proof. Water-Proof. Rust-Proof.

For houses, barns, sheds, wagons, windmills, fences, agricultural implements of all kinds. Every farmer can afford to keep all of his buildings and implements painted by using Zanzibar Paints.

Durable lustre and colors that never fade.

ASK YOUR DEALER FOR

Zanzibar Paints, OR WRITE US DIRECT.

Manufactured only by

The Zanzibar Paint Co. TORONTO, ONT. (Limited)

ASK YOUR HARDWARE FOR

FOX SCALES



THEY ARE THE BEST.

And why not have the best when as cheap as inferior goods? o **GEO. M. FOX.**

WINDMILLS



A GOOD ARTICLE IS WORTH A FAIR PRICE.

CANADIAN AIRMOTOR

IS BUILT TO WEAR AND TEAR—VIZ.: WEAR LONGER THAN OTHERS; TEAR AWAY ALL THE TIME. A little oil frequently and the wind will do the rest.

ONT. WIND ENGINE & PUMP CO. o^m LIMITED. TORONTO, ONT.

IT PAYS TO ADVERTISE IN THE FARMER'S ADVOCATE.

BOOK REVIEW.

Any book reviewed in this department may be ordered through this office, at the price stated.

"HINTS TO HORSE-KEEPERS."

The book bearing the above title was, for the most part, written by the late H. W. Herbert ("Frank Forester"), a native of London, England, who spent the latter part of his life in America. It is intended to include every subject of interest to those who, for pleasure or business, own a horse. This all-comprehensive programme is crowded into 24 chapters, but, after careful examination, we can see little or no good in it. The ideas advanced are ancient, and the symptoms and treatment for diseases ditto. With few exceptions, the illustrations are also ancient and crude. The monstrosity of a frontispiece called a "Clydesdale," fairly indicates the value of the whole work. It would not be sinful to worship that picture, as it is not a likeness of anything in the heavens above, or in the earth beneath, or in the waters under the earth. It is unfortunate that good paper and ink are wasted in such a volume.

A TURKEY BOOK.

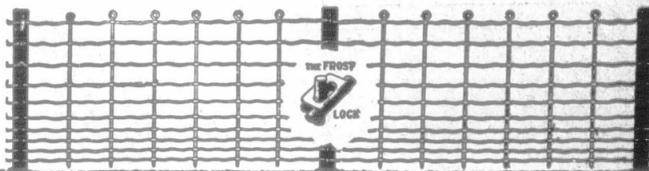
Turkey-raising is attaining large proportions in Canada, and will steadily increase. In the United States the annual sales of turkeys for meat reach over 10,000,000 birds, and if the value of breeding stock and eggs were added, the trade would probably reach \$15,000,000. No excuse need therefore be offered for publishing a book on the subject, which the Orange Judd Co. have done, under the name, "Turkeys, and How to Grow Them." It is a thoroughly useful volume, dealing almost wholly with the practical aspects of the subject, but also taking up the natural history and breeds of turkeys. Several comprehensive essays by successful turkey-growers in Canada and the United States are included, and a good chapter on the prevention and treatment of diseases. The volume was edited by Herbert Myrick, assisted by several other well-qualified specialists. It is a well-bound book of 154 pages; price, \$1.

METHODIST MAGAZINE AND REVIEW.

Though denominational in name, the above magazine is not so in fact. The general literary excellence of its articles and stories, the beauty of its illustrations, and the wide range of subjects which it covers, make it a welcome visitor in the libraries of thousands of Canadian homes. One of the oldest of our monthly periodicals, it has steadily improved with age, and is a splendid example of the resourcefulness of its publishers and editor, Dr. Withrow, and well deserves the success which it has won. A most interesting article in the March number is that by C. C. James, M. A., Deputy Minister of Agriculture, Ontario, on "The Irish Palatines," with portraits. An outline of Sir Edwin Arnold's new poem on the first circumnavigation of Africa, with fine engravings, some striking illustrations of the "Grand Canyon of Arizona," and pictures and sketches of the "Black Belt," are presented; and an illustrated account of Lady Henry Somerset's social experiments in England. "The Pathos and Humor of Mission Life," by the Rev. J. C. Seymour; "Medical Mission Work in China," by Dr. O. L. Kilborn; and the story of Henry Broadhurst, the working mason who entered Gladstone's Government, read like romances. Isabelle Horton contributes an exquisite Easter story, Principal Maggs writes strongly on "The Sword of the Lord Still Edged," and Chancellor Burwash on "College Problems." It is published by Wm. Briggs, Toronto, at \$2 per year.

A SPLENDID MAGAZINE.

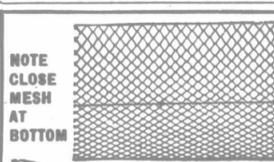
The Canadian Magazine, of Toronto, Ont., for March is in keeping with the reputation of that fine periodical, which richly deserves a place in the home of every loyal and progressive magazine reader in the Dominion. It is surprising to find Canadians who still look for low grade U. S. monthlies when such rich stores of literary excellence are to be found at home, which only need one



Frost Wire Fence is a Strong Fence.

The 10 wires and 6 stay fence has heavy uprights. There is not a weak spot in its construction. It will last three times as long as other fences. Place your order for Frost Fence, satisfaction guaranteed.

Write for Catalogue. THE FROST WIRE FENCE CO. LTD., WELLAND, Ont. 4



Page Acme Poultry Netting

is close meshed at bottom and does not require rail or board support at edges, having strong straight wire (No. 12 gauge) at top, bottom and in centre, cannot sag and is easy to erect. The "Page Acme" netting is of neat appearance, very durable and cheap. We also make farm and ornamental fence, gates, nails and staples. The name of Page is your guarantee of quality.

The Page Wire Fence Co., Limited, Walkerville, Ont. 5

BEAUTIFUL HOMES

INSIDE AND OUTSIDE SHOULD BE PAINTED WITH THE PAINT MADE BY THE

Canada Paint Company, LIMITED.

EXAMINE THE LABEL CAREFULLY AND, TO PREVENT DISAPPOINTMENT AND WORRY, ASK FOR THE ESTABLISHED BRANDS OF THE

CANADA PAINT CO. LIMITED.

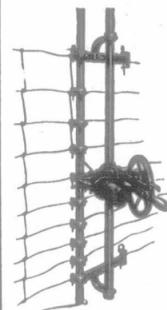
reading to be appreciated. We find variety for all classes of readers, from grave to gay, and it is beautifully illustrated and printed. There are able articles on the future of the Canadian territories, on commercial education, "John Bull in his Shop," "The Making of Pemican," and others equally interesting. We would advise our readers to examine the Canadian Magazine for themselves. It has now subscribers in 20 foreign countries, so highly appreciated is it by good judges. The Easter (April) number will surpass anything of its class ever issued in Canada. Merit considered, the subscription price, \$2.50 per year, or 25 cents per copy, is very low.

FENCING and GATES

Buy your fencing and gates direct from the manufacturer. The Oshawa Wire Fence Co., Limited, are the largest manufacturers of different styles of fencing and gates in Canada. Send for catalogue and prices.

OSHAWA WIRE FENCE CO., Ltd., OSHAWA, ONT. o^m

IT WILL COST



About \$300 more to fence a 100-acre farm with a ready-woven fence than to do it with the

London Fence Machine

Fences erected with the London are stretched and woven better than any factory fence ever made, and, therefore, give better satisfaction and last longer. o^m

London Fence Machine Co'y, Ltd., LONDON, CANADA.

Write for our new spring catalogue and 1902 prices. Coiled spring and all kinds of wire. Reliable, enterprising agents wanted.

PLEASE MENTION FARMER'S ADVOCATE.



Buy the **NEW CENTURY AMERICAN CREAM SEPARATOR**

And have the best. Nothing as good.

Simple, durable, easy to turn and clean. Five different dairy sizes.

WRITE FOR CIRCULARS AND INFORMATION.

AGENTS WANTED.

C. RICHARDSON & CO.,

P. O. Box 1048, - - St. Mary's, Ont.

Octagon Bar

SUNLIGHT SOAP

REDUCES EXPENSE

If your Grocer cannot supply, write to **LEVER BROTHERS LIMITED, Toronto**, sending the name and address of your grocer, and a trial sample of Sunlight Soap will be sent you free of cost.

Two washings entail **LESS STRAIN ON THE NERVES** Than one washing with impure soap.

For Laundry



BELL..

PIANOS AND ORGANS

Built to Last a Lifetime by the Largest Makers of Pianos and Organs in Canada.

The Bell Organ & Piano Co., Ltd.,

GUELPH, ONT.

DON'T

BUY A SEPARATOR UNTIL YOU HAVE SEEN THE

National.



EXAMINE

The simplicity of the design. All wheels and bearings protected, being perfectly safe in the hands of a child. It has anti-friction ball bearings. Few parts to wash—only two pieces inside the bowl.

The National is made by the Raymond Mfg. Co. of Guelph, whose success with the celebrated Raymond Sewing Machine is sufficient guarantee of the high finish and workmanship.

In 1901 five machines a day were manufactured. For 1902 the capacity is increased to 25 machines per day, showing the satisfaction given by the National in the past two years.

The 1902 National contains all the strong points found in other separators, and is placed on the market with the guarantee of being the best and most up-to-date machine in every particular offered to the Western farmers to-day.

The National will well repay investigation by intending purchasers.

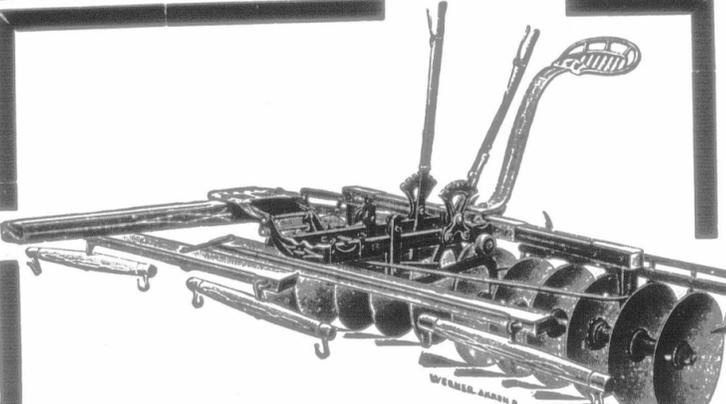
National No. 1, capacity 330 to 350 lbs. per hour.
National No. 1 A, capacity 450 to 500 lbs. per hour.

AGENTS WANTED IN UNREPRESENTED DISTRICTS.

The Raymond Mfg. Co. of Guelph,

GUELPH, ONT. LIMITED.

WE ALSO MAKE GOOD SEWING MACHINES.



WHEN YOU NEED A DISC HARROW, LOOK CAREFULLY INTO THE MERITS OF THE FROST & WOOD

"WINDSOR" DISC

IT IS THE BEST HARROW.

The **DOUBLE LEVERS** operate each section independently—a great advantage in turning and in working on sidehills. The **BALL BEARINGS** are large and require no adjustment. Each **SCRAPER** works on an independent spring. The **POLE ATTACHMENT** can be arranged instantly for two, three or four horses.

If you have hard work for a harrow to do, the "Windsor" can do it for you. Remember that we make a full line of first-class

Cultivating, Seeding, Haying and Harvesting Machinery.

SAMPLES CAN BE SEEN WITH ALL OUR AGENTS.

Head Office and Works: **Smith's Falls, Ontario.**

The Frost & Wood Company LIMITED

Branch Offices and Warehouses:
Toronto, Ont.
London, Ont.
Winnipeg, Man.
Montreal, Que.
Quebec, Que.
St. John, N. B.
Truro, N. S.

THIS CUT ILLUSTRATES THE ONLY

"Hinge" Stay Fence

It will not sag, and is cheap, strong and durable. Write for circular and prices.

Good Agents Wanted in every locality, to whom we guarantee good returns.

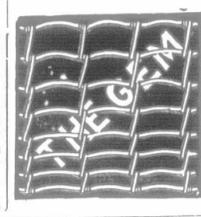
The Strathy Wire Fence Co. (LIMITED), OWEN SOUND, ONT.



No 13

BOYS FOR FARM HELP.

The Managers of Dr. Barnardo's Homes invite applications from farmers, or others, for the boys who are arriving periodically from England to be placed in this country. The young immigrants are mostly between 11 and 13 years of age; all will have passed through a period of training in Dr. Barnardo's English Institutions, and will have been 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.



Latest and best devices for wire-fence building, including

GEM and McCLOSKEY

weaving machines, also Coiled Spring and other fence wire at lowest prices. Write on McGregor, Banwell & Co., Box 23, Windsor, Ont.

Mr. H. J. Davis, Woodstock, Ont., importer and breeder of Shorthorn cattle and Yorkshire swine, writes: "The Shorthorn trade has been good this winter, but only the best seem to be in demand. Have sold sixteen head to go to different points, including the United States and the N.-W. T. Have still one good roan bull sired by an imported bull, and several good females safe in calf to my stock bull, Bapton Chancellor (imp.). This bull was selected by W. S. Marr for use in his own herd at Upennill."

Woven Wire Fencing

A heavy stay in one piece. A perfect lock to hold. Complete in the roll. Made from hard spring wire throughout. Will stand up and do business when other styles fall.

WRITE:

McGregor, Banwell & Co'y.

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