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THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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Vol. XXXV. LONDON, ONTARIO. JANUARY 15, 1900. WINNIPEG, MANITOBA. No. 494

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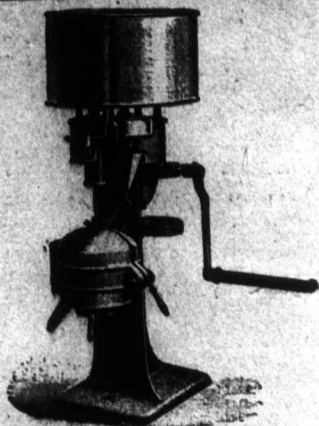
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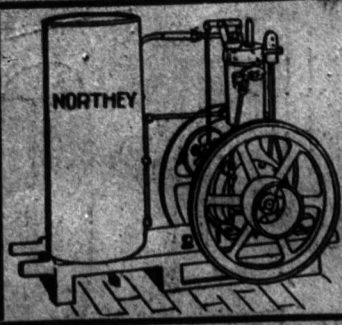


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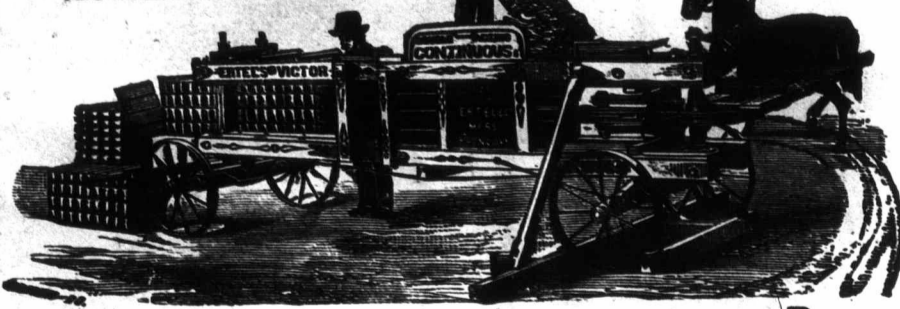


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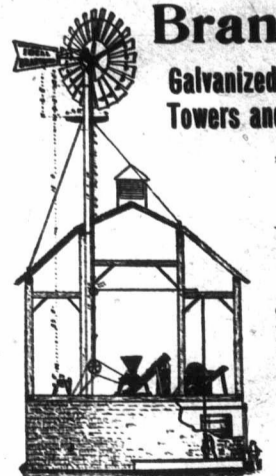
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Vol. XXXV.

LONDON, ONT., AND WINNIPEG, MAN., JANUARY 15, 1900.

No. 494

EDITORIAL.

Our Great Shorthorn Premium Picture, "Canada's Ideal."

The gratifying success which attended the issue from this office in the past decade of the three great premium pictures of representative Canadian live stock, entitled, "Canada's Pride," "Canada's Columbian Victors," and "Canada's Glory," and the hearty expressions of appreciation of those productions by many hundreds of FARMER'S ADVOCATE readers, led us early in the past year to the determination to mark the close of the century by the issue of a companion picture representing still another of the important agricultural industries of the Dominion.

The issue in 1890 of our splendid engraving of a group of famous prizewinning Canadian draft horses, entitled, "Canada's Pride," was timely and well received. The picture was generally acknowledged to be an exceedingly creditable production, and it received a very wide circulation and excited great interest in that class of Canadian stock.

The brilliant success at the World's Columbian Exhibition, in 1893, of the Canadian contingent of Ayrshire cattle in winning the best prizes offered in that class was commemorated by our issue of the splendid picture of a group of the leading animals in that great aggregation which won the admiration of many thousands of visitors to the World's Fair, and together with the exhibition of the mammoth Canadian cheese, played a very prominent part in advertising the Dominion and attesting the skill of its stockmen in the breeding and development of a superior class of dairy cattle and the manufacture of high-class dairy products, with the result that the latter have since taken the first place in the best market of the world.

The equally successful record made at the Columbian Exhibition by the Canadian exhibit of light horses, especially in the classes for Thoroughbreds and Hackneys, in which all the championship honors came our way, was signalized by the issue in 1895 of our magnificent engraving representative of noted Canadian carriage, coach, and other harness horses, and entitled, "Canada's Glory," which also met with an appreciative reception, and together with the former pictures found a place on the walls of thousands of farmers' homes in Canada, and in the Agricultural Colleges and Experiment Stations of Great Britain and many of the States of the American Union. Among the many testimonials to the excellence and value of these productions were more than one from Professors of Animal Industry in Agricultural Colleges, assuring us of the helpfulness of the pictures as object lessons in the classroom in teaching the types of representative animals of the various breeds.

The great revival in the demand for and prices of cattle of the beef breeds in the last year or two has been deemed an opportune occasion for the presentation of a picture representing the beef-producing industry of the country; and as the cosmopolitan Shorthorn holds a pre-eminent place in that line of live stock in Canada, and as the past year was in some sense a jubilee year in Shorthorn circles, owing to the liberal special prizes granted by the Dominion Breeders' Association, and the unusually high prices realized for cattle of this breed both at public and private sale, the present was deemed a fitting time to complete our quartette of premium pictures.

In view of these circumstances, arrangements were made by us early last year for the production of a large picture of a representative group of a dozen famous Shorthorns, including the principal prizewinners at the leading exhibitions in the Dominion, as well as a few noted animals which have not been exhibited, and our artist is now putting the finishing touches on the engraving, which we are confident will be pronounced the most magnificent example of live-stock portraiture that has ever been produced on this continent, and will be in line with the general policy of the FARMER'S ADVOCATE of keeping before the people high ideals of the best types of the various breeds of live stock. The picture will be about 25x36 inches in dimensions, with suitable margin, and the price has been fixed at one dollar. In order to place it easily within the reach of our readers, we propose to present a copy to every present subscriber whose name is on the list of two new subscribers and two dollars. We trust that our friends in all sections of the Dominion will interest themselves in giving a wide circulation to this picture throughout our great constituency extending from the Atlantic to the Pacific ocean. We append the list of the noted animals portrayed in the engraving:

NAME OF ANIMAL.	OWNER.
Judge = 23419 =	Hon. Thos. Greenway, Crystal City, Man.
Topsman = 17847 =	J. G. Barron, Carberry, Man.
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Knuckle Duster = 28268 =	Smith & Smith, Hay, Ont.
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Robert the Bruce = 22635 =	C. A. Archibald, Truro, N. S.
Rosabella = 19753 =	W. S. Lister, Middlechurch, Man.
Matchless 18th = 29130 =	J. & W. B. Watt, Salem, Ont.
Queen of the Louans (Vol. 16th) =	T. E. Robson, Ilderton, Ont.
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Unfruitfulness of Orchards.

The development of Canada's great and varied fruit-producing resources is a subject that demands more attention on the part of the general farmer than it has yet received. Home and foreign consumption of fruit is very largely increasing, and with the improvement in facilities for transport of apples and all our finer fruits, the need for more advanced methods in orcharding becomes apparent. The work of improvement must commence upon the farm, and it therefore affords us pleasure to begin in this issue of the FARMER'S ADVOCATE a comprehensive series of articles by as well-known and practical an authority as Mr. G. C. Caston, Simcoe Co., Ont., a most successful fruit-grower, whose work had been such as to warrant his being placed in charge of one of the Ontario provincial fruit experiment stations. Midway between such luxuriant fruit areas as Niagara or Essex and those farther north, he is well able to deal with the subject from a general point of view. His introductory article treats of soils and sites, and the exceedingly practical suggestions made indicate that those to follow will prove of very great value to our readers and lead to a removal of many of the causes of barren or unfruitful orchards and plantations of smaller fruits.

Prof. Robertson's New Year's Day Expression.

Writing from Ottawa, under date of Jan. 1st, 1900, Prof. Jas. W. Robertson, Agriculture and Dairy Commissioner, says: "Permit me to offer you my hearty congratulations on the excellence of your Christmas number. The articles, the illustrations, the tone and spirit, the presswork and general make-up are alike a credit to your firm and a tribute to the advancing intelligence and taste of the community which the FARMER'S ADVOCATE serves. I regret that I could not send the promised article from my pen. Unexpected and exceptional business took me from home, and took also my time and thoughts. My article was not needed."

Barn Building.

During the past and former years we have devoted considerable space in our columns to the subject of barn building and the improvement of old barns, and have published a considerable number of plans and descriptions of barns of different styles and dimensions, some suitable for large and some for small farms, some having stabling designed mainly for stall-feeding of cattle, and others to feeding the animals loose in large sheds or boxes. Those of our readers who are thinking of building, and who have filed their papers, will do well to consult the index of the volumes and look up those plans.

Knowing that it is in the winter months that, as a rule, most attention and thought is given to this question, we purpose in the next few months to present additional plans, and we invite the co-operation of our readers in this matter. We shall be pleased to receive plans and descriptions of barns now in use or in contemplation, and will also be thankful for practical suggestions on this line of work, either in regard to building new barns or to remodelling old ones. If any of our readers have or know of a barn that, in their estimation, has superior merits, we shall be glad if they will place us in communication with the owner. As a barn built upon modern principles is calculated to last a lifetime, the plan is worthy of careful and deliberate consideration, in order that it may meet the probable needs of the farm and of the stock to be kept. In many cases it may be wise to prepare a year or two in advance of building by getting part of the material, such as stone, gravel and sand, hauled, so that all the teaming may not be crowded into one season.

There is a tendency among farmers, which should be guarded against, to copy the latest-built barn in their neighborhood without special regard to their own circumstances and needs, and, hence, it is not infrequently found that a certain style of barn has become the fashion in a section of country, while it may not be the best that could be devised. It is well to see a number of good barns and plans of different styles, and after studying their suitability to one's circumstances, to adopt such plan or combination of plans as in one's judgment comes nearest to meeting his wants. The system of building barns with basement stables to include nearly all the stock kept on the farm and all the winter's supply of feed under one roof has become so generally the fashion that it would doubtless be considered heresy to criticize it, but it will, perhaps, be safe to say that unless special attention be given to the question of ventilation and light, there are grave objections to the system. The health of the animals to be stabled is of even greater importance than the saving of cost in roofing or the convenience of feeding, from the fact that the question of health affects not only the animals themselves, but that of their offspring, and consequently of succeeding generations. As a rule, we think it is best to provide for stabling only the cattle in basement under the barn. If horses are included, special care should be taken to have a close partition between their stable and that of the cattle, and even then it cannot be healthful unless the system of ventilation is very complete, as the hot breath of the cattle and the steam from roots in storage will surely reach the horse stable. In rebuilding there are often frames of old buildings pulled down, the timbers of which count for little in the new one, and which might with moderate expense be utilized for a horse stable or sheep and pig pens, and which, placed at right angles with the barn, could be well arranged for convenience in feeding, having connection with the main barn and also serving as a shelter for the barnyard, which, under modern arrangements, is a cold and cheerless place, and not at all conducive to the sun-bath so wholesome and so gratefully enjoyed by the animals in a sheltered yard when let out for exercise.

THE FARMER'S ADVOCATE AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN
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THE WILLIAM WELD CO.,
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The choice of the location for the barn is a question of no small importance, as the saving of time alone in travelling from house to barn in a lifetime may count for a good deal, if time is money, to say nothing of the comfort involved. Of course, reasonable provision should be made to guard against the contingency of fire, and the buildings placed in such position that house and barns would not be liable to go at once. The question of proper drainage should not be overlooked, and the stables should be dry, light, and well ventilated. For this reason the once popular "bank barn" is out of date, since it is almost impossible to disassociate it from dampness, and it is worth while to consider whether the stone-wall basement may not be improved upon by the substitution of either cement concrete or brick on stone foundation to a little above the level of the ground.

Cement floors have been so well tried that there is no longer any question about their claim to favor, being practically everlasting, while the saving of liquid manure where absorbents are used is complete, and as this floor absorbs no urine, it gives off no odors, and if the stables are cleaned out daily and freshly bedded, the air is pure and sweet.

It would seem hardly necessary to intimate that in planning a barn with basement stabling the dimensions of the structure should be governed by the number of animals the building is expected to accommodate, and with this in view, calculations should be made for the room required, allowing proper length and width for stalls and boxes and fairly liberal width of passages before and behind the cattle. Yet we have known not a few cases where a costly building has been utterly spoiled by planning first for the upper portions and then cramping the stabling to fit the building, with the result of an entirely unsatisfactory outfit, a source of vexation every day it is used. A supply of pure water within the stable, being at a moderate temperature, will be found conducive to economical gain in flesh or milk production, but should not be allowed to result in the constant confinement, particularly of young and breeding animals, for which reasonable exercise is imperative in order to the maintenance of health and vigor. This is a bald statement of a few of the thoughts which occur to us in this connection, but the subject is a big one and open to discussion.

Teaching of Agriculture.

BY RICHARD LEES, M.A., SCIENCE MASTER, COLLEGIATE INSTITUTE, ST. THOMAS, ONT.

In your magnificent Christmas number are contained two articles of a high class on this subject. Following them, it might not be out of place now to offer a few suggestions on a different phase of the question. Mr. McLean, in his admirable article, shows the necessity for agricultural education, and the advantages that would follow from a thorough education of the children of the farm, in raising their social position, making farm life more attractive, preventing the exodus from the rural to the urban districts, and in improving the financial condition of the farmer. He then proceeds to show that in his opinion our educational institutions have done their duty in the matter of agricultural education, after which he asks the question, "Should agriculture be taught in the public schools," to which, judging from the trend of his argument, the answer would be, "Yes, if properly taught." To these last two points it may be worth while to devote some attention, and in doing so to consider especially the question of what has been done in Ontario in the way of teaching agriculture.

For more than a quarter of a century the Ontario Agricultural College has existed, and notwithstanding the criticism to which it has been subjected—perhaps owing to that criticism—it has done what everyone now admits to be a splendid work. Besides the direct influence it has exerted on the several thousand students who have availed themselves of its teaching, it has, by means of research carried on there, and by gathering together into suitable form the results of research elsewhere, been a center for the spread of valuable information to all parts of the Province and beyond the Provincial boundaries. The influence exerted by the College for the improvement of agricultural methods and for the betterment of the condition of the farmer, especially during the latter half of its existence, cannot easily be overestimated.

Then an important means of education has been the Farmers' Institutes. By this means the work of the College and Experimental Farm has been brought to the door of the farmer. Many a one has been shown where he was going wrong, helped to better things when on the right road, pointed in the direction of more profitable industry, encouraged to new effort, and had his faith in agriculture revived by the discussions of these meetings. This has been a most important and profitable kind of "university extension" work. So far well, but when we come to consider the position that the teaching of agriculture occupies in the public schools of the Province, there is less room for congratulation, and more for serious consideration as to whether all has been done that might reasonably be expected.

Without going into a discussion of the subject now, it may reasonably be taken for granted that agriculture, or at least the sciences that lie at the foundation of agriculture, are well adapted for teaching in the public schools. That they possess in a very high degree the qualities necessary for training or development is not doubted. They are also acknowledged to be of the very highest importance, from a practical point of view. Indeed this is the ground on which their introduction into the public school curriculum is most frequently and most strongly urged. One would therefore imagine that in a community like ours, in which the majority of the people follow agriculture, and many of the others industrial pursuits in which a knowledge of the principles of science is of the utmost importance, something would have been done in the way of introducing nature studies of some sort into our public schools. Nominally, something has been done. There have been regulations and amended regulations, but so far as practical results are concerned, nothing has been accomplished. We have had at least three text-books on agriculture, two of which have gone to the lumber pile, and the third will probably soon follow them. Neither the text-books nor the regulations have done anything to advance the cause of agricultural education. What is required is not didactic teaching of the principles of agriculture, but scientific training that will fit pupils to grasp, understand and apply the principles when the proper time comes, besides giving that acquaintance with and love for nature that will furnish a stimulus for investigation and make farming a pleasant scientific experiment rather than a drudgery. That inspiration can never come from a text-book, however good.

As it would seem that the teaching of some of the sciences that lie at the basis of agriculture would form a most useful and desirable part of the public school course, it may be worth while to inquire into some of the reasons why, in spite of regulations for their introduction into the schools, practically no progress has been made.

One reason, undoubtedly, has been the indifference of the people, both locally and as a whole. The trustees and people of rural sections have rather inclined to regard the time spent by their teachers in nature study as time wasted, and have hinted, if not said openly, that it might with more propriety be spent in teaching the children "something useful." There has not been that general interest and desire for this work that would enable those in authority to press on with the matter, so that regulations that were well meant have often been a dead letter. There has been no public opinion back of them. It is probable that a change is now coming about in the sentiments of many, and

people generally are beginning to realize the importance of and necessity for the kind of training here referred to. The most serious danger of the present is the tendency to put knowledge before training, and to think that the learning of a few isolated facts about agriculture or any other science is of more importance than the development obtained by gaining an experimental knowledge of the fundamental principles of the science. We are too apt to want results that come quickly to view, and are not content to wait for growth.

In the second place, the craze for examinations that has crept into our system of education during the last twenty years has had an important influence in hindering the progress of true scientific teaching in all our schools, both primary and intermediate. The science subjects do not lend themselves readily to the purposes of the examiner, and the better and more scientific the teaching, the harder to test it by means of an examination. The chief object of the teacher has been to get pupils through the various examinations, and subjects in which no papers are set receive scant consideration. This, to be sure, is not the fault of the teacher; it is what he is expected to do, and his success is measured by the examination results. These are advertised, and the best teacher is supposed to be the one with the longest list. Those who can not or will not keep up to the standard as thus set have to give way. There are, however, indications of a change in this respect also, and it is to be hoped that the time is not far distant when examinations will cease to be the only standard of educational efficiency.

While these things may have had their influence, undoubtedly the most important cause for the failure so far to introduce nature studies into our public schools is to be found in the lack of properly-qualified teachers. As has already been implied, no text-book will be found of much use. It is perhaps more nearly true of science teaching than of any other branch of instruction, that for success there must be interest and enthusiasm; the pupil must himself do the work under the direction and inspiration of an enthusiastic teacher.

It is also, perhaps, equally true that nature study, more than any other, requires the teacher to have a broad and thorough knowledge of the subjects he is dealing with. Do the public school teachers of the Province possess these qualifications? On this point there can be no room for question. Many of them have had no scientific training whatever, and possess no knowledge of science, while the great majority of the rest have so little knowledge of this branch and of methods of teaching scientific subjects, that it is of very little use to them. It must not be supposed that the teachers are in any way to blame for this. Such knowledge has not been required of them, and they have been taught to believe that if possessed it would be of no use to them. For some years it was possible for students to become qualified as teachers without any training whatever in the science subjects. For the past five years, things have been nominally a little better. During that time an examination in Botany and one in Physics has been required, the former being taken in most cases one year before the latter, after which the subject of Botany was dropped from the course and not required either for second or third class certificates, except by those who chose to take the science option for these grades, perhaps about one-third of the whole. The training thus obtained, especially in Botany, which is altogether the most important of the science subjects from the point of view of the teacher, as being the best adapted to public school work and having the most direct relationship to agriculture, is of little use. It generally extended over but one year, and as the teaching of that subject has to be discontinued to a large extent during the winter months, it is practically confined to about four or five months only. The work is done at an early stage in the student's course, then dropped entirely, so that its usefulness to the teacher is much less than if it had formed one of the subjects of the latter part of his course. Besides, the training is wholly inadequate. Think of boys and girls going out to teach English or mathematics, for instance, having had only one or two years' training in the subjects of these branches of knowledge! It is quite within the mark to say that the only teachers turned out in recent years with anything like the qualification necessary to teach the science subjects are those who have taken Senior Leaving (First-class) standing with the science option, and with few exceptions, the only public schools in which anything like efficient work has been done in science teaching are those in charge of teachers so trained. To make matters worse, recent changes in the curriculum of studies have removed Botany entirely from the course for Second and Third class Certificates, except in so far as it is taken up in the preliminary part of the course, to which reference has already been made.

So much for the non-professional training of our teachers. Now, what about the professional training they receive? It might have been supposed that if desire for uniformity with university requirements or unsuitability of the subjects for high school work tended to prevent proper training in science being given to those studying for teacher's certificates, that at any rate some effort would be made to remedy the defect in the Normal and Model schools, where the only purpose in view is to do for the students what will best fit them for their future work. Especially is this so in view of the ac-

knowledge needs of the public schools, and of the supposed desire to introduce into the rural schools, at least, some form of nature study that will be of use to children whose future is to be spent on the farm. We find, however, the same neglect of these important subjects. In the model schools, teachers in training are instructed and examined in methods of teaching English, mathematics, history, geography, etc., but the science subjects are not considered of sufficient importance to receive more than a passing notice. The condition of affairs in the Normal schools is not much better.

From all this it is evident that before agricultural or kindred science subjects can be successfully taught in the public schools, the very first thing necessary is a body of trained teachers. Steps should be taken at once to insure the proper training of teachers who may in future enter the field. As thorough a training should be required in the science subjects as in English and mathematics. No one should in future be given a license to teach, at least in a rural school, whose knowledge of the science subjects is less than what has been in the past required from those who have taken that option for second-class certificates, and that standing should be gradually raised till it equals what has been required for first-class. That is not more than is necessary for those who are going to attempt to teach science, and every teacher of a rural school should be required to do so.

The disciplinary training received by the teacher from such a course would be of the highest class, and it would enable him to impart to his pupils a training which, in addition to the mental development resulting from it, would furnish a basis for a knowledge of their future occupation, and go far to make their life-work both pleasant and profitable. As to professional training, there is no reason why the Model schools should not give some attention to methods in science as well as in other departments; indeed, there are abundant reasons why they should do so. In some countries where agriculture is taught in the primary schools, notably in France, where it is well and extensively taught, there are Agricultural Normal schools. In these teachers are trained with a view to their filling positions in agricultural districts. Why could not we take a leaf from their book? We are accustomed to boast of our progressive ideas and to pat ourselves on the back for being so far ahead of other people. If this be our condition, how is it that nothing effectual has been done to promote the teaching of agricultural sciences in the schools of Ontario? A new Normal school is just now beginning its career at London, but it seems to be on just the same lines as the old ones, so far, at least, as any public announcement indicates. Might not some of our progressiveness be shown there? The time is opportune.

Does someone ask what is to be done with the teachers already in the schools? Opportunity should be made for them to fit themselves for this work by establishing summer schools at which they may get started in the right direction, by making provision for a series of addresses at Teachers' Institutes along the same lines. The most common-sense thing the writer ever heard on this subject was a series of addresses given in the spring of 1897, before the Elgin Teachers' Institute, by the late Prof. Pantou. If the work were made obligatory, the people were desirous of having it done, and new teachers looking for positions were qualified to do it, those already in the schools and expecting to continue teaching would soon qualify themselves for the work, if reasonable means of doing so were placed within their reach.

These are some of the things that should be, but as yet are not. That there is a consciousness on the part of those in authority that they should be, is shown by the attempts in the way of regulations to bring about a better state of affairs. The change for the better will come just as soon as the farmers are earnest in their demand for it. Those in authority are quite alive to the importance of doing everything they can to promote both the interests of agriculture and of education, and as soon as those who are most directly interested—the farmers and their families—show that they fully appreciate the advantages offered them, that they are prepared for and desire the introduction of real effective nature study into the rural schools, and not the mere pretense at it that we now have, so soon will the obstacles be removed and steps taken to provide for them teachers with the necessary scientific training. So long as the people are satisfied with a stone, is it likely they will be given bread? When they demand bread, and mean it, they will get it.

Sheep and Dogs.

I think a more stringent law in regard to dogs could and should be passed.

If municipal councils would pass by-laws for paying sheep owners full value for all sheep killed by dogs, and part value for all worried, and levy a rate of so much per dog to pay all damages, it would help to rid the country of a lot of worthless dogs and encourage people to keep more sheep. In this way parties who own two or three dogs and pay no municipal tax would have to help pay for all sheep killed by canines. Also, the law should require all dog owners to put a tag on their dogs (which should be renewed each year) and make it lawful for any person to kill a dog found on his premises without a tag on.

W. J. W.
Victoria Co. Ont.

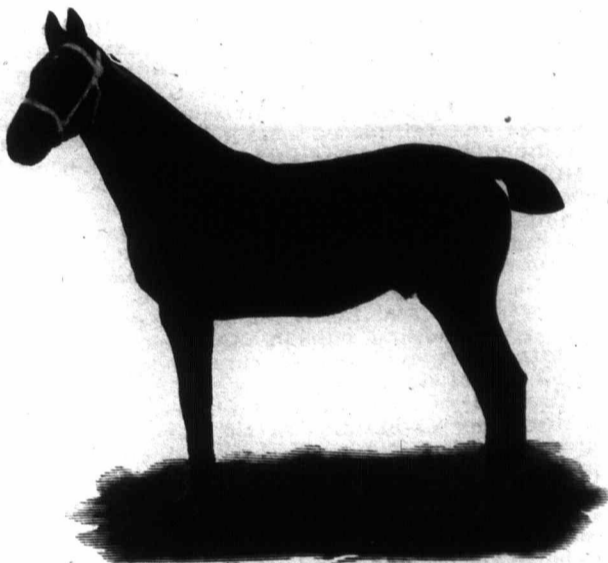
Discriminating Appreciation.

The following appreciative note from Mr. Frank Lawson, himself a son of the soil, now a member of the well-known London business firm of Lawson & Jones, speaks for itself:—"I thank you for the copy of your magnificent Christmas number, and have examined its contents with considerable interest. The marvel of what modern journalism can supply prepares one for almost anything in the wealth of illustration and unlimited resources of literary skill for such a small amount from the subscriber. I might say that your enormous circulation does not surprise me either. I only wonder that any person who is engaged in farming or stock-raising in this country should feel he can afford to be without the FARMER'S ADVOCATE. Just to think that an individual farmer only expends one dollar a year to get the benefit of the thousands of dollars that your company lay out in procuring information of all that is currently transpiring for his service and interest! To add to this, you furnish good value for the subscription price in household literature, direct from the pens of such authors as Jean Blewett, Robert Elliott, Agnes Burns Spencer, and other contributors of the highest standard, leaves no excuse for any farm home being without your magazine."

STOCK.

Shams of the Shows.

To the Editor FARMER'S ADVOCATE:
SIR,—So much that is good, instructive and practically useful appears in the FARMER'S ADVOCATE that criticism or fault-finding seems like ingratitude. Still, when reading your just condemnation of the disastrous tricks with the milk cows at the Toronto show, I could not help thinking it a rather one-sided proceeding to visit the shortcomings of one set of exhibitors with severe censure,



YEARLING HACKNEY STALLION.
First prize, Canada Central Exhibition, Ottawa, 1899.
OWNED AND EXHIBITED BY HON. M. H. COCHRANE,
HILLHURST, QUE.

when by their own act they had got a severe dose of punishment, while allowing to pass without remark practices quite as deceptive, and in some ways as objectionable, as tampering with the milk-cows' udder.

The Ayrshire cow is an animal endowed by nature, assisted by the intelligent skill of her Scotch breeder, with an ample covering of soft, mossy hair, and a strong pair of horns, which do not always grow in accordance with any fashion.

Yet we find these cows exhibited at the shows with their coats closely barbered, so that the visitor, who is intent on learning the true character and appearance of the Ayrshire, goes home with the impression that she has a short, bristly coat, which makes her a tender, shivering creature, fit only for a hothouse. He is in blissful ignorance that much skill and patience with a patent pair of clippers has given her that dandified, naked look, nor is he informed that those upright horns, with the beautiful outward twist at the top, has been produced by the same sort of misguided swaddling as that which the feet of the Chinese beauty receive.

Then, the visitor to the sheep pens finds the Shropshire and Oxford Down sheep sporting fleeces which gives them the appearance of coarse and enlarged Southdowns. What is gained by this absurd practice is difficult to understand. One great value these breeds possess over their tidy little rivals is their greater wool-growing propensity, which character is lost if the showyard specimens are taken to represent their performance.

These shows not only deceive the visiting public, but they influence the judges even in spite of their better understanding, for the skill with which the work of show preparation is done is to a great extent taken as a proof of the standing and experience of the exhibitor, and the skillful shearer is able to hide the slack points in his sheep, so that the spectators, who do not get a chance to handle, rule, to some extent, the judge who wishes his decision to be popular.

Now, is it needful or proper that the outward

character of these breeds should be modeled for the showyard in a different mould, form or covering to that which they display when quietly browsing in their home pastures? FARMER.
Prince Edward Island.

Wintering Idle Farm Horses.

WHEAT STRAW AND BOILED FEED.

To the Editor FARMER'S ADVOCATE:

I don't know that I can tell your readers anything out of the common in respect to wintering idle horses. I would recommend turning horses out in the day time after the fall work is done, and bring them in every evening; as the weather gets colder and winter sets in I would bring them in earlier. Horses should not be left standing round buildings, but be taken in out of the cold as soon as ever they have finished feeding outside and come up to the stable themselves. I only water my work horses, which are running out once a day, and always give them free access to salt in a trough outside, which is most important, especially in winter when horses are getting wheat straw, which forms the bulk of the feed for horses in this district at any rate. I feed my idle horse about a half gallon of oats and a half gallon of bran twice a day. As the weather gets colder I boil barley in a galvanized steel boiler which holds 50 gallons. One boiler full every other day, after being mixed with bran, is sufficient for two evenings for fourteen horses. Bran should always be mixed while the barley is hot, which scalds the bran and makes it much better feed when the bulk of the ration is wheat straw. The galvanized, flat-bottomed feed furnaces are a great improvement on the old iron feed boilers, especially where wood is scarce, as they only require about half the fuel. A good many farmers would not take the trouble to boil feed for idle horses, but let them feed, say, half their horses on boiled feed once a day and the other half on dry oats, and see which will be in the best condition by spring, and take the least feed to put them into condition for spring work. I'll guarantee they will have healthier and better-conditioned horses by boiling feed, and will be repaid for the extra trouble many times over. I never have any trouble in keeping horses in condition on wheat straw and free from every kind of sickness. On rough days during winter I always let horses come in the stable again after watering in the morning, and give them grain at noon. It is also most important that the stables be properly ventilated. This is a thing which is very much neglected in this country; in fact, it's surprising there is not more sickness among horses, when they are fastened up every night in stables with low ceilings, without any ventilation of any kind.

A good many farmers prefer cut oat sheaves for winter feed, but every farmer does not possess a windmill, or the necessary power for cutting sheaves for a lot of horses. I consider horses can be wintered much cheaper and quite as satisfactorily on wheat straw, with oats, bran and boiled feed every evening. By turning idle horses out during the day they get exercise, and if a person has a piece of rough prairie anywhere handy they always get some grass, which is a great help to them in cases where all the land is under cultivation, like on the majority of farms round here. Every farmer ought to have a good big straw stack handy, where horses could go and feed on the sheltered side of the stack on a cold day. So far as my experience goes I find Western horses much easier wintered than eastern horses; they appear to enjoy feeding on the prairie, and paw snow much better than eastern horses. I would buy our own Western or ranch horses in preference to an eastern horse every time. I have only two or three eastern horses, and have generally to bring them in earlier, especially on a cold day, than the Western horses, as they appear to feel the cold more. The trouble with the Western horse is to get them heavy enough for our heavy land. I prefer horses weighing about thirty hundred per team. At present I have three or four Western teams which weigh from 3,000 to 3,350 pounds.

On toward the middle of March I always decrease boiled feed and increase the allowance of oats, according to the condition of each team, to harden them and put them into condition for spring work. Horses should be given some work before seeding to get their shoulders hardened up before going into heavy work, and care taken, especially the first few days of seeding, to keep their shoulders from getting scalded; salt and water can be used to advantage to harden the shoulders. Round this district, where we stick to wheat growing and practically have all our land, with the exception of a small pasture, under cultivation, it is impossible to breed our own horses. Rearing good horses in this country must be a very profitable business to any person not quite so favorably situated as we are in the heavy land round Indian Head district.

There are imported some hundreds of horses from Eastern Canada and United States every spring into Indian Head, and this demand for horses is likely to last for years. It seems a pity we could not breed horses in the west to supply the demand, instead of sending our money to eastern Canada and United States, and paying the C. P. R. a heavy freight on them. Good, fair eastern work horses, weighing, say thirty hundred per pair, could not be bought in Indian Head last spring under \$300 per team, and were as high as \$350 per team. With all the thousands of acres of land lying idle in this country, surely we should be able to breed our own horses.

ALFRED E. WILSON.

Judging Dairy Cattle.

[A paper read by J. C. Snell at the annual meeting of the Canadian Jersey Breeders' Association.]

While the only absolutely trustworthy test of a cow's capacity for producing milk and butter in quantity, and of a quality above the average, is that of the pail and the churn, supported by the evidence of weights and measures, there are certain outward indications in the conformation of a dairy cow, in the color of her skin and its handling quality, the form, attachment and elasticity of her udder, the size and placing of her teats, and the extent of her milk-vein development, which to a close observer and an experienced dairyman may, as a rule, serve as a tolerably correct and reliable index to the cow's capability for more than ordinary milk and butter production. These outward indications of utility are not infallible, as many notable exceptions have proven, but they have been found sufficiently reliable, as a rule, to be safely accepted as a guide in the selection of a dairy cow for use, in the formulation of a standard of excellence for judging by inspection in the showing, and in breeding to fix a type which is generally approved by and acceptable to breeders and judges.

To most admirers of high-class dairy cattle it must be a source of satisfaction that the approved type of an ideal dairy cow is not incompatible with a robust constitution and symmetrical proportions, but that beauty and utility may well be combined in one and the same animal, as has been demonstrated by many actual tests and in the experience of most breeders of dairy cattle. It is well that ugliness and usefulness are not necessarily synonymous terms as applied to a dairy cow, though an acceptance of the pet theories of some oracles might lead to the conclusion that they are. It is true that among the very best producing cows have been some that were very plain in appearance, but it is fair to conclude that their usefulness was not necessarily owing to their ugliness, but was quite as likely in spite of it, and probably even the advocates of the theory of angular conformation, raw bones, and the convex pelvic arch, are not seeking to breed their cattle on those lines so as to perpetuate and intensify those peculiarities, how ever highly they may profess to esteem them.

The animals of any dairy breed which are most sought after by buyers, and which command the highest prices, are those which combine beauty and vigor with the accepted tokens of superior milk and butter production; hence it is the part of wisdom for breeders, in mating breeding animals, to aim at producing that sort as uniformly as possible.

The judges at competitive exhibitions, by inspection, accept a serious responsibility, as they are expected, in the relative placing of the animals, to set the standard of type, and in this respect are regarded as educators, and for this reason should be well qualified, experienced, and up-to-date in their knowledge and views of the approved type of animals of the breed they undertake to pass upon. The man who looks at and sees a cow only from the standpoint of utility, is an unsafe judge and is not up-to-date in his views, for the reason that as in a season of drought all signs of rain fail, so in individual cows it sometimes happens that all the signs of being a superior producer fail when the pail and the scales are brought into requisition. Of course this may happen in the case of the handsome cow of approved style, with shapely and well-balanced udder, as well as in the case of the uncouth and ungainly matron with pendant vessel of abnormal size, but since both classes are liable to the same variation, surely it is more sensible to give preference to the animal of attractive appearance and which conforms most nearly to the highest type of the breed to which she belongs. The adage, "Handsome is that handsome does," is a convenient consolation when one cannot capture beauty and usefulness in combination, but even in the serious business of choosing a wife, men do not generally act upon it, for when in that case the competition is so close that he feels sure he "could be happy with either, were t'other dear charmer away," a sober man is disposed to allow a few additional points for general appearance. The utility specialist may argue that since the chief value of a special purpose dairy cow lies in her ability to yield the largest quantity of the richest milk, the first place in the prize list should be given the one showing the strongest indications of milk production, without regard to appearances apart from this. Our reply is that, as before stated, the signs are not infallible, and that even if the cows are milked in the showing, as the judges have sometimes required, it settles nothing. "One swallow doesn't make a summer," and one milking does not decide the superiority of a cow. It proves nothing as to the time elapsed since last milking, the quality of the milk, nor the cow's ability to milk well for a long term. The difference in time since last calving is not taken into account, and, moreover, the bag that milks out like a dishcloth is often a delusion, and the udders of some of the very best milking cows do not collapse when emptied of milk. There is a time and a place for a practical test of these qualities, and the judge who is appointed to decide the relative merits of the cows by inspection, had better leave it to the scales and the churn to worry over the problems of pounds avoirdupois and proportions of water to butter-fat and casein. In order

that I may not be understood as attaching undue importance to beauty, allow me to say that in the absence of reasonable signs of capacity for dairy work, especially in size and form of udder, the handsome cow should not be placed over a plainer one with those signs well developed if she conforms fairly well to the established characteristics of the breed. A cow that has only beauty to recommend her, is, for the purposes of the dairy, about "as useless as a painted ship upon a painted ocean," and should find an early end in the butcher's shop. So should the plain one that is not a good milker nor likely to be one.

While the scale of points or standard of excellence adopted by the associations of breeders of dairy cattle may be acceptable in a general way, and as nearly right as many men of many minds can be expected to agree upon, I do not think a judge should feel bound in every case to follow it slavishly or to the letter, especially in minor details. For instance, the sharp withers and wedge-shaped outline is all right if coupled with a sufficient width of chest and depth of ribs to indicate a good constitution; but if, as is too often the case, the narrow withers are accompanied by a narrow chest and short ribs, and other tokens of lack of strength and vigor, the judge, I think, should use discretion, and hesitate to place such an animal above one equal in all other respects except for a little heaviness of shoulders, a characteristic found in many meritorious cows and bulls, and one which can hardly be fairly called a fault, since it indicates vitality and vigor of constitution, without which there is liable to be a lack of the best feeding qualities and of the power to work up large quantities of rough food into milk and its contents.

Bulls of the dairy breeds are more difficult to judge than those of the beef breeds, as in the latter symmetry of form and thickness of flesh are principal factors in determining superiority, but in the dairy breeds the standard for cows applies generally to bulls, except, of course, in the points allowed for udder and teats, and even in regard to the latter a good deal of importance is now attached to the size and especially to the placing of the rudimentaries of the bull. This, however, may be only a fad, as it has not been sufficiently proven to be a reliable indication of a bull's power to reproduce the virtue of large and well-placed teats in his daughters, and too much should not be allowed for it, though, other things being equal, we all like to see it. Masculine character, as expressed in head and eye, and a strong, muscular neck, and a general appearance of vigor and nervous force, are indications of prepotency in a sire, which should be allowed due weight. A narrow forehead, a pointed muzzle and a cowy neck and horns, should be heavily discounted in judging bulls in any class, as they are almost surely evidences of slow feeding qualities and a lack of vigor and potency.

A word as to the course of the judge in the performance of his task in the showing. It is presumed that he knows his business from experience as a breeder, that he has confidence in his judgment, and is honest and unbiased. It is well, after a general look over the animals entered in each section, to draw out a few of the most likely to be in the prize list, and after a close and careful examination have them walked around a circle to see how they look in motion, and then place them in the order of precedence with a view to usefulness and breed type combined. The remaining entries should then be placed in their relative order of merit, so that the dominant type may be recognized throughout the class and the judge's work show uniformity and consistency of aim. His work, if well done, will then be an education to those who need to learn the best type of the breed.

The opinions of exhibitors and onlookers may not in all cases coincide with those of the judge, and the careful and conscientious judge is liable to make a mistake, but it should be borne in mind that exhibitors are apt to see their own in the most favorable light, and are quite as likely to be prejudiced as the judge, if there is such a thing in either, while spectators should remember that the judge who feels the responsibility of his undertaking and is in close touch with the competing animals, is in a better position to weigh the evidence and give a just decision than those who see from a distance, without the same facilities, and criticize without the same sense of responsibility attaching to their opinion. There are always, and probably always will be, instances of disappointment on the part of exhibitors, but there are also generally compensating surprises in the showing where the exhibitor gets a better place than he expected, and the man who brings out up-to-date stock generally strikes a fairly satisfactory average in the prize list.

The Slaughter Test at London.

To the Editor FARMER'S ADVOCATE:

SIR,—In reading the report of the slaughter test at the Fat Stock Show in London, I notice your report of the Essex carcasses is not borne out by facts. If you will read the Davies Co.'s report on the cutting up of the carcasses you will find that they were reported very lengthy, with plenty of cutting in the middle between ham and shoulder, and instead of being too fat, three of them were not fat enough, while two of McClure's were rather fat (and one of mine)—in fact they were the longest slaughtered, except the Yorkshires and two pairs of Tamworths.

JOSEPH FEATHERSTON & SONS.
Peel Co., Ont.

Maritime Stock Notes.

Mr. Joseph Yuill, Carleton Place, Ont., having been honored with an invitation to attend the annual meeting of the Maritime Stock Breeders' Association, which was held on Dec. 27th and 28th, at Truro, N. S., writes us as follows: Every session of the meeting was well attended. I spoke on the Bacon Hog, The Dairy Cow, Care of Milk for Cheese and Butter Making, etc. These subjects brought out good lively discussions. Mr. Wm. Fawcett gave a very interesting paper entitled Beef Raising, but in reality it was championing the general purpose cow. The discussion was taken part in by almost every one at the meeting, and the general opinion seemed to be that there was no place for the general purpose cow in N. S., although a few stick to her with great tenacity. Mr. A. C. Bell spoke on the future Horse Raising in the Provinces. This subject proved very interesting. Hon. Mr. Emerson, Premier of New Brunswick, spoke of the great amount of good that had been done by this Association in stock breeding, and stated that the Government of N. B. intended at a very early date to import some of the very best stock obtainable into that Province.

While at Truro I visited the chicken-fattening station on the Experimental Farm there, under the management of Mr. F. L. Fuller. They had killed and shipped two hundred chickens to Liverpool, but had not received the returns. They have at present two hundred more in coops, fattening by the cramming process, same as was exhibited at the Fat Stock Show at London in December last. The people of N. S. speak very highly of the good work being done by Prof. J. W. Robertson in introducing the fattening of chickens and opening up a market in Great Britain. They look on the chicken market as being a great addition to their income.

I also visited the Government Experimental Farm at Nappan, N. S., under the efficient management of Mr. R. Robertson, and found everything in the very best order. Everything was kept in the order that a man of Mr. Robertson's experience can keep them. I found a lot of dairy cows of different breeds, well kept, well fed, and giving good returns. He was feeding twenty as good steers as ever I saw in Ontario. They were put in on Nov. 16th, and weighed 2,400 lbs. The first two weeks they gained 880 lbs.; second two weeks, 740 lbs.; third two weeks, 780 lbs., making a gain of 2,400 lbs. in six weeks. Total weight of steers on Dec. 30th was 28,390 lbs. They were fed for the first month, turnips 75 lbs., meal 4 lbs., hay 10 lbs., straw 5 lbs.; second month, turnips, 50 lbs., meal 6 lbs., hay 5 lbs., straw 10 lbs., per each animal.

I also visited the farm of Mr. C. A. Archibald, Truro, N. S., and found that Mr. Archibald was doing more for the good of his country than any other man in the Province, so far as I could learn. I found nearly 100 head of registered cattle, representatives of the following breeds: Shorthorn, Ayrshire, Jersey, and Devon. The Ayrshires and Shorthorns especially are extra good. These different breeds are kept for the benefit of his neighbors at a very small fee.

Death of Mr. W. W. Ogilvie.

Just as we go to press the sad news comes to us of the very sudden demise of Mr. W. W. Ogilvie, the great Canadian miller, of Montreal. Apparently in his accustomed good health, he went to the office on the morning of Jan. 12th, but before noon he felt unwell and requested a sleigh to take him home. His physician was called, but the sick man suddenly sank and died in spite of all that could be done. His death was attributed to the rupture of a blood vessel in close proximity to the heart.

Mr. W. W. Ogilvie was one of the leading millers of the world, the combined output of his numerous mills being about 7,500 barrels of flour per day, made from 33,000 bushels of wheat, which is supplied from his own elevators in Ontario, Manitoba and the N.-W. Territories. Mr. Ogilvie took a deep interest in farming and stock breeding, a very superior herd of registered Ayrshire cattle being maintained on his fertile and well-equipped farm opposite Lachine Rapids, on the River St. Lawrence, where is situated the magnificent summer residence of the family. In 1897 the herd of Ayrshires at Rapids Farm was replenished by the importation of thirty high-class animals from Scotland.

Thoughtlessness.

A WORD WITH THE READER.

Caution must always be exercised in doing business. We have received lately several subscription circulars, which we enclosed with the Dec. 1st issue, without either the name of sender, P. O. addresses or anything to indicate who sent same, and containing postal notes and P. O. orders. As the postmasters are not obliged to keep the name of the party who buys postal notes, it is impossible for us to find out the name of the remitter. The date of your address label indicates to what date your paper is paid. If you have sent us any money, and credit has not been given on your label, let us know at once how you sent it, exact date, amount, and at what post office you purchased postal note or post office order, and we will investigate the matter carefully. If you have not already remitted for 1900, please do so without delay, and at the same time send us a few new subscribers, and take advantage of some of our valuable premiums.

FARM.

Culture, Humus, Lime, and Fertilizers.

A SHORT TALK ON THE IMPROVEMENT OF PARTIALLY EXHAUSTED SOILS.

BY FRANK T. SHUTT, M. A., CHEMIST, DOMINION EXPL. FARMS.

We are constantly in receipt of enquiries from correspondents with regard to the purchase and use of commercial fertilizers, and we are pleased to note in this not only a desire on the part of our farmers to bring up the yields of their fields, but an improved condition of their finances. A profitable employment of these necessarily somewhat expensive forms of plant food can only follow a knowledge of their composition and of the special requirements of our various farm crops, and we shall always be most pleased to furnish all possible information on these points.

There are, however, one or two facts that have been forced home upon the writer in connection with the enquiries referred to that it may be well to draw attention to in the columns of the ADVOCATE. They have been learned from the examination (chemical and physical) of many samples of soils that accompanied the requests. Most of these are examples of "worn" or partially-exhausted soils, soils that have been repeatedly cropped without any adequate return of plant food having been made, and which, for the most part, show a deficiency in humus (partially decomposed organic matter), and, as a consequence, exhibit a very poor mechanical condition. Such soils fall into two great classes, or, rather, are represented by two great types: the hard, compact, refractory clays, and the light, loose, porous sands. Of course, it is not to be understood that all the samples sent in for examination are either the one or the other of these extremes. No two soils are exactly similar, either in texture or composition, but we may adopt this classification for convenience of treatment, without affecting the accuracy of our deductions or the value of our suggestions.

Now, in the first place, without minimizing in the least degree the value of commercial fertilizers, we do not hesitate to say that on such soils as are here referred to these concentrated forms of plant nourishment cannot give their best returns. Chemical fertilizers, for the most part, present their plant food in soluble and, therefore, immediately soluble forms, and, consequently, to be used to advantage, must be applied to soils possessing good tilth: that is, to those which provide the seed a comfortable, warm, moist and aerated bed in which to germinate, and the plant a suitable medium in which to develop its root system. Neither of the two classes of soil above referred to do this. It therefore behooves the intelligent farmer to employ such means as are in his power to ameliorate and improve his soils so as to bring them into a condition more favorable for crop growth before making any extensive outlay for fertilizers. More attention must be paid to cultural methods, not only as a means of liberating inert or locked-up food in the soils, but for bringing about good tilth; and, further, we would emphasize the great desirability of a rational rotation of crops, one in which clover or some other legume finds a place at least once every fourth or fifth year.

Draining, plowing, harrowing, cultivating are all means towards "fining," mellowing, a soil; towards making it retentive of moisture, air and warmth; and, further, though this fact is often lost sight of, are agencies that indirectly supply much plant food. To explain all this fully would require several articles. Our purpose at present is simply to point out the importance of soil culture, as well from a chemical as a mechanical standpoint, and to emphasize the fact that a soil's productiveness depends as much upon its condition as upon its composition.

After due and intelligent attention has been paid to the mechanical treatment of the soil, it will be in order to ascertain how it stands in regard to humus or vegetable matter. The color of a soil is an excellent indication of the amount of this constituent present, but its degree of mellowness may also be used to form an opinion on this point. A dark soil, friable and mellow, will be found to be one rich in humus and, consequently, in nitrogen, since the former is invariably the storehouse of the latter. On the other hand, a grayish, compact, hard clay that puddles when wet, and a light-colored, loose sand, lacking cohesiveness, are soils usually deficient in this constituent. To apply a rough chemical test, we may place a small quantity of the air-dried soil on a stove plate heated to dull redness; if there is but little charring, the soil is poor in humus. For all such, barnyard manure is, of course, most valuable, but the amount of this fertilizer is, unfortunately, on many of our farms, quite inadequate to keep the acreage of land cultivated in good heart. Recourse must then be had to green manures, and of such there is none so valuable as clover. As is now well known, this plant not

only enriches the soil when plowed under, with a large amount of humus, but also furnishes it with a very considerable quantity of nitrogen which it had been enabled to take from the atmosphere. The growing of clover (eight to ten pounds of seed per acre) with the grain crop in the rotation will not lessen the yield of grain, and the beneficial effect upon succeeding crops will be noticeable for several years.

Again, many soils—even upland soils—are found to be more or less acid, and many more to be deficient in lime. To gain a knowledge of a soil in these respects, place a handful of soil in a tumbler and cover it with water; after stirring, allow the soil to settle, and first try the soil solution or extract for sourness by placing in it for a few minutes a small piece of blue litmus paper. If, on withdrawing the paper, it is seen to have been turned red, the soil is sour. Such a soil will be benefited by lime or wood ashes. Whatever may be the result of the litmus test, now add to the soil in the tumbler a teaspoonful of strong vinegar. If there are but traces of an effervescence, the soil is poor in lime. Sour soils and those proved deficient in lime will be found to have their productiveness increased by an application of 20 to 40 bushels of lime every fourth or fifth year. Wood ashes would be still better, for they supply potash and phosphoric acid in addition to lime.

We have only given a bare outline of how the farmer may arrive at the knowledge of his soil's wants, and how they may be cheaply supplied; the study of the reports of the Chemical Division of the Experimental Farms for the past few years will furnish him with fuller details. Our object has been twofold: first, to lead the farmer to a closer study of his soil and its requirements, and, secondly, to assure him that the use of commercial fertilizers can only be attended with profit when applied to soils that are in good mechanical condition and that are fairly well supplied with humus and lime.

wheat, a red-bearded variety, resembles very closely the red-bearded wheat so common among Red Fyfe. The berries are large, full, plump, well-matured and a good color, some few kernels, however, showing slight marks of frost.—Ed. F. A.]

Giving the Girls a Chance.

In the long ago the cry was raised, "Give the boys a chance," and many and varied have been the schemes propounded, in behalf of the farm boys of Ontario, looking towards the accomplishment of this end. We are all pleased when we think that the boys of this fair Province are largely in the way of greater privileges and larger opportunities than were possible to the present generation of men who were the boys of a quarter century ago. The extent to which the boys of to-day are making use of these open doors to broader lives and greater usefulness is a matter beyond our control. Ontario's educational system is the admiration of the mighty nation to the south: in point of completeness and soundness through the whole series, from rural school to university. There are some lines along which Canadians, well content as they are with their machinery of education, must be willing to be taught by the live citizens of the republic.

While it is true that Canada's institutions of higher learning in the arts and sciences have opened wide their doors to the women of the land, who wish to stand on the same professional plane as their brothers, it is also true that there is not in the whole Dominion a single school or college offering such a course of study and training as would tend to fit the farmers' daughters of to-day to be the farmers' wives *par excellence* of to-morrow. The question is far from being one of narrow individual opinion. Smile as we may at the monocolled and bifurcated specimens of femininity which occasionally loom up, we conclude, after mature deliberation, that they are not typical of the genus *New Woman*. She, in her best type, is a stable institution, here to stay. There is among the women of the time a perfectly legitimate desire to secure a greater share of the world's knowledge, that they may be the better fitted to be the intelligent companions of modern man.

It is now several years since the subject of co-education at the Ontario Agricultural College was first broached; much comment, favorable and otherwise, has been offered upon it. The pre-eminent position which the institution holds among the similar schools of America is beyond question. Her equipment is admirable, her staff is composed of men who work with an eye single to the advancement of her interests, but her gloomy halls have never yet been enlivened by the joyous laugh of the *coed*.

A brief acquaintance with the working of the Woman's Department of the Michigan State College confirms me in the belief that the Woman's Course, as here outlined and followed, is a splendid thing. It aims to offer to young women the same opportunities as are within the reach of young men. It extends over a period of four college years of three terms each. President Snyder has summarized it as follows: "It affords an opportunity to acquire a thorough knowledge of English, mathematics, history, literature, French, German, botany, chemistry, entomology, natural philosophy; but the distinguishing feature of the course is the emphasis it lays on homemaking. There is given, in addition to other studies, in the freshman year, a very full course in cooking. The object of this instruction is to familiarize students with the most healthful, attractive, and at the same time economical methods of preparing such articles of food as are found on a well-appointed table. A course of lectures in Domestic Science is given during the sophomore year. Students during this year also spend four hours per week in the sewing room. A thorough course is given in plain sewing, cutting and fitting. Millinery is given as an elective during the junior year. While the practical work has been emphasized, it is not the intention to despise what are called the accomplishments. A thorough course in drawing, a course of lectures on the history of art, with illustrations, and elective work in painting, are also given. Two years of instruction on the piano, free of charge, are offered to young women who are pursuing the regular woman's course and not deficient in more than two studies. There is a chorus class free to all who may desire such instruction. Electives are offered in floriculture, fruit culture, kitchen gardening, millinery, invalid cooking, dairying, poultry raising. This course is put on precisely the same footing as the other course, and the graduate is given the degree of Bachelor of Science."

It is certainly comprehensive in its scope, and experience has shown that it is well adapted for the work in view. Further than this, there is a beneficial effect upon the great body of men students in the different courses. The presence of so many women (this year about a hundred) cannot but have a refining and elevating influence. The tendency with men students is to overlook many of the little



IMPORTED SOUTHDOWN SHEARLING RAM AND IMPORTED SHEARLING EWES.

Ram one of first-prize pen at Royal Show, England, 1898, and ewes first at Toronto, London, and Ottawa, 1899.

OWNED BY W. & G. TELFER, SPRINGFIELD FARM, PARIS, ONT.

Wheat from Peace River, 700 Miles North of Edmonton.

To the Editor FARMER'S ADVOCATE:

When I came out from Peace River this last fall I brought with me some samples of grain, which I showed here at the *Bulletin* office, Edmonton. I am sending you some samples per mail, which I trust may arrive in not too bad shape. The samples were gathered on August 28th, and I selected ears not over ripe, so that they would not shell more than need be. I have brought them nearly 700 miles, and now they have about 1,100 more to go to reach you. I also send you photographs of a couple of scenes on my farm at Vermilion, and also of the samples I brought out, taken before I started. I was standing beside them to show the relative height. I am 5 foot 9 1/2 inches. There are samples of wheat, barley and oats.

The season in the Peace River was a favorable one for growth, but the grain was slow in ripening. I left there the 5th of September. The weather was fine from the 1st of September, and the grain would be all cut, I think, by the 12th. I have not had a chance to hear from there since, as the Government, I am sorry to say, think our country is not worth, nor its people deserving, a mail accommodation. Twenty years of pioneer work in the very heart of the "wilds," and proving the exceeding adaptability of the far-away region to the growth and prosperity of almost everything that is grown or raised in the Northwest, counts for little or nothing with those who make politics a trade.

I do not wish to complain, but years ago the Hudson's Bay Company gave us a very good mail service; latterly, the country is flooded with Klondyke mail matter, and the consequence is no one will undertake so much, and we are practically destitute of anything that could be possibly construed into a mail service. The requests and petitions of the inhabitants are of no earthly avail.

Peace River, Athabasca. E. J. LAWRENCE.
[The samples arrived in capital shape. The

amenities of social life. And looking forward to the years to come, may we not conclude that many homes will be brightened and better because of the days their mistresses spent here learning some of the principles of homemaking.

As a proof of the appreciation in which the work of the Woman's Course is held in this State, it is only necessary to refer to the fact that, at the present time, work is in progress on a splendid new building to provide adequate accommodation and the best available equipment for the work of instruction along this line. At the last session of the Legislature, eighty thousand dollars was freely granted for this purpose.

It would seem that what these new States have

Mr. Harry W. Yorke's New Stock Barn.

As the time of year has come for the maturing of plans for barns and basements to be built during the coming summer, we will endeavor to assist those of our readers who will build, by describing a very unique dairy stock barn that was erected last year on the three-hundred-acre farm of Mr. Harry W. Yorke, in Dorchester Township, Middlesex Co., Ont. The main barn is 45 feet wide and 100 feet long, and the wing running out from the north side is 36 ft. wide by 38 ft. long. The basement wall is of brick on a foundation of cement concrete. The foundation, which is 20 inches wide, is 2 1/2 feet into the ground, and is surrounded by a tile drain. The concrete extends one foot above ground, and on it is built 7 feet of 13-inch brick hollow wall. The hollow wall has ties of brick uniting the inner and outer rows every fifth or sixth tier. No frost has been seen on the inside of this wall so far.

The entire basement, including feed alleys, passages behind cows, box stalls, root-house, etc., are exceedingly well floored with cement concrete. The cements used were Thorold and Portland. All except the root-house has one inch top dressing of Portland, mixed with two parts of sand. Beneath this is 5 inches of Thorold, mixed 2 parts to 5 parts of

strongly advocated in stock buildings is to provide for plenty of light in the stables. Mr. Yorke's instructions to the contractor who built the barn were to put in as many windows as he could get in, which order was well adhered to, as is seen in the ground-floor plan and in the photo-engraving. Each window has eight panes 12 by 14 inches, and as the basement, including wing, has nineteen of these, there is as much light as the stock require. These are hung on hinges at the top, so as to be tilted in from the bottom for ventilation when desired. This will be seldom necessary, we opine, as the system of ventilation adopted, together with the large cubical content of the stable to each animal, will keep the air pure and fresh. The ventilation system adopted consists of four ten-inch pipes on square boxes, running from the ceiling of the basement on either side of the building, against the outside wall, up to the eaves. These can be closed when desired in very cold weather by slides in the bottom of the ventilators. The position of the ventilators is shown in the upper-floor plan, Fig. II. Fig. I. shows that good use is made of the space beneath the bridges or approaches to barn on the south side. These two 14 by 14 foot rooms have concrete and brick walls, the same as the basement proper. One is for a milk room, and is used to keep the milk in cans awaiting the arrival of the cheese-factory milk-drawer. A water pipe is to be brought in here to aid in keeping the milk cool in summer. The other room, now being used for a henhouse, is intended for a box stall for other stock as soon as a proper henhouse is built elsewhere. These boxes are covered first with inch pine, then building paper, and on top tongued and grooved pine plank.

The superstructure, Fig. II., is roomy and well arranged. This, as well as the woodwork of the basement, was built by Messrs. Craik Bros., Crampton, Ont. The side posts are 20 feet high, and the peak is 38 feet from the floor. The heaviest timbers are 9 by 9 inches, which include the side posts and main cross beams of the barn. The side plates are 8 by 9 inch sticks, and the purline plates 7 by 7 1/2 inches. The long or lower rafters are 2 1/2 feet, and the top rafters 12 feet long, and are of 2 by 6 inch scantlings. The roof is sheeted with hemlock and covered with British Columbia cedar shingles. The barn is sided up with dressed matched pine, and painted with Venetian red. The floors of the mows are of inch elm covered with inch pine, and threshing floors have heavy tarred paper between the thicknesses of boards. The granary is of good size, and extends from one floor to the other. In it is set the grain grinder, which is run by a 14-foot Brantford power windmill. The mill is also used for cutting and shredding fodder, pulping roots, and later it will be used for pumping water. The mows are of good capacity, as will be seen in Fig. II. The super-



NEW DAIRY STOCK BARN.

OWNED BY MR. HARRY W. YORKE, DORCHESTER TOWNSHIP, MIDDLESEX CO., ONT.

done and are doing, Ontario, with her great resources and enlightened people, is able to do. As one who appreciate the great work our *alma mater* is doing for the young men of the Province, I am looking forward hopefully to the day when the O. A. C. will have become the great Woman's University for the rural population of the Province.

J. J. FERGUSON, '94.

Observations at an Institute Meeting.

BY MRS. EVERGREEN.

That no one person knows all there is to be known on any subject, herein lies the benefit of these gatherings. The free discussion brings out some points that even the speaker has not known, and all get the benefit. I think it is a decided improvement to have a lady on the deputation; it brings out the women of the neighborhood, who think if a lady is to speak that there will be something for them to be interested in. I was somewhat surprised to find so few young men at the afternoon session, which I think is the most instructive. The fathers were there, and the boys came in the evening. Of course, the old are never too old to learn, but I think the young men ought to have the advantage of others' experience, and gain the inspiration and enthusiasm which comes from the discussion of topics which are of so much importance in their line of work. The evening programme may be too long, a little singing or a recitation is somewhat of a rest; that is, if it is good of its kind; if not, a very little is enough. I think it would be well always to limit the speakers to time, they would have to condense and get to the pith of their subject at once, and what is quite as bad, they would not be trespassing on another speaker's time.

There might be some improvement in the order; it seems too bad when one can't hear what is said on account of the noise made by those who won't listen themselves nor let others. Perhaps if the chairman put these boys (I am glad to say it is not the girls) on their dignity as young gentlemen who respected the rights of others, they would improve in this matter.

Women are taking more interest in these gatherings, as is seen by their increased attendance, and this brings up the question of separate Institutes for women. Would it not be better to give to them a little more of the present organization than have a separate one? Their interests are so closely allied that the good of one is the good of the other, their joint endeavors would make of one a success, while separately they might not accomplish so much. There are so many things pertaining to farm and home life which the women know as much of as the men, and they are beginning to think that they ought to have a little more say about them.

Huron Co., Ont.

The subject of making, handling, and caring for barnyard manure, and the best time for and method of applying it to the land is one of the greatest importance to every farmer, and will be dealt with in the next issue of the FARMER'S ADVOCATE. It is a question on which there is yet considerable difference of opinion, but one with regard to which there is more general agreement than formerly, owing largely to intelligent discussion and practical experiments. We shall be pleased to have the views of many of our readers on this subject for publication in our next and following issues.

gravel, all well rammed down. The root-house floor, which is 20 inches lower than the rest, is finished with Thorold cement, one to one. It is not too much to say that these floors are among the finest we have ever seen in a stock barn.

The general lay-out of the basement is clearly seen in the plan, Fig. I. The main portion accommodates 55 head of cows, tied in two rows of double stalls. Each stall is 6 1/2 feet wide, and 5 feet 4 inches from manger or rack to gutter behind the cows. The gutter, which is level on the bottom, is 16 inches wide, 6 inches deep next the cows and 5 inches deep next the passage or drive way. The floor of the stalls, also of the passage, slopes 1 1/2 inches to the gutter. The passages behind the cows are each 8 feet, and the feeding passage is 10 feet wide. The mangers are particularly well liked by Mr. Yorke, and we believe worthy of imitation. They are 22 inches wide at the bottom, inside measurement. The back next the passage flares into the passage 4 inches, and is 2 feet 4 inches high. The front of the manger—that is, next the cows—is about 5 inches deep, but it has in each stall 4 slats 4 feet 9 inches high. The cows are tied with chains, which slide on perpendicular bars, attached to the posts at stall side, immediately opposite the upright slats. The posts are set 2 1/2 feet into the ground, embedded in concrete. The cow's head passes between the stall side and the first slat, so that whether she is standing, eating or lying, her head is, in effect, in the same position as though fastened by a stanchion, while at the same time she has all the liberty she needs by being tied with a chain. Between the cows, attached to the front of manger, are four upright slats about six inches apart, which makes the manger a rack to hold long fodder. The advantages of this manger and tie are that the cows cannot molest or rob from each other; they cannot get so far forward as to soil their beds, and at the same time they have plenty of platform to rest on comfortably, and have liberal freedom of their heads to lick themselves.

As will be noticed by the plan, the passages and doors to them are wide enough for a horse and boat or cart to be driven through with feed or for cleaning out. This is a very important feature, and should be observed in the building of stables for any farm stock. The wing to the north, as is seen by Fig. I., and which is 36 by 38 feet, is for box stalls, a passage and a root-house. Each box stall opens from one into the other by means of gates, and each has access to the outside as well, one outside door answering for two box stalls, and the gate answers the purpose not only of a means of entering the stalls, but it shuts off the different stalls from the outside door when it is desired to do so. A feature we have

structure of wing has 18-foot posts, and floor similar to the barn proper. It will be used principally as a surplus straw mow to receive the threshing of the first mows emptied. The barn is well lighted, having a window in each of the gables and over each of the doors.

As yet Mr. Yorke has not erected a silo, but it is his intention to do so before long. He usually grows from 15 to 18 acres of corn for fodder, which he cuts with a corn binder, shocks it in the field till it is fairly well cured, then stores it in single layers in the barn between eighteen-inch layers of straw. As a rule it comes out in fine, palatable condition for the cows. With the exception of from 10 to 20

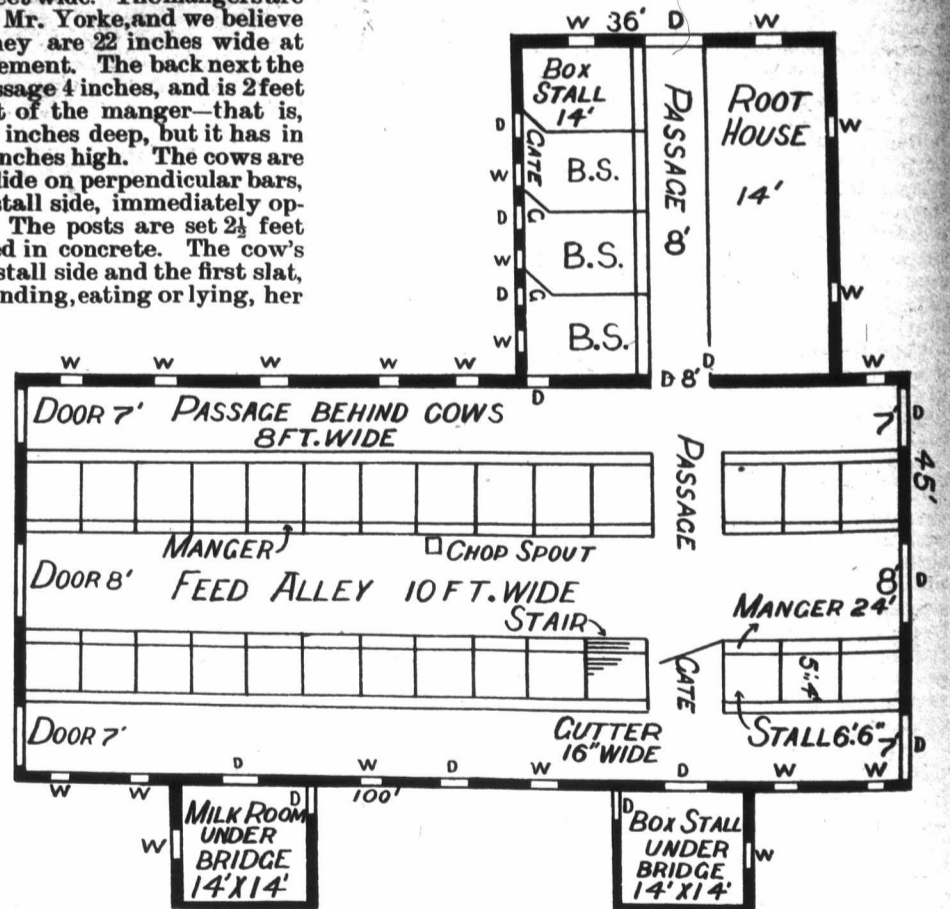


FIG. I.—BASEMENT PLAN OF MR. HARRY W. YORKE'S BARN.

acres of fall wheat, grown chiefly for the advantage it affords in seeding down, and the straw it yields, the whole farm is devoted to growing feed (including roots) for the cows, of which the herd usually provides from 30 to 35 giving milk, and for the produce of six brood sows, which are fed off each year. The milk goes to Harrietsville cheese and butter factory, which has turned out in one season as high as 400 tons of cheese. The hogs are fed in summer largely on pasture, whey and mixed chop, and in winter roots are liberally fed. To do this, however, Mr. Yorke finds it important to have warm pens, kept dry and well bedded. As yet Mr. Yorke has not as good a pen as he would like, but it is his intention to build one of first-class design in the near future, as his faith in pork production tends to lead him to expand his agricultural operations in that direction, in conjunction with continuous improvement in his dairy herd of pure-bred Ayrshires and grades and their production.

Seed Grain Selected by the Boys and Girls.

To the Editor FARMER'S ADVOCATE:

SIR,—It is highly desirable that the boys and girls in farm homes should study this subject and begin the selection of seed grain under the advice and supervision of their parents and teachers.

I. The competition in every Province will be open to all boys and girls in it who have not passed their 18th birthday before the 1st January, 1900.

II. There will be separate competitions for each Province; and the North West Territories are to be considered as one Province for this purpose.

III. The main competition will continue for three years; and the prizes will be awarded to those who obtain the largest number of marks on the following plan:

(a) Any acre of oats on the farm at which the competitor lives, may be selected for 1900; one mark will be awarded for every pound in weight of grain of good quality obtained from the acre in 1900.

(b) Before the grain is harvested in 1900, a quantity of large heads shall be selected to yield enough heavy plump seeds to sow one acre in 1901; and two marks will be awarded for every pound in weight of grain of good quality obtained from the acre in 1901.

(c) Before the grain is harvested in 1901, a quantity of large heads shall be selected to yield enough heavy plump seeds to sow one acre in 1902; and three marks will be awarded for every pound in weight of grain of good quality obtained from the acre in 1902.

(d) The competitor who obtains the largest number of marks in the total of the three years will receive the first prize in the Province; the competitor who obtains the second largest number of marks, the second prize; and so on for ten prizes in every Province.

(e) There will be also prizes for wheat on the same plan.

(f) The following show the prizes for one Province:

	Oats.	Wheat.
1st prize.....	\$100	\$100
2nd ".....	75	75
3rd ".....	50	50
4th ".....	25	25
5th ".....	15	15
6th ".....	10	10
7th ".....	5	5
8th ".....	5	5
9th ".....	5	5
10th ".....	5	5
	\$295	\$295

(g) There will be sets of prizes as above for Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Manitoba, the Northwest Territories, and British Columbia, respectively.

IV. There will be also sets of prizes annually for the 100 heads of grain which contain the largest number of seeds of the best quality picked out of those selected from the acre each year.

(a) Any 100 heads from the acre entered for competition may be picked; one mark will be awarded for every seed on the one hundred heads, and two marks for every grain (in weight) which those seeds weigh.

(b) The competitor who receives the largest number of marks will receive the first prize in the Province; the competitor who obtains the second largest number of marks, the second prize; and so on for the ten prizes in every Province.

(c) The following show the prizes for one Province for 1900:

	Oats.	Wheat.
1st prize.....	\$ 25	\$ 25
2nd ".....	20	20
3rd ".....	15	15
4th ".....	12	12
5th ".....	10	10
6th ".....	8	8
7th ".....	5	5
8th ".....	5	5
9th ".....	5	5
10th ".....	5	5
	\$110	\$110

There will be sets of prizes as above for Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Manitoba, Northwest Territories, and British Columbia, respectively, in 1900, and also in 1901 and 1902.

Summary: 100 large heads.

1900:	Oats	\$110	
	Wheat	110	
			\$220 x 8 = \$1,760
1901:	do.		1,760
1902:	do.		1,760
			\$5,280
Three year lb. grain per acre competition:			
	Oats	\$295	
	Wheat	295	
			\$590 x 8 = 4,720
			\$10,000

V. All those who desire to enter the competition should send their names and addresses to Professor Robertson, Ottawa, before the 1st May, 1900. These communications should contain only the words, "Entry for seed grain competition," and the full name and address. They will be carried by mail free of postage.

I particularly request that no questions be asked on these entry applications. Full particulars will be mailed in good time to every one whose entry is received; and I am sure the newspapers will accord their much prized courtesy and help in giving publicity to any further announcements. The competitors will doubtless number many thousands, and it will not be practicable to write letters to them individually. The plan provides for 640 prizes, of which 16 are \$100 each; 16 are \$75 each; 16 are \$50 each; and 64 are \$25 each.

I invite the teachers to join in helping forward this educational movement. I would not on any personal, private or selfish matter add one straw to their already heavy burdens of labor. I think they do the most valuable and the most poorly paid service of all the workers in our country. However, in this case, although they may neither seek nor expect material reward, they will, with the certainty of seed time and harvest, win the fulfillment of the apt promise, "Cast thy bread upon the waters; for thou shall find it after many days."

JAS. W. ROBERTSON.

Ottawa, 1st January, 1900.

[NOTE.—Prof. Robertson intimates in a circular he has issued, that a generous friend has placed \$10,000 at his disposal, to be awarded to successful competitors in the selection of seed grain on the conditions stated above.—Ed.]

Charlock Spraying in Yorkshire.

A report of the spraying of charlock (wild mustard), and "runch," signed by Professor J. R. Campbell, has been issued on behalf of the Yorkshire College and the Joint Agricultural Committee of the East and West Ridings. "Runch," it may be explained, is *Raphanus aphanistrum*, a weed somewhat resembling charlock, but with a whitish bloom, and thicker in foliage. Of the two, it was found charlock was the more easily destroyed. No fewer than twenty-five fields or plots of corn, consisting of wheat, barley and oats, infested with the weeds, were sprayed, the total area being 144 acres. In a few cases spraying was done twice on the same day, and this appeared to be advantageous; but at many centers it was found that a second crop of weeds came up after the spraying had been done, and it is a pity that a second spraying after an interval was not tried. The reason given is that there was so great a demand for the sprayer that there was no time to return to spray a second time.



ROW OF STALLS IN MR. HARRY W. YORKE'S BARN BASEMENT

on any of the farms after once leaving them. Sulphate of iron was tried at all but ten stations; but sulphate of copper was used only at nine, and in most of these in too weak a form to be effectual. The conclusions derived from the trials are as follows: (1) That the operation is only completely successful when the plants are taken in the youngest stage. (2) That a bright, dry and calm day is a necessary factor to success. (3) That in the case of sulphate of iron at least a 10 per cent. solution is required, and this should be applied at the rate of not less than 40 gallons per acre. Even a 15 per cent. solution of sulphate of iron may be necessary if the plants have got beyond the first-leaf stage. (4) Such solutions will not injure either grain or young seeds.—*Agricultural Gazette.*

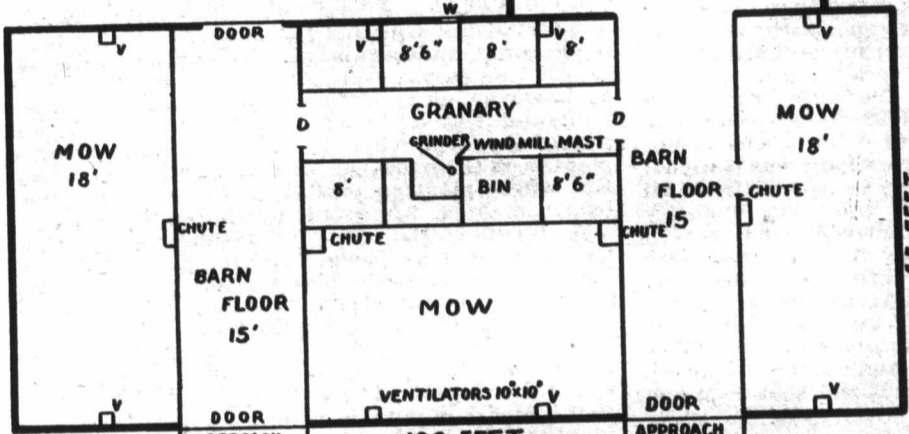


FIG. 11.—BARN-FLOOR PLAN OF MR. HARRY W. YORKE'S BARN.

Impressions Made by the Christmas Number.

DIFFICULT TO OVERESTIMATE THE CHRISTMAS NUMBER.

The William Weld Co., Ltd., London, Ont.:

GENTLEMEN,—From the general high standard of the FARMER'S ADVOCATE, as exhibited in every issue, we looked for a very fine Christmas number, but we did not expect such a superb and complete production as you have issued. It greatly strengthens and enhances the position and influence of your already first-class agricultural journal. The racy and vivid descriptions and representations of Canadian homes, studs, herds, and flocks, should be very much appreciated by all patriotic Canadians. The lessons, too, contained in the descriptions of how leading Canadian herds and flocks were built up should prove invaluable to the ambitious young stockman. The cleverly-written and timely articles from the long list of leading agricultural writers have a special value not easily estimated. It would be difficult to overestimate your Christmas issues, which, after all, is quite in line with your regular issues, which for useful matter to the farmer, and as a valuable advertising medium to stockmen, is unexcelled. Wishing you a happy New Year and the prosperity you deserve,

Yours very truly,
W. D. FLATT.

Hamilton, Ont.

DECIDEDLY THE BEST.

The William Weld Co., Ltd., London, Ont.:

GENTLEMEN,—I think you have outdone yourselves this year with the Christmas number of the ADVOCATE. It is the best, decidedly, with which you have presented us. The cuts of live stock, etc., are excellent; but the assistance you have secured through such articles as those from Hon. Mr. Fisher, Senator Ferguson, Prof. Curtiss, Prof. Day, and Mr. Macneilage, enhance its value very greatly. May you have many opportunities of duplicating this handsome Christmas number.

Middlesex Co., Ont. ALEX. W. SMITH.

READS LIKE A NOVEL.

I am in receipt of the Christmas number of the FARMER'S ADVOCATE. It is exceptionally fine, and worth the yearly subscription of the paper alone. Every farmer should have one. To my mind it is so arranged that it reads like a novel, and the cuts are excellent. Wishing you the compliments of the season, and trusting that the FARMER'S ADVOCATE may grace many a home in this fair Dominion of ours.

Prince Edward Island, Dec. 30, '99. WM. HY. HOPGOOD.

WORTH A YEAR'S SUBSCRIPTION.

GENTLEMEN,—Your Christmas number is finely illustrated, and fully worth a year's subscription. The articles are ably written, and give the reader a comprehensive idea of the Dominion's agricultural greatness.

Washington, Penna. M. A. COOPER.

A CONSTANT VISITOR FOR OVER TWENTY YEARS.

The William Weld Co., Ltd., London, Ont.:

GENTLEMEN,—Please accept thanks for express order for \$15.00 just received, being amount so very generously offered as second prize for "house plan." I am sure the honor alone was worth more by far than all the trouble in entering the competition. I am quite proud in having our home obtain such a place, and also to have it published in a journal having such a wide circulation as the FARMER'S ADVOCATE. Already communications are coming in, asking for more particulars re plan, etc.

The FARMER'S ADVOCATE has been a constant comer to our home for twenty years or more, and we are always waiting for next issue. The farmer who wishes to keep abreast of the times must be a constant student of such a journal, no matter how well-informed he may be himself on all agricultural topics. I wish you a very prosperous New Year.

Lisgar, Ont. W. F. JUSTIN.

BY FAR THE MOST INTERESTING NUMBER.

The William Weld Co., Ltd., London, Canada:

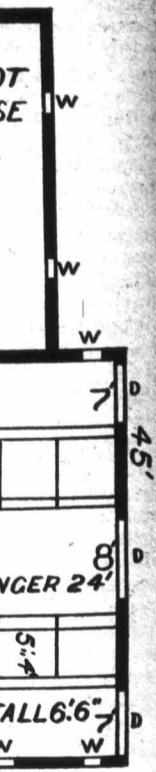
GENTLEMEN,—I think your Christmas issue is by far the most interesting number you have ever put out, and I heartily congratulate you on your enterprise and progress.

Very truly yours, C. F. CURTISS.

Iowa State College.

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DAIRY.

Cheese and Butter Makers' Convention and Dairy Exhibit.

The Cheese and Butter Makers' Association of Western Ontario will convene in Ingersoll, at the Town Hall, on Wednesday and Thursday, Jan. 31st and Feb. 1st. There will be three sessions on Wednesday, Jan. 31st, opening at 10.30 a. m., 1.30 p. m., and 7.30. Two sessions will be held on Thursday, morning and afternoon. There will be a dairy exhibit of cheese and butter in connection with the convention, when \$150 in cash will be given in prizes, together with valuable special prizes. The mayor of Ingersoll will deliver an address of welcome to the delegates. The list of speakers includes the following names: Hon. John Dryden, A. F. McLaren, M. P., Harold Eagle, R. M. Ballantyne, Prof. H. H. Dean, Mark Sprague, G. G. Publow, Arch'd Smith, Jno Scott, Fred Dean, W. Waddell, Jas. A. Gray, Jas. Morrison, Geo. McDonald, C. O. Luton, R. Johnson, T. E. Nimmo. Among the subjects to be discussed are: "Care of Milk," "Cheese-making," "Summer Buttermaking," "Winter Buttermaking," "Pasteurizing," "Flavor in Milk, Cheese, and Butter," "Preparation and Use of a Starter," "Handling Gassy Curds," "Experience of Past Season," "Judge's Report on Dairy Exhibit." The programme has been carefully arranged. The papers will be practical and pointed, with a view to bringing out a free discussion on all subjects in question.

Rearing Dairy Calves.

It is generally admitted that the rearing of calves in a dairy herd can only be done profitably by hand feeding and after the first two or three weeks of their lives on separated or skimmed milk. It is also agreed that for the purpose for which they are intended, that of milk and butter production, allowing the calves to draw new milk from their dams during the first six or eight months, or feeding them whole new milk during the same time, would give them a tendency to lay on flesh and fat, which would be likely to impair their usefulness for dairy purposes throughout their whole life. Those who have had experience in both methods readily admit that there is a very appreciable difference between rearing calves on skim milk obtained by the gravity process and that from the centrifugal separator, says George H. Hoadley in *Prairie Farmer*. It is not a difficult matter to raise calves on milk from which only a part of the cream or butter-fat has been taken. But the modern separator makes so clean a job of the separating process, that there is little left in the milk that will insure rapid and vigorous growth in a calf without supplying a proper substitute for the butter-fat extracted. When this substitute is found and adopted, success in rearing the calf depends almost entirely on its judicious use. The calf when permitted to take his rations in the natural way does so on the installment plan, a little at a time and with regularity. When he is deprived of this access to the dam, nature should be followed as closely as possible, and much care exercised to avoid any excess in feeding. Should the digestive organs of a calf on a diet of skim milk and other by-products once become impaired it will not always be found an easy task to correct the evil. The old adage that "an ounce of preventive is worth a pound of cure" will apply here in its full force. In the process of changing from whole to skim milk, special emphasis should be placed on this point. I assume that no one thinks of depriving the young calf of a full ration of whole milk fresh from the cow while it is less than a week old. Two weeks old is far more advisable, and three not objectional, especially to the calf. I have had much the best success in rearing them on skim milk, in the use of ground oil cake as a substitute for the cream taken by separator or the skimming process. The fine oil-cake meal should be soaked not less than twelve hours before using. The quantity of whole milk can be reduced slightly, and a tablespoonful of the soaked meal thoroughly stirred into it. The calf will not be likely to take kindly to the portion that settles as sediment in the bottom of the pail for a few feeds, but when it manifests a disposition to gather up all these particles, then a quantity of the skim milk can be substituted for the fresh, and more of the ground oil cake added to make good the usual amount of nutrition or increase it if so desired. No definite amount can be given as an inflexible rule to govern in feeding all calves, as some will consume and assimilate twice as much as others without any manifestation of evil results. Watchfulness and caution should be the safety valve and governor, and especially so until the calf begins to eat freely of some nutritious fodder. I have never found any roughness to equal properly cured clover hay for any kind of young stock, and especially is this true of young calves. When they have become old enough to eat freely of dry feed, it is advisable to discontinue the feeding of the ground oil cake in the milk, and mix it with a quantity of crushed oats, as this will not only be supplying their rations in a less condensed form, but will provide a needed balance as well. There is special necessity for caution in feeding young calves on skim milk and nutritious grain feeds when they have access to fresh grass in early spring. It is far better to keep them on dry forage with their milk ration until they attain an age least susceptible to scours. This fresh young grass, growing rapidly as it does in early

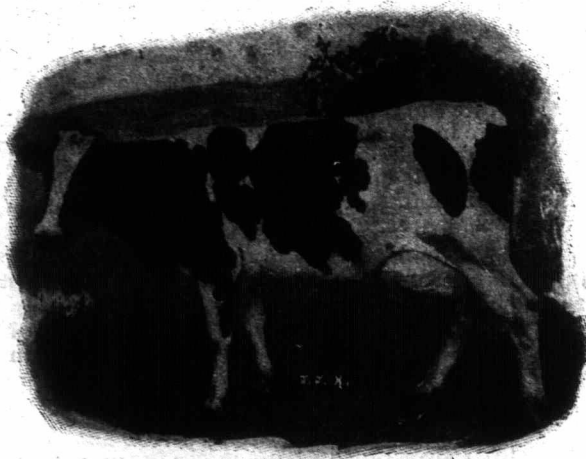
spring, does not contain solid matter enough to make up for the loss of the grain ration if it be discontinued, and if the calf can still be induced to eat his usual amount (which is doubtful) the neutralization is nearly always sufficient to produce evil results. Most dairymen who rear their calves find the fall of the year the most profitable time in which to have their cows fresh, and this one item is not the least among the many that contribute to make this practice advisable.

GARDEN AND ORCHARD.

Splendid Results from Orchard Spraying.

To the Editor FARMER'S ADVOCATE:

I sprayed seven orchards last season for different parties in this county, containing from half an acre to six acres each, with very satisfactory results to the owners. To give you an idea of results: In one orchard (Mr. Spier's), out of fifteen barrels of packed Snow apples, he had less than one barrel of culls; they were only small ones, very few spotted or wormy. On four Calvert trees, three of which were sprayed and one not; there were far more culls off the one not sprayed than off all the others, the unsprayed being not nearly so fine a sample. All other varieties in his orchard turned out in the same proportions, sprayed or unsprayed. In another orchard, most of the trees just coming into bearing, in the season of '98 there was not one barrel of marketable apples—the orchard not sprayed; while last year the orchard was sprayed, and there were sold 43 barrels of packed fruit, all first-class. There was about the same quantity each year. In all the other orchards that I sprayed there were the same results. All the trees were apple, except a few pears, and they were just fine. Other years, when not sprayed, the fruit was almost useless; this year all fruit sprayed being of finer appearance than the unsprayed. The trees sprayed looked far healthier and cleaner, and were free from moss and rough bark, and there were no



HOLSTEIN COW, WOODLAND IOSCO 36966.

Winner of second prize in milking test at Ontario Provincial Winter Show, London, 1899.

OWNED BY RETTIE BROS., NORWICH, ONT.

tent caterpillars, and very few codling moth, in comparison to the unsprayed. There were no plums of any account in this section last year; currants and gooseberries and all other small fruits being scarce. All parties for whom I sprayed are well satisfied with results, and are going to spray next season—a certain proof that spraying pays. I used the same formula as used at the experimental farms: Copper sulphate solution, Bordeaux mixture, and Paris green. Sprayed four times: twice before the blossoms appeared, twice after blossoms had fallen. There should be three or four sprayings after the blossoms have fallen, then the results will be all right.

Huron Co., Ont.

R. T. HINGSTON.

An Exponent of Canadian Progress and Culture.

To the Editors FARMER'S ADVOCATE:

GENTLEMEN,—The Christmas number of the FARMER'S ADVOCATE is excellent in every department. The mechanical and artistic make-up of this number is a credit to the publishers as well as a compliment to the constituency to which it is addressed. It is in marked contrast to the poor paper and rough cuts of some agricultural journals. Though a large space is given to live-stock interests, the contents are sufficiently varied to make a first-class family paper. Agriculture at home and abroad, poetry and puzzles, short stories and biography, science in many departments, historical reminiscences, together with market reports and advertisements, gives something of interest to everybody. The names of the contributors, Hon. Sidney Fisher, Senator Ferguson, Rev. Dr. Mackay, B. A., D. D.; Mr. C. C. James, Jean Blewett, and many others, would in themselves be a guarantee of the highest excellence even if not backed by the regular editorial staff. It is to be hoped that many copies will find their way to friends in foreign lands, as there could be no better exponent of Canadian progress and culture.

Essex Co., Ont.

A. MCNEILL.

Some of the Reasons Why our Orchards are Not as Fruitful as They Might be.

BY G. C. CASTON.

The Province of Ontario, not to mention other sections of Canada equally well adapted to fruit-growing, contains a larger area of soil and climate conditions suitable for the growing of orchard fruits than any Province in the Dominion. This is a valuable asset, and a possible source of a great part of our national wealth. But although we grow the best apples in the world, we are still far behind our possibilities in orchard products. This is owing to several reasons, which I prefer to take up and deal with in detail.

1st. Uncongenial Soil and Sites.—The best soil is a warm loam. For apples, a rich sandy loam, with plenty of humus; a clay loam is good if well drained, and is the best for plums, pears, currants, and gooseberries, while blackberries, raspberries, strawberries, and cherries do best in a nice warm, rich sandy loam. All fruit areas should have thorough drainage. This condition is imperative. Where natural drainage does not exist there must be thorough underdrainage. Heavy clay soils are mostly unsuitable, especially if land is flat. There is, however, on most farms some suitable soil for fruit, and it would be wiser to plant in some distant part of the farm, where the soil is suitable, than to plant near the buildings on a flat, stiff, bakey clay. But where planting on flat, stiff clay is unavoidable, it may be improved by thorough drainage, and opening the soil by means of humus. Old straw stacks, long manure, hardwood sawdust, any of these plowed in, or a heavy crop of green clover turned under when in bloom, will tend to open the soil. A plan which I have often seen tried very successfully, is to ridge up the land like a turnpike and plant the trees on top of the ridges. The advantages of clay soil are that it is rich in potash and other plant food, retains plant food, and, where put in proper condition, retains moisture as well. But a flat clay soil that has the humus all worked out of it, that lacks drainage, and water stands on it late in spring, and the soil bakes hard as a brick in droughty weather, or any soil that lies low and flat, with a cold, wet, sour subsoil, is of little use in fruit culture, and orchards or small fruits planted in such soils will prove a poor investment. It is an axiom every planter should remember, that "fruit trees will not stand wet feet."

Sites.—This is a subject about which there is much difference of opinion. My own experience points to elevated or slightly rolling land. Reasons: An elevated area gives atmospheric drainage as well as natural soil drainage. During cold waves, the coldest air flows down into the low levels, just as water does. An elevated area will, during still, hard, freezing weather, show a higher temperature than low levels. This applies more particularly to sections situated at a distance from bodies of water. There is a free circulation of air, more benefit from sunshine, less danger from late frosts in spring, and I have always found better crops and finer specimens of fruit on elevated and rolling lands. This applies particularly to tree fruits.

Exposure.—This is the chief bone of contention in the matter of sites. A southern slope is likely to start the sap to circulate too early in spring. When near bodies of water it is well to choose a site sloping to the water, as this retards too early growth. A western slope is probably the best, it fairly well protected by a windbreak. The advantages of a windbreak outweigh its disadvantages, especially on elevated or rolling land. The advantages of elevated or rolling land (by rolling I do not mean hills, but slightly rolling land, that is somewhat elevated) are: perfect drainage (both soil and atmospheric), free circulation of air, plenty of sunshine, more freedom from fungous diseases, fruit of better color and higher quality, and larger crops.

So much for soil and site, the importance of which is often overlooked. But there are many items of equal importance which have to do with the reasons for success or failure in fruit-growing, and which I shall deal with in a future chapter.

Local Horticultural Society Formed.

There was organized on January 10th, 1900, in London, Ont., a local Horticultural Society with a membership of one hundred. The purpose of the society is the furtherance of horticultural interests in the city. Societies of this sort having not less than fifty members receive an annual grant from the Provincial Government, with the provision that no cash surplus be held over from year to year. Money from this source left unexpended is devoted to furnishing the members with rare bulbs, shrubs, fruits, rose bushes, and the like. Meetings of the society will be held from time to time, for the transaction of business and discussion on horticultural topics. It is also proposed to hold one or more flower shows during the year, with a hope that a lively interest will be created in floral culture. At the organization meeting, the following officers were elected: Mr. J. A. Balkwill as president; Rev. Dr. Bethune, first vice; Prof. J. H. Bowman, second vice; Messrs. I. R. Bond, John Macpherson, Very Rev. Dean Innes, John C. Paine, George Rennie, Wm. Gammage, R. Fox, W. E. Saunders, and W. H. Hamilton, directors.

Fraudulent Packing of Apples.

To the Editor FARMER'S ADVOCATE:

I am induced from long experience of the fraud imposed on Manitobans and others of the Northwest Territories in the shipment of apples from Ontario, this past season has been the worst I have witnessed. All the best apples are picked and put on top of the barrel, and the inferior ones below; and very inferior they are. No doubt many of them are picked off the ground, as many are rotten and very worm-eaten. The average price for winter apples has been \$4.50 per barrel retail, and when a quarter of them are rotten it makes them almost prohibitory to the farmers. I am writing this in hopes some action will be taken to prevent this fraud. What would be said of a farmer who topped off his bags of wheat, putting inferior in the bottom? This has been done by unscrupulous persons, still few would stoop to that practice. I believe much of the produce of Canada sent to England is treated in the same way, and is the cause of the bad name given to Canadian produce. The British public will not submit to such fraud, but we have to or go without apples, as they cannot be grown here, and so many of us know well the luxury of an apple. A MANITOBA VICTIM.

[This fraud above referred to has been all too common, and from personal experience we know the west has long enough been made a dumping ground for the wind falls and wormy apples of the east, made to sell by placing a layer or two of good fruit on top of the barrels. It has been particularly noticeable this year, perhaps, on account of the inferior quality of the apple crop. A severe lesson has at last, however, been taught to many shippers by the trade buying on Winnipeg inspection, and many carloads have been rejected; these have been disposed of by public auction in the city at prices only a little more than sufficient to pay the freight charges. This should, and doubtless will, prove a wholesome lesson, and put a stop in some measure at least to this wholesale fraud.]

APIARY.

Ontario Beekeepers' Convention.

The 20th annual convention of the Ontario Beekeepers' Association was held in the Albion Hotel, Toronto, on December 5th, 6th and 7th; with W. J. Brown, Chard, the President, in the chair. There was a very creditable turnout of members from all parts of the Province.

The President in his address referred to the unfavorable season for honey during 1898 in nearly every part of Ontario, which would necessitate giving the bees extra feed this winter, in order that they may winter properly. The proposed exhibit at the Paris Exhibition was also mentioned.

Mr. D. Heise, Bethesda, gave a capital paper on "Spring Management in the Apiary."

In a discussion on the "Spraying of Fruit Trees at Improper Times," several members gave instances of this occurring in their own neighborhood, and the large loss of bees that resulted. It was suggested that copies of the law on spraying should be distributed or posted up in post offices throughout the Province.

The treasurer's report showed that the receipts during the year amounted to \$715.00, and the expenditure was \$598.70, leaving a balance of \$116.30. There was a membership of 92.

Inspector McEvoy reported that he had visited 126 apiaries and found foul brood existing in 47. Nine-tenths of this foul brood was among apiaries not previously visited, and the owners were not aware of its presence. Twenty colonies were burned. The meeting fully endorsed Mr. McEvoy's method of treatment.

Of the affiliated societies that reported, the increase in colonies was 294, or 94%. Only 7,679 lbs. of comb honey and 53,095 lbs. of extracted honey were reported. Oxford stands at the head of producers, with 15,465 lbs. of extracted honey, followed by Brant, Halton and Peel, Glengarry and Russell. The average of extracted honey per colony was 17½ lbs.

J. B. Hall read W. Z. Hutchison's paper on "Beekeepers' Associations." The tenor of it was that these conventions were becoming more of a social event than a place of acquiring much information. This latter is now supplied through bee journals before the conventions come off. Associations, however, had their useful side in uniting members, giving them influence when legislation, questions of freight rates, etc., have to be considered.

MARKETING EXTRACTED HONEY.

H. Sibbald, Cooksville, read a practical paper on "Marketing Extracted Honey." He suggested that beekeepers should combine in order to sell their honey. Now dealers cannot find out where honey is obtainable. Dealers are now ignorant of the values of different kinds of honey. He advised beekeepers to conceal the fact when they had a good crop of honey, as it only excited competition and

caused lower prices to be offered; to refrain from selling too early in the season; to look for fair prices and keep themselves posted as regards markets. The local trade should be well supplied; after that sell to wholesalers at 10% less, so that by the time these sold to retailers the whole product would be on the market at about the same price. He liked to sell his honey in the liquid state. He thought that one reason for lower prices was the sale of honey by exhibitors at Toronto and other exhibitions, as the season was then too early for the general trade. Prices obtained then were liable to rule the markets later on.

Newton, Hall, and others discussed the paper. Hall advocated never selling honey weighing less than 14 lbs. to the Imperial gallon. Granulated honey, which is unripe, will sour on account of the excess of water it contains. Ripe honey will granulate, but will not sour.

E. Dickenson, North Glanford, spoke of a shipment of honey of 30,000 lbs. made by him to Great Britain last season, which brought 47s. 6d. a case, being 1s. over any other honey on the market at that time. Californian honey is the only serious competitor with Canadian. We must only send the very best, however, and let the goods speak for themselves. He thought large beekeepers should seek outside markets and leave the home markets to the smaller men.

A NEW WAX EXTRACTOR.

In the absence of Gemmell, Hall explained the working of a wax extractor made by the former, which will recover ¼ more wax out of old combs than any other machine. The speaker had tested it with old comb that had lain in his yard for 18 months, and also some that was 18 years old. He got 3½ lbs. of wax out of the latter. Can recover 43 lbs. in an afternoon with it; the wax, however, must be at a very high temperature. A slatted



PRIZEWINNING SOUTHDOWNS.

Ram, Imp. Royal Babraham 1241, winner of fourth at the Royal, first at Toronto, London, and Brantford; also sweepstakes ram at London, 1899. Ewe, Imp. Clester Royal Princess 12442, first at the Royal, and sweepstakes ewe at London, 1899.

OWNED BY JOHN JACKSON & SONS, WOODSIDE FARM, ABRINGTON, ONT.

platform is put inside a metal box which has a spout for the escape of the water and wax. Then a coarse piece of bagging is laid on it and the wax and hot water poured on this. The bagging is then folded over itself to hold in the wax, etc., and another slatted platform laid on this. The heavy top is then laid on, which contains an iron piece on top for the point of the screw to work in, and the screw turned to put on pressure, which is increased by degrees.

One peculiar feature of the wax extracted by this process is that the wax is rather soft, which is sometimes the case with old wax. It is good, however, for foundation or sections. The softness is supposed to be due to the use of very hot water.

PROF. ROBERTSON'S ADDRESS.

Prof. Robertson gave some good advice on home and foreign markets for honey. He thought much might be done by personal house marketing as opposed to general marketing. As regards the general market, the article that gives the least trouble to the dealer and gives him the best returns will be the one pushed by him. He quoted Canadian oatmeal, which now sells readily in Scotland in packages of 2 lbs., while the same in barrels was formerly almost a drug.

It is no use to send poor honey to England. For first-class honey 15 cts. will be paid; common sells at 4 cts. As another example of the ready sale secured by small packages, the Professor mentioned a friend of his in England who had to pay as much for a small package holding about a bushel of Fameuse apples tastefully packed as was being paid at Bristol for 3 barrels of the same kind of apples poorly packed. Find out the English taste, he said, and keep that as a standard and do not change it. He liked to ship the honey in glass, but if it could be sent in 60-lb. tins and be filled by the British dealer into glass vessels over there it would

be more satisfactory. He hoped for a good exhibition of honey at Paris, and said that the exhibit could be replaced later on by better samples, if such were obtainable.

MANAGEMENT IN EXTRACTING SEASON.

Mr. B. Holmes' paper on the above subject was very interesting. His honey hall was 12 x 30, well lighted and ventilated, and containing all necessary utensils. He first furnished supers of drawn comb to the overcrowded colonies, then to those less congested. He places queen excluders in new swarms; in old colonies the combs are generally filled with honey before the queen finds her way into the super. When the supers are filled the honey is extracted. Carefully removing the cover and quilt, he uses a little smoke to drive the bees downward. The supers are then removed, the bees brushed off in front of the hive, and empty combs substituted. This operation is repeated as often as required. As the honey flow from buckwheat and golden-rod decreases, he removes the supers altogether, extracts the honey and leaves the supers outside to allow the bees to remove the little remaining honey from the combs. Each day all the honey is drawn from the extractor and put into storage tanks, over the tops of which are put two thicknesses of cheese bandages to catch any clippings from the combs.

In the discussion following it was allowed that the time for removing honey to be extracted may vary in different districts. In Southern Ontario it will be later.

Jno. Newton read an excellent paper on "The Production of Comb Honey."

THE QUESTION DRAWER.

What success has been had with drone and queen traps in Ontario? They may be of some use in small apiaries, none in large ones.

What are the objects of contraction by division boards? To increase the crop of comb honey and confine the nuclei in as many combs as is desired.

What advantage is there in clipping queens? Chiefly to prevent bees ascending and to facilitate the handling of the bees when several swarms issue at the same time.

Is it wise or not to allow bees to clean out extracted combs after the last extracting? Yes. It gives clean combs. If combs are left until clean and removed at night there is not much danger of robbers.

What is the best way to handle combs which have a small quantity of honey in them in the fall? Let the bees clean them out.

Does the mating of the queen affect her drone progeny? Hall thought that progeny take after the queen's sire. He incidentally mentioned that furnace heat is beneficial to bees, if the latter are in a cellar adjoining the furnace.

Would drones raised from unfertilized queens become breeders? Not answered.

What is the best method of handling swarms so as not to increase the number of colonies? Hive on half comb and half foundation frames; place a new hive alongside of the old one, then shake off all bees into the new hive and carry off the old one for a new swarm.

What is the easiest method of managing out-yards in regard to controlling swarming? Best way for extracted honey is to go out once a week, lift off the supers, and, if the bees have started cells, shake them off into a new hive with foundation. Post leaves the bottom board off from June to September and puts a screen on top and bottom.

The election of officers resulted as follows: President, C. W. Post; Vice-President, Jno. Newton; 2nd Vice-President, J. D. Evans. The directors for the 12 districts were all reappointed, except that J. D. Evans succeeds D. W. Heise in No. 5 and S. Wood takes the late H. N. Hughes' place in No. 12. Messrs. McEvoy and Gemmell were re-elected as Inspector and Assistant Inspector. Niagara Falls was selected for the next place of meeting. A recommendation was passed that the *Canadian Bee Journal* be not taken over by the Association.

President Post's name was recommended as inspector of honey destined for the Paris Exhibition.

A Great Educator.

Editor Farmer's Advocate:

DEAR SIR,—I HAVE received your beautiful Christmas number of the FARMER'S ADVOCATE. The valuable information contained in the different contributions must result in largely-increased interest among our intelligent farmers. And the object lessons taught by those splendid engravings, exhibiting the results of the excellent work that has been done, also its variety and the extent of the country from which it has been collected, must be particularly gratifying to those personally interested, and cannot fail to be appreciated by all lovers of good stock, and greatly encourage and stimulate our young stockmen. In short, I believe your work is not only much needed, but must be a great educator to all classes of our agriculturists. Allow me to congratulate you and extend to you my best wishes for a happy and prosperous year.

Amherst, N. S.

T. R. BLACK

POULTRY.

What I Would Do in the Poultry Business.

[Paper prepared by C. J. Daniels, Toronto, for the Ontario Poultry Convention at Peterboro, Jan. 18th, 1906.]

This heading might seem strange to some that know Daniels has kept poultry from his youth up. But there are two classes that keep poultry, one which we call the fancier, a very important individual in his line of business, viz., he is all the time breeding up to a standard of perfection, by which means we have a far better class of poultry to-day than ever before. Our annual shows are a great education to that end; but we cannot all be fanciers and make a success of breeding poultry for exhibition purposes; it takes years and a lot of study to do this. But every one can keep a few hens and keep them at a good profit. Only a generation or so ago the hen of commerce was almost unknown. She was allowed or compelled to shift for herself, picking up her living round the barn or house. Thus she gained the sobriquet of barnyard or dunghill fowl. To-day she bears the world over, the proud title of The Canadian Hen. Her produce cannot be cornered and the prices controlled or demoralized by a few, to the benefit of themselves and the detriment of others. The poorest of the poor can command as soon of her stores as the most powerful potentate.

Now, if I were in the poultry business from a mercantile standpoint, I would make a specialty of setting eggs. I believe there is more profit in eggs than any other branch of the business. My choice of varieties would be between the White or Buff Leghorn or Anconas. Either of these will outlay any other variety of fowl I know of. It is most essential that the birds have a good, comfortable house. If you do not have this, you will have no success in getting eggs in winter, when they pay best. I would commence to hatch out my chicks the first of January, and to accomplish this a good incubator or incubators are indispensable; also a good brooder or brooders. By starting in January you will have cockerels ready for the market by the end of March, and at tiptop prices, before your neighbor has got his chicks out of the shell. Having marketed your males at a good figure, you can turn your attention to your pullets and have them laying by August and kept at it all winter. One thing certain, there is not a red cent in raising late chickens. Just last week a friend of mine (this is November) sent me in twenty late chicks to try and sell for him. I dropped a post card to a well-known poulterer in town to come up and take them. The best he could do for me was 25 cents per pair. He had just bought 80 pairs at that price. You will say, "No money in that." True, but take the other view. The same week I wanted a dozen strictly fresh eggs for a regular customer of mine, and I had to send to three places before I could get them, and had to pay 30 cents per dozen for them. Do you see the force of my argument? I had to pay five cents more for a dozen of eggs than what a pair of late chicks fetched; but to get eggs in winter means work. Like the colored brother, he stayed in the house and prayed the good Lord to send him some chickens, but his prayer was never answered. But next night he went out and fetched them, and got eleven that night. You will have to do your part and go out to the henhouse and feed them regularly, and see they have plenty of scratching stuff on the floor to keep the blood in circulation, and plenty of fresh water. Raising poultry has attained that degree of importance, that it is no more sneered at as a trifling occupation. The feeding of poultry has now become almost a science. The old idea was that anything was good enough to feed to the poultry.

Now the poultry is fed in a very rational and intelligent way. They are given rations that are known will stimulate egg production without causing them to become too fat. When the object is to fatten the poultry, quite a different kind of food is given. Wheat I have found to be the most profitable for egg production, although I feed all the grains. In feeding fowls where egg production is the object in view, the more varied the feed is the better. Two light meals a day are all that is necessary where the flock has a good range. Recent experiments prove that green cut bone increases the production of eggs to a very large extent. Fowls crave a variety. The allowance of green food, if but a small one, will have a beneficial effect. Cabbage, turnips (cooked or raw), cooked potatoes, cut hay or clover meal, are much relished by the fowls when in winter quarters. No set rule can be put down how to feed. I have always fed a mash in the mornings, summer and winter; not a heavy feed. My neighbor, Jones, will say he feeds his a mash at night. In the evening I feed whole grain, and make them scratch for it.

Greatly Carried Away.

Please accept my thanks for your Christmas number of the ADVOCATE. It reflects great credit on your behalf, as it is one of the finest and most beautiful agricultural books I have ever seen. It must be a great source of pleasure as well to those who advertise their fine herds and stock as to yourself. I have seen several parties who have been greatly carried away with the fine cuts produced in your Christmas number, which has given them the fever for those fine Shorthorns, which I think will result in some purchases. Hoping your paper may continue to flourish, and wishing you and your staff the compliments of a prosperous future, I am, yours truly, in haste,
Farston, Que.
J. L. THORNTON.

ENTOMOLOGY.

Insects in Winter.

When one thinks of the myriads of insects that swarm in summer in earth and air and water, the question naturally arises at this time of year, what becomes of all these creatures in winter? Millions of them undoubtedly perish as soon as the first frosts occur, but they cannot all die, otherwise there would be no insects left the next spring. In the case of every single species suitable provision is made for its safety, and it is interesting to find out how this is done.

There are two stages in the life of most kinds of insects when they are quiescent and need no food, but simply require protection from the elements and from their natural enemies. These stages are the egg and the pupal or chrysalis state. We may expect, then, that any particular kind of insect will most likely pass through our long winters in one or other of these conditions. And this is certainly the case with the majority, but there are some remarkable exceptions.

Among the butterflies some members of one Canadian family live in the perfect, winged state during the winter. These butterflies may often be seen flitting about on warm sunny days late in autumn, and again in early spring, sometimes even before all the snow has gone away. One species, the tortoise-shell butterfly (*Grapta J-album*), frequently takes up its winter quarters in dwelling houses, and comes out at unexpected times long before spring, to the great surprise of the inmates. How these butterflies—sleeping in some sheltered place, but still exposed to intense cold at times—can escape being frozen is a mystery; but yet the wonder in their case is not so great as in that of others which survive, as naked caterpillars, and are often buried on their food plants deep under the snow. The majority, however, are either torpid in the chrysalis state or safely hidden away in their tiny eggs, which seem able to endure any degree of cold and to hatch out at the proper time in spring.

A very large number of moths pass the winter in silken cocoons, which are impervious to the weather, or underground in the chrysalis state. A few species, like the butterflies referred to, hibernate in the winged condition, and the rest in the egg state, of which the tent caterpillars are an instance.

Bumblebees and wasps, which form large communities, all die off when cold weather comes, except a few solitary females, or queens, which hide away in some sheltered and secluded spot and there remain until revived by warm weather, when they start their new nests and lay the eggs from which the future colony comes. Ants remain torpid in their nests underground or in fallen trees, and may often be found in midwinter apparently frozen as hard as bits of stick or stone, and yet they revive when exposed to warmth.

To go through all the orders of insects would occupy many pages, but a few injurious species may be referred to. Cutworms, wireworms, white grubs and other crop destroyers pass the winter underground in the fields, either in the pupa or the grub state, ready to come out when vegetation has begun again. If their winter quarters are disturbed they are rarely able to find proper shelter again, and therefore deep fall plowing is a most effective remedy for them. This is especially the case when an old meadow is about to be prepared for a crop; it is sure to be full of insects that feed upon roots or leaves, most of which will perish if turned out of their winter quarters by plowing very late in the season. Early spring plowing, especially if it happens to be followed by sharp frost, will be very effective, but it is not so sure a remedy as that in the fall.

The Hessian fly, wheat midge, and some other minute enemies of cereal crops, pass the winter in the pupa state, to a large extent in the stubble, but many of them are brought in with the straw and threshed out with the grain. Where it can safely be done, it will be of immense benefit to burn the stubble and so destroy myriads of insects, and also to carefully collect and burn all the sweepings of granaries and bins, and the dust and refuse left by the threshing machine. This should be attended to in the fall, or at any rate during the winter, before the tiny flies come out in early summer to lay their eggs and provide for a new generation of destroyers. Any farmer whose crops suffered last year should take this advice; it is cheap enough, and he will find that it pays.
C. J. S. BETHUNE.

Thorough Measures in Killing Lice.

SIR,—I occasionally notice enquiries in your paper for remedies for lice on cattle. In my opinion too many delay treating their cattle for lice till they become badly infested, whereas a thorough treatment early in winter would destroy the few that would breed the many if allowed to live. Last year I purchased a cow badly infested with lice. I gave her repeated applications of my favorite mixture, consisting of raw linseed oil and coal oil, equal parts, and each time succeeded in killing all the lice on her body, but they kept coming. I finally discovered the source of supply was in the brush at the end of her tail, which was literally gray with nits and lice. This led me to make each application more thorough by rubbing the mixture into the skin with a brush, from the nose to the heels, and to the end of the tail. The linseed oil and coal oil should be kept well stirred while it is being applied.
Elgin Co., Ont.
CAMBY CHARLTON.

QUESTIONS AND ANSWERS.

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

Veterinary.

POLYURIA IN MARE.

SUBSCRIBER, Victoria Co., Ont.:—"About a month ago a mare, four years old, appeared to be blind, as she would walk straight ahead over anything that happened to be in her way. In a few days she began to kick the floor with one foot, and continued doing so until the leg was badly swollen. She would also rub her nose on the wall till the skin was all off. She turned her head around to her side every few minutes, and sometimes her back would appear to drop a little just over the kidneys. One veterinary surgeon treated her for her kidneys, and another for her lungs. I had an old mare die of the same disease last spring, and after she was dead a quantity of bloody water and matter came from her womb."

[The symptoms given are not sufficiently definite for a positive diagnosis. I would say that the mare is affected with polyuria (excessive secretion of urine). The blindness is due to a condition of the eye called amaurosis, which occasionally results from excessive secretions, and causes temporary or sometimes permanent blindness. If she be affected with this disease she will void large quantities of urine of a clear watery character, and will drink inordinate quantities of water, will be weakly and unthrifty, with a great tendency to swelling of the legs, besides exhibiting more or less blindness. Feed on good nutritious food, give good water often and in small quantities. Give, about two hours after feeding, twice daily for about ten days, one dram pulverized iodine, mixed with a little linseed meal and made into a ball. Then discontinue the iodine for three days, and commence administering again if required.
J. H. REED, V. S., Guelph, Ont.

RINGWORM ON CALVES.

P. H. Y., Compton Co., Que.:—"Last fall my calves commenced to have an itch before they came to the barn. It does not seem exactly like the regular barn itch; it comes out in a scab and gets deeper, and white stuff comes on the hair the whole length. After a while that comes off, when it is all raw. I have used sulphur and lard and fed sulphur, and have clipped the calves all over, but it is spreading to the other cattle. Please tell me through the columns of the ADVOCATE what to do as soon as possible?"

[From the symptoms you give I would say that your calves are affected with ringworm or some kindred skin disease, due to a parasite. On spots where a scab or a scale exists, soften it with sweet oil or soap and water and remove it, and then apply the following ointment once daily: One part, by weight, of white oleobore, and six parts vaseline. Isolate all affected animals, and if the same person attends the healthy cattle, he must change his clothing and wash his hands after attending the affected before going to the healthy, as the virus of the disease is easily carried. All stalls, etc., in which the diseased cattle have stood should be thoroughly washed and whitewashed with hot whitewash. On spots that are already raw, simply apply the ointment. The disease is due to a parasite which burrows in the skin, and a scale forms over it. This scale must be removed in order that the ointment may come in contact with the parasite and destroy it.
J. H. REED, V. S.,
Ontario Agricultural College, Guelph.]

SHEEP DYING SUDDENLY.

GEO. WALKER, Simcoe Co., Ont.:—"Would you please state through the volumes of your paper what ails our sheep? We have lost three this summer. They appear to be all right at night; in the morning when we go out we find them dead. Would frozen grass cause the trouble?"

[Frozen grass, clover, or other succulent food, will occasionally cause inflammation and death in sheep, but from the meagre information given by Mr. Walker, we cannot say what caused the losses referred to. Should the like happen again we would suggest a thorough post mortem examination by a qualified veterinary surgeon.]

CHRONIC INDIGESTION IN CALF.

ENQUIRER, Wellington Co., Ont.:—"I have a calf, about eight months old, that has stopped eating, or nearly so. It has to be coaxed now to get it to take enough to sustain life. It seems to be gradually failing, and yet when I turn it out it will scamper around as though nothing was wrong with it. It ate very hearty when we brought it in first in the fall. I used to feed it whole oats, and sometimes a little bran. We were hand-feeding it, and it weaned itself before we took it in. It seems to be continually biting at the board in the stall; in fact, it has bitten a hole through a two-inch plank. After taking it into the stable it became somewhat costive, but I gave it some linseed oil and some soot and grease. It seemed to get over that trouble. Then I gave it some ginger and gentian, also some pine tar, but nothing seemed to do any good."

[From the description of the calf's ailment, I am of the opinion that it is suffering from acidity of the stomach, due to some error in feeding, causing chronic indigestion, and would recommend that the following treatment be adopted: Do not give any

GRAFTING.

A. G. FOSTER:—"Will you please publish in your valuable paper a full account of how to graft, what time to cut the scions, when to commence to graft, how to mix the grafting wax, etc., etc.? In fact, give a full account of it, and you will oblige."

[It does not matter much whether the scions are cut in the fall, in the winter, or just before they are wanted in the spring. In very cold latitudes it might possibly be better to cut in the fall or early winter and place in a dry, cool cellar under a light covering of sand. If cut in the spring they must be cut before the buds have begun to swell, as it is better if the stock is a little further advanced than the scion. Let the scions be cut to about four buds each, and always take them from good, healthy, vigorous shoots of last year's growth. We take it that top grafting is intended, as root grafting is chiefly done in the nursery. The work of top grafting may commence in spring as soon as the sap is in motion, which is indicated by the buds on the tree beginning to swell, and it may continue till the leaves are half out. A fine, sharp saw, a chisel or strong knife and small mallet are all the necessary tools. The branch should be carefully sawn off and a clean, smooth surface left. If the stub is small, it may be split with a heavy-bladed knife; for bigger branches a chisel answers the purpose. The chisel itself or a small wedge can be used to hold the cleft open till the scions are inserted. Two scions, one on either side, are usually inserted where the stub is larger than an inch through. The lower ends of the scions are cut wedge shape, the wedge being about an inch and a half long, and the outer edge of the wedge a little thicker than the inner. Fit the inner or growing bark of the scion carefully to the inner bark of the stock, withdraw the chisel and carefully cover all the exposed surfaces with grafting wax. The two especially important points are: first, to see that the scion fits tightly down its whole length; and second, to be sure that every cut or exposed surface is completely covered with the wax. A good wax is prepared from resin, 6 pounds; beeswax, 1 pound; linseed oil, 1 pint. Apply hot with a brush, about a quarter of an inch thick, or a little less, over all the joints.]

As a scion should fit the stock.

In top grafting large trees, the shaping of the future tree must be carefully considered. The old top must be removed gradually, three or four years elapsing before the new graft entirely takes its place. It is better to graft on the smaller branches from one to two inches in diameter. Put the scions in at even distances throughout the tree and graft some of the lower and smaller side branches. In this way a well-balanced, shapely top can be secured.]

TANNING SKINS WITH THE HAIR ON.

PAUL DIESBOURY, Essex Co., Ont.:—"I have been a subscriber to your very valuable paper for a number of years, and I saw a recipe for tanning a hide with the hair on, but I cannot find the copy which had it in. Will you kindly insert in your next or subsequent issue, and greatly oblige?"

[An approved method is to spread the skin, flesh side up, as soon as it is taken from the animal, and rub or sprinkle pulverized alum over it, followed by a small quantity of saltpeter, and plenty of common salt. Roll up and put it away where it will not freeze. Two ounces each of alum and salt will tan a skin the size of a fox skin. Cat, and other thin skins, have their hair fixed in about three days; heavier hides need considerable longer time. Skunk and other greasy skins need considerable saltpeter. When the skin is tanned the flesh remaining on it will rub off easily. Then nail the skin to boards in the sun, stretching it tight, and apply a little neat-foot oil with a brush. The oil should afterwards be worked out with a wedge-shaped piece of wood. The skin can then be wet until it is softened, and then it should be worked until dry. If it is not worked and rubbed it will dry harsh and stiff. For sheep and lamb skins a strong suds is usually first made with hot water, in which the skins are washed carefully, squeezing them between the hands to get the dirt out of the wool. The skin is then washed in clear water, and alum and salt, half a pound each, are dissolved in a little hot water, which is put into enough cold water in a tub to cover, say, two skins. Here they soak over night, and are then hung upon a pole to drain. When they are well drained, spread and stretch and tack them to a board, flesh side up. While yet a little damp put on the pulverized saltpeter and alum, rub it in well, then lay the flesh sides of two skins together and hang them in the shade for two or three days, turning the under skin uppermost every day until perfectly dry. Then scrape the flesh side with a dull knife, to remove the remaining scraps of flesh, and rub the flesh side with pumice stone, and afterwards with the hands, until soft and pliable.]

RE GOVERNMENT LANDS IN NORTHWEST TERRITORIES.

ANXIOUS RUSTIC, Lampton Co., Ont.:—"Can you inform me through your valuable paper regarding the free Government grants of lands in Assiniboia and Alberta Territories? If not, who shall I write to?"

[Full information can be obtained by applying to Hon. Clifford Sifton, Minister of the Interior, Ottawa, or to Osler, Hammond & Nanton, Winnipeg, Man.]

CONDENSED-MILK FACTORIES.

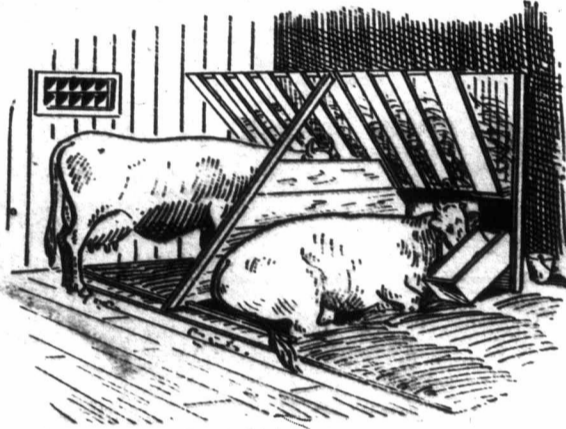
A. H. Haldimand Co., Ont.:—"We are having a large condensed-milk factory erected and equipped in our district, and some of us are at a loss to decide whether or not the undertaking will prove a success. Farmers are being told that they will receive \$1.25 per cwt. for their milk, which will be more profitable than supplying a cheese factory. I hope to see your views on the matter published in the FARMER'S ADVOCATE."

[Condensed-milk factories have not been very successful in Canada, so far as I have been able to gather. There is no reason, however, why our dairymen should not be able to furnish the raw material in as good condition as can be supplied anywhere. I have understood that one of the difficulties in the past has been to secure a profitable market for the condensed milk. A large factory is at present being erected in Ingersoll, Ont., and the farmers in that section will be given an opportunity to test the value of a condensed-milk factory. Some report that the conditions for supplying milk to these factories are so strict that ordinary dairymen cannot meet them. If condensed-milk factories will make patrons more careful they will do a good work. For this extra care the companies usually pay a high price for the milk, viz., from \$1.00 to \$1.25 per 100 pounds. There is no reason why they should not succeed in Ontario if properly managed.]

H. H. DEAN,
O.A.C., Guelph, Ont. Prof. Dairy Husbandry.]

MEASUREMENTS OF HOARD'S STALL.

SUBSCRIBER, Bothwell Co., Ont.:—"Please give the measure of the Hoard cow stall in your next issue of the ADVOCATE?"



HOARD'S COW STALL.

[In order to make this description and measurement as helpful as possible to our readers, we republish the illustration of Hoard's stall which was given in our issue of March 15, 1898. The floor for common cows should be 8 feet long, including the manger, with a slant of 1 inch towards the drop. On the high end of this floor erect 4-inch scantlings, to which is nailed the solid board partition, 4 feet high. In constructing the feed rack, first fasten in a horizontal position, 30 inches from the floor, a 2-inch plank 10 inches wide, for the bottom of the rack. The outer edge is supported by scantlings placed 3 1/2 feet apart, with ends cut slanting so as to fit underneath the plank and on the floor, just back of the trough. The boards for the feed rack are cut 6 inches wide and 3 feet long, and are nailed through one end to the outer edge of the plank, leaving a space of 3 1/2 inches between them. The rack is slanted so as to be 18 inches wide on top. The upper ends of the rack boards are nailed to a scantling running horizontally, and this is supported by more scantlings, cut 7 1/2 feet long, which rest on the floor at the edge of the gutter. On this support, and the one sustaining the plank at bottom of rack, are nailed the boards which form the partitions between the stalls. The feed box is 12 inches deep and about 18 inches square, or it may be longer and narrower.]

The feeding rack is for two purposes; First, to contain hay or roughage, and, second, to force the cow, when standing, to place her hind feet in the rear of the cross-bar seen just forward of the standing cow. In placing the bar across the stall, bring the cow's head squarely up against the feeding rack, then just forward of her hind feet fasten down a 2 or 3 inch scantling. This will hold the bedding dry and clean. The feed box is placed on the side opposite where she usually lies. If placed sufficiently slanting the feed will easily work down to the end next the cow, so that she will not need to bring her hind feet unto the bedding while feeding. The cow should be fastened with a halter or rope around the neck, to a ring in the center of the stall. The cut should show a gutter, just back of the standing cow, 4 inches deep and 14 inches wide.]

DWARF APPLE TREES FOR HEDGE.

READER:—"I intended planting dwarf apple trees next spring, one row on each side of my road from the house to the road proper, but have been persuaded by an apple tree agent not to do so, as they are a poor stock to plant. He says they grow crooked and are short living, and would not make a hedge; that he has known them to be a failure several times. As they are a thing I know nothing about, would you give me your opinion on them, and what is the price of them, and oblige?"

[Dwarfed apple trees have too slow growth to make a satisfactory hedge in a reasonable time in Canadian climate. They would also require too much pruning to get them into proper form.]

DESTROYING LICE ON STOCK—CURING PORK—WIDE OR NARROW PLOW.

J. F. H. Simcoe Co., Ont.:—"Will you please tell me, through the columns of your valuable paper, how to kill lice on cattle and colts, how to prepare the preparation, and how to apply it? 2. Please tell me the best method for curing pork, without smoking, from the time it is cut up until it is put away for the summer? 3. Which do you consider the better, a wide or a narrow plow, for general use in nice loamy land?"

[When stock becomes infested with lice very thorough measures are usually necessary in order to rid them completely of the vermin. In very cold weather repeated applications of insect powder (pyrethrum) will destroy a large proportion, if not all the lice, but a more thorough job is usually made with repeated washings with a liquid insecticide such as the various cattle and sheep dips advertised in our columns, or of kerosene emulsion. Whatever is used should be repeated in from 8 to 10 days, so as to destroy the young that hatch after the first application. Kerosene emulsion is prepared by dissolving half a pound of hard soap in a gallon of rain water by boiling. Now remove from the fire, and while hot pour in two gallons of coal oil and churn briskly for five minutes. To prepare for use dilute with nine parts of soft water; when applying it have the stable warm, and rub it thoroughly into the hair from nose to heels and to end of tail.]

2. We have found the following a satisfactory method of curing pork: We cut the sides into shoulders, sides, and hams. If the pork is heavy it is well to cut out the shoulder at the joint so that the salt will penetrate evenly. When cut up the red spots should be sprinkled with saltpeter, and the entire surface well rubbed with salt, and laid on a table in a cool room or cellar. Turn the pieces and rub the surfaces every two days for two weeks. Then enclose them in cotton bags and hang up in a dry place, where it may remain till warm weather. We then find it well to pack the pork in a box of dry oat hulls in a cool, dry place.]

3. Since cultivators of various sorts have reached such perfection for tilling the land, we do not consider it wise to occupy unnecessary time plowing with a narrow plow. We would recommend a moderately wide plow that turns the surface fairly well under.]

SORGHUM AS A STOCK FOOD.

READER:—"Would you kindly advise me if any experimental work has been done in Canada as to growing sorghum as a stock food, and with what success?"

[We have grown three varieties of sorghum or sugar cane as a stock food for five years in succession at the Ontario Agricultural College. We are growing these with the object of securing definite data of the comparative yield of these three varieties for stock food, and to ascertain whether the yield of any of them would compare favorably with that of corn. The average results of the five years' experiments are as follows: Orange sugar cane, 16.4 tons per acre; Fodder sugar cane, 16.0 tons per acre; and Early Amber sugar cane, 15.3 tons per acre. We have as yet done nothing in conducting feeding experiments with sugar cane. I take the following quotations from a bulletin issued from the United States Department of Agriculture on the subject of sorghum as a forage crop: "Sorghum may be used for soiling, pasturage, hay and ensilage. It is especially valuable as a pasturage for lambs and hogs, and as a summer and autumn feed for dairy stock. Feed sparingly with it until the stock becomes accustomed to it. The best quality of hay is obtained by cutting the sorghum shortly after it begins to bloom. When used for soiling, cutting may be profitably begun as soon as the heads are formed. The common practice is to cut for ensilage when the seed is in the 'dough.' The forage contains an excess of fat-forming substances, and should be fed in connection with food rich in muscle-making material. The seed is usually fed with the stem and leaves. The threshed seed should be crushed or ground, and mixed with wheat, bran, oats, or other nitrogenous foods." C. A. ZAVITZ.]

ARTICHOKES FOR HOGS.

T. D. MCG., Glengarry Co., Ont.:—"How are artichokes as feed for hogs? How should they be fed? How should they be cared for?"

[Artichokes are much relished by pigs and give probably better results than any other sort of tubers or roots. The hogs will eat them greedily just as they are taken from the ground, but we would expect better results from feeding them pulped or mixed with chopped grain, which would moisten the whole mass and give an appetizing flavor. They may be wintered the same as potatoes, in a cellar or pit, or if they are not needed till spring feeding, they can be left in the ground through the winter, as frost does not injure them. If fed in the early fall or spring, the pigs will root for them where they grew, and do well upon them with the addition of a little grain.]

WILL A FREE-MARTIN BREED?

A. G. S., Lambton Co., Ont.:—"I have twin calves—a bull and a heifer—pure-bred Shorthorns. I have heard it said that the heifer will never breed in a case of this kind. Have you ever known one to breed?"

[Yes. We have known more than one to breed; but only a small percentage of free-martins breed—perhaps not more than one out of ten. As a rule, they never come in heat; but those which do are liable to prove fertile.]

AN INTERESTING LETTER AND SOME QUESTIONS.

THOS. MALCOLM, Bruce Co., Ont.:—"Find enclosed \$1 for renewal of the ADVOCATE. I am well pleased with the paper. No farmer can read one copy of it carefully without being benefited. I have been much interested in the farm-house plan competition. I always save such copies for future references. Though the cost of the first-prize house is beyond the means of the majority of Canadian farmers, yet there are some things in it that are left out of the plan of the most of farmhouses, and that they might have had at very little more expense, and would have added very much to their comfort all through life, but the fact is they never knew of such a luxury.

"Now there is a question I would like to see discussed in your paper, or at least the opinion of some reliable person who has had experience with heating a dwelling house with steam from a steam boiler stationed, say, one hundred feet away from the house. I think there are a good number of dairymen throughout Ontario who might well afford (and I think it would prove a profitable luxury) to build a dairy building either between the house and the barn or at a right angle to both, having it as near to both as the insurance company will allow, and place a, say, eight-horse-power boiler and engine in it. This engine, besides doing the work required to be done by it in the dairy, by using a wire rope or cable and pulley it could be used for a power for the barn, cutting ensilage or straw, crushing grain, pulping, etc., while on the other hand the dwelling house could be heated all the winter, and bath rooms could be supplied with hot water, which would be a very important item. Also a steam pipe might be laid into the stable, which would steam all the feed for cattle and hogs.

1. "What loss of steam would there be carrying it, say, one hundred feet? 2. Can it be carried better over land than underground? 3. What would be the cost per foot of covering the inch-pipe with asbestos, say 1 1/2 inches? 4. Are the "blowers" now made for elevating ensilage used anywhere for conveying cut straw and hay to different parts of the stables? Does it work well on a horizontal pipe. Would much less power be required?"

[In our Christmas number, just issued, reference is made in our description of Messrs. A. & G. Rice's dairying operations, on page 695, to a system of utilizing steam similar to that proposed by Mr. Malcolm. In addition to that we invite a free discussion of the subject in our columns, especially to the questions asked.

1. After the pipes get warmed up there is practically no loss of steam in carrying steam considerably more than 100 feet.

2. It is better to carry the pipes under the frost line than over ground. In arranging this it is necessary to allow for extension of the pipes endwise, which will take place to the extent of several inches when the pipes become heated, and recede to the original length when cooled again.

3. It costs from 10 to 15 cents per running foot to cover such a pipe as would be necessary in a system of this sort.

4. Blowers that elevate cut green corn successfully, will drive cut straw or hay a considerable distance through pipes in any position. It requires a little less power to blow dry chaff than green corn, but the position or slant of the pipe would make very little, if any, difference to the power required.]

STERILIZING OF MILK.

J. O'N., Little River:—"Would you be kind enough to let me know in your next issue in regard to the sterilizing of milk? I wish to know what would be the cost of a sterilizer that would sterilize about fifteen to thirty quarts of milk per day?"

[It occasionally happens that the term sterilization is used when pasteurization is intended. The former requires 212 degrees Fahr. of temperature, which kills all germ life; while 165 to 185 degrees Fahr. is the pasteurizing temperature, which it is claimed destroys all infectious bacteria, and many of the other sorts. Pasteurizing milk not only protects the consumer from infection from contagious bacteria, but it also appreciably increases the keeping quality of the milk. For a small quantity of milk, as is required to be treated by J. O'N., a satisfactory method would be to use a deep, narrow tin can, say eight inches in diameter, and sixteen to eighteen inches deep. To pasteurize the milk place it in this can and set it in a vessel of hot water near the boiling point. Use a floating thermometer in the milk, keep the milk stirred, and allow it to rise to as high a temperature as desired. For complete sterilization it should remain at 212 degrees for several minutes, but for pasteurization, which gives a relative freedom from bacteria, the milk should be held at 165 degrees for about twenty minutes.]

CANADIAN OR AMERICAN CORN.

J. C. K., Norfolk Co., Ont.:—"Would you kindly advise me which is the better corn for feeding hogs and cattle, the Canadian or American?"

[We are not aware that there is any appreciable difference though many of our large feeders prefer the American corn, especially what is called "old," being dry and not liable to heat in the bin, as is often the case with new corn. You will probably find it difficult to obtain Canada corn in sufficient quantity. Old corn is a cent or two dearer than new per bushel. We have found no record of tests a experiment stations to determine the comparative merits of Canadian and American corn.]

CHARACTERISTICS OF LONG-WOOLED BREEDS OF SHEEP.

SUBSCRIBER, Lambton Co., Ont.:—"What are the true points of the following breeds of sheep: Lincoln, Cotswold, Leicester? Which is supposed to be the largest breed? I would like a little information on the breeding, feeding and care of pure-bred sheep for show purposes.

[There is but little difference in the size of the best specimens of the three breeds when fed for show purposes. They are all large enough. There is but little difference in the quality of the wool in flocks where they have been carefully bred with a view to producing fleeces of fine fiber and of uniform quality all over the body. Leicesters and Lincolns have uniformly white faces and legs, and the former are free from wool on face and legs. Lincolns may have, and many do have, wool on forehead and legs, nearly as much as Cotswolds. The latter should have wool on forehead, and most of them have more or less wool on their legs, and their faces and legs may be white or gray or mottled.

The requirements for success in raising show sheep good enough to win are good, roomy breeding ewes, a vigorous ram, typical of the breed, with strong constitution and sex characteristics; lambs born in February or early in March, liberally fed with oats, bran, clover hay, roots and grass; the yearlings and older sheep shorn in March or early in April, and washed with, or dipped in, a solution of one of the prepared sheep dips on the market; a light feeding of grain during the spring months when grass is flush, and heavier grain-feeding, oats and bran principally, with a small proportion of peas and nutted oil cake when fresh pasture fails. When hot weather and flies come, keep in darkened shed during the heat of the day, feeding some succulent food, and turning out to grass in the evening.]

GAS LIME ON LAND.

S. N. CULVER, Norfolk Co., Ont.:—"I have taken your paper for a number of years, and I am very much pleased with it. I would like your opinion of gas lime. Is it a benefit or a damage to land?"

[Gas lime varies considerably in composition, but essentially consists of a mixture of slaked lime and calcium carbonate, together with sulphates and sulphites of lime. These latter compounds are injurious to plant life, so that gas lime, if applied to land, should be exposed to the air, the action of which is to convert these poisonous substances into sulphate of lime (land plaster). It should, if at all, be applied in autumn, but its value is so small that it is not worth hauling more than a few miles. In fact, except on sour soils or heavy clay, lime in any form is of doubtful benefit as manure.]

MARKETS.

FARM GOSSIP.

Co-operative Dairying in the Counties of Frontenac and Addington.

The second season's report of the Pitworth Cheese and Butter Co. shows a very satisfactory increase during 1899. Milk rec'd 1,025,585 lbs. from which 96,500 lbs. of cheese was made; cash rec'd \$3,159.15; the company were paid at \$1.50 per 100 lbs. for making \$1,447.63. Av. paid patrons per 100 for milk 75 cts. the average lbs. of milk for 1 lb. of cheese was 10.635, and the average sale for the season was 94 cts. per lb. for cheese. The company drew the milk, the stockholders deliver the cheese at the railway station.

Chatty Stock Letter from Chicago.

FROM OUR OWN CORRESPONDENT.

Following table shows current and comparative live stock prices:

Table with columns: Live Stock, Extreme prices now, Two weeks ago, 1898, 1897. Rows include Beef cattle, Hogs, Sheep, etc.

The general cattle situation is favorable to producers. Best ripe cattle would sell at \$7. None are coming. Actual receipts at five markets for 1899 with totals for 1898:

Table with columns: Markets, Cattle, Hogs, Sheep. Rows include Chicago, Kansas City, Omaha, St. Louis, St. Joseph, Total 1899, Total 1898, Increase, Decrease.

The date of the meeting of the Exposition Classification Committee has been changed from January 8 to January 23, to suit several members who could not be present before.

Mr. Chas. Gudgell says Shorthorn and Hereford breeders have about come to the conclusion that it is time for the breeders to stop fighting one another and present a solid front against their common enemy, the scrub.

Cattle feeders have evidently been in an unusual hurry to realize on their cattle. Buyers say there is considerable com-

plaint about the way cattle are "killing out." The high-priced cattle that are selling at top prices these days are dressing a smaller percentage than for years past. The cattle look all right on the hoof, but they are lacking and don't seem to be finished as they usually are.

The New Year's first week's receipts of cattle reached nearly 52,000, the largest for the first week of the year in over five years. A year ago this week only 33,017 were received. Prices during this week were the highest for January in fifteen years, or since 1885. The top for carload lots was \$6.41, against \$4.30 last January, and \$5 for a top in January, 1895. A lot of four head sold at \$6.65, and a bunch of 55 branded westerns of prime quality, 1,532 lbs., sold at \$6.00. Some Texas-bred and Texas-fed cattle sold at \$5.30 to \$5.50, the highest price on record for Texas cattle in January.

Here was a sample of one large business in the Chicago hog market: Drovers of packing hogs averaging 164 to 181 lbs. cost \$4.35; 220-lb. butchers, \$4.44; 224 to 229 lbs., \$4.41 to \$4.43; 135 lbs., \$4.33, and 88 lbs., \$4.

A hog-man says the average weight of hogs is lighter than usual for this season of the year, offerings being largely of last spring and summer pigs, weighing 180 to 230 lbs. He thinks prospects favorable for good hogs to sell here next week at \$4.25 to \$4.50.

A Chicago concern bought six "doubles" of sheep for export the past week, against 27 "doubles" the corresponding week last year. They cost \$4.50 the past week, or about 50c. more than a year ago.

The lot included 776 Western sheep, averaging 138 lbs., being the first sold here on export account since last June. The demand from this source will help the market later on. Western lambs sold this week at \$3.35, the highest in about five months, 65 cents higher than a week ago, \$1.25 higher than a year ago, and within 75 cents of the top for Western lambs during 1899.

Toronto Markets.

The light supplies for the last two weeks made trade a little more active, with prices steady. Well-bred and well-finished export cattle would command ready sale at good prices, but very few choice heaves are offered at present.

Export Cattle.—This trade shows a little more strength. Some dealers have bought their export cattle out of the feeders' hands and shipped direct to the seaboard. Heavy export cattle sold at \$4.00 to \$4.50 per cwt. Mr. W. H. Dean bought two loads of export cattle at \$4.12 to \$5.00 per cwt. Choice loads of export cattle sold at from \$4.75 to \$5.12 per cwt. Mr. T. S. Colwell sold eight cattle, 1,275 lbs. each, at \$5.00 per cwt.

Butchers' Cattle.—Choice butchers' cattle in demand; weighing 1,000 to 1,100 lbs. meet ready sales. They must be equal in quality to export cattle—well-finished, blocky animals—for top price, \$4.40 per cwt. Good butchers' cattle sold at from \$3.75 to \$4.00 per cwt. Choice butchers' cattle, 1,100 lbs. weight, in good demand, will fetch \$4.40 to \$4.50 per cwt. Mr. James Harris bought 80 mixed butchers', at an average of \$4.25 per cwt.

Feeders.—Choice well-bred feeders, weighing from 1,000 to 1,100 lbs. each, were in demand; the price firm on those offered, from \$3.75 to \$3.85 per cwt.; \$4.00 was paid for a few short-keep well-bred steers, eight feeders, weighing from 800 lbs. upwards, are wanted, at \$3.75 per cwt.

Stocks.—The stocker trade for Buffalo quiet. Yearling steers at \$2.00 to \$2.75 per cwt. Heifers, black and white, sold down to \$2.00 per cwt. One load of stockers averaged 500 lbs. per head.

Bulls.—Quite a number of stock bulls on offer, and sold at from \$2.75 to \$3.00 per cwt. A few choice export bulls reached 4c. per lb. Mr. B. McCoy, Thorndon, Ont., sold two bulls, 1,600 lbs., at \$4.50 per cwt.

Sheep.—The sheep trade is quite firm, at \$3.50 to \$3.75 per cwt. for ewes, and bucks, \$3.00; choice wethers, \$4.25 per cwt. We notice quite a few lousy sheep coming forward these last few weeks. Farmers should attend to dipping their sheep before attempting to fatten them, which would render their feeding an easier process. Not only that, but when cheap come to market itching and digging themselves, scab may be suspected and the trade quarantined.

Lambs.—Prices firm, at from \$4.00 to \$4.65 per cwt., with a trifle more for choice wethers for export, \$4.75 per cwt. Mr. S. Cook sold ten lambs at \$4.75 per cwt.

Calves were a poor lot. Very few choice veals on offer. They were in good demand, at from \$2.00 to \$2.50 per head, according to size and quality. Mr. W. Dunn bought nine calves at \$3.00 per head.

Milk Cows.—Fresh calved cows in good demand; springers wanted, at from \$25.00 to \$45.00 per head. Common and poor cows are not wanted; those on offer to-day dragged at from \$15.00 to \$25.00.

Hogs.—This market shows a slight falling off in deliveries for the past year. Complete returns are now available: 1899—January, 23,223; February, 21,313; March, 11,950; April, 11,664; May, 16,303; June, 22,747; July, 19,484; August, 22,623; September, 23,069; October, 20,691; November, 16,159; December, 23,192. Total—246,328. For the year 1899 there were delivered at the Western cattle market 240,268, against 304,194 for the year 1898, being a decrease of 60,706. Mr. W. Harris requests us to again inform farmers that if they will make their hogs fat they must expect lower price. Fully one-third of the hogs offered to-day were over 300 lbs., and were culled at \$3.50. Choice singers—that is, long lean bacon hogs of the right kind, not over 250 lbs. and not below 60 lbs.—were paid for at the top price of \$4.50 per cwt. Mr. A. Wiggins sold 45 hogs, unculled, at \$4.40 per cwt.

GRAIN MARKET.

Receipts of farm produce at the St. Lawrence market were large; 2,350 bushels of grain were delivered.

Wheat.—Firm; 350 bushels of red and white at 60c. to 70c., and 500 bushels of goose wheat at 71c. per bushel.

Barley.—A little firmer; 1,000 bushels delivered and sold at 45c. to 46c. per bushel.

Oats.—In good demand, and firmer, at 30c. to 31c. per bushel.

Seeds.—There is a good demand for choice seeds on this market, at the following quotations: Red clover, per bushel, \$4.25 to \$5.30; alsike, choice, per bushel, \$6.50 to \$7.00; alsike, good, per bushel, \$5.00 to \$6.00; white clover, good, per bushel, \$7.00 to \$8.00.

Hay.—Deliveries large; 40 tons per day for the last week, at from \$8.00 to \$10.00 per ton for timothy; mixed at \$9.00 to \$9.50 per ton.

Straw.—Easier at \$3.00 per ton.

Butter.—Offering small from farmers' waggons, at from 18c. to 20c. per lb.; very choice lb. rolls at 25c.

Cheese.—Market unchanged, at from 12c. to 12 1/2c. per lb.

Eggs.—New-laid eggs scarce, at 25c. to 28c. per dozen. Packed are quoted at from 15c. to 22c. per dozen; cold-stored (styled fresh) eggs are quoted at from 18c. to 30c. per dozen; No. 2 eggs at 15c. per dozen.

Poultry.—Receipts are very light, and demand not active. Turkeys are quoted at 9c. to 10c. per lb.; geese, at 6c. to 8c. per lb.; ducks, at 5c. to 6c.; chickens, at 5c. to 6c.

Dressed Hogs.—Market steady, and prices firmer. Select weights, in car lots, at \$5.25; in farmer's loads, choice bright stock, \$5.30 to \$5.50, according to quality. About 300 on offer, bought by Mr. Wm. Harris.

Hides.—The competition is still very keen, and the prices are kept firm or advancing. No. 1 green, steers, 60 lbs. and upwards, 11c. per lb.; No. 1 green, steers, 10c. per lb.; No. 1 green, cows, 10c. per lb.; No. 2 and 3, 9c. per lb.; calf skins, 10c. to 11c. per lb.; sheep skins, \$1.00 to \$1.10; wool, fleeces, 16c. per lb.; wool, unwashed, 9c. per lb.

We quote prices as follows: Export cattle, \$4.40 to \$5.12; butchers' cattle, \$3.87 1/2 to \$4.12; butchers' cattle, choice, \$4.25 to \$4.40; feeders, heavy, \$3.50 to \$4.00; stockers, \$2.00 to \$2.75; sheep, \$3.25 to \$3.65; lambs, \$4.00 to \$4.65; milk cows, \$15.00 to \$45.00; hogs, choice, \$4.50; hogs, thick fat, \$3.87 1/2; hogs, corn-fed, \$4.00; hogs, sows, \$3.00; hogs, stags, \$2.00.

January 11th, 1900.



A Sign in the Desert.

BY ELLA WHEELER WILCOX.

"Come, Alga, jump in; we are ready to start now." Mrs. Percival from the back seat of a stout travelling carriage spoke to a young girl who was dancing about one of several large covered ox-wagons in the rear.

"Let me go in the wagon behind Buck and Bright, mamma! I think they are the dearest cows!" answered the young girl.

"But they are not cows, Alga. They are oxen, and I think you would get very tired of their slow walk before night, and wish you were with us in the carriage."

"But Jack is going to ride in the ox-wagon."

"Only for a little while, dear; just for a mile or two."

"Well, let me stay with him," pleaded the young girl. "I am sure it will be much nicer than riding in the carriage all day."

"Let the child do as she wishes," interposed Mr. Percival at this juncture. "We can easily take her in with us when she tires of the novelty of the ox-cart."

Alga laughed with delight, and with the grace of a bird which flies upon a tree branch she sprang up beside her brother and the driver, in the great moving wagon, and the cavalcade set forth on the perilous journey.

The time was mid-June, 1849; the scene, the outskirts of St. Louis. A little company of 18 people were en route for Sacramento. Mr. Percival had been lured by the golden promises of the great west to abandon his comfortable home in the east and the competence of his mercantile business and to set forth on the dangerous overland journey to California with his wife, a daughter of 15, and a son two years younger. To the city boys and brood children this experience seemed full of unbounded delight. They exulted in the free, new life, as birds might exult when liberated from a cage and allowed to fly about at will.

When a halt was made that night and the tents were pitched, both Alga and Jack declared it had been the happiest day of their lives, and they sank into a profound sleep, to awake early the next morning with bright anticipations of further delights.

But before a week had passed something occurred which sobered the gay spirits of the children. Two hundred miles beyond St. Louis, in a little cove of sagebrush and greasewood, they came upon the skeletons of a man, a woman and a child bleaching by the roadside. Near by were the open graves in which the bodies of these poor emigrants, dying on their journey to a new land, had not been allowed to rest. The Indians had swooped down like birds of prey upon the new-made graves, excavated the bodies, stripped them of the blankets and clothing and left them to the vultures and the wild beasts.

Alga huddled closely at her mother's side during the remainder of that day, and Jack seemed strangely subdued. After this, each mile they traversed seemed to reveal some new and terrible sight or experience to our travellers. On awakening a few weeks later, Mr. Percival found that his carriage and horses had vanished. They had been stolen by the Indians while the weary emigrants slept. Added to this disaster, Dick, the driver, who had been ailing for several days, was found to be seriously ill with what proved to be cholera. He and six other members of the party died during the next ten days and were buried by the roadside.

Before the emigrant wagons were out of sight the bodies were exhausted and stripped by the savages. Swift was the punishment, however, for the garments which enveloped the dead were impregnated with the germs of disease, and hundreds of Indians fell under the scourge of cholera. Ignorant of the cause, the surviving savages felt a superstitious terror of this band of emigrants, and believed them to be possessed of some spell which could bring disaster to their enemies. There was no fear of further disturbance from this tribe of savages.

The tedious weeks rolled on. Mr. Percival now drove one of the ox-wagons and Jack the other. They were passing over the great alkali plains, where pure water was more precious than liquid gold. The supply they had taken at the last clear stream was exhausted, and the emigrants were nearly fainting with thirst, when the rush and ripple of swiftly-flowing waters struck their ears, and they beheld the shores of the Humboldt River. Refreshed and strengthened, they camped there for the night, thinking to cross the stream early in the morning.

The light of dawn, however, revealed the fact that the river was so swollen by the melting mountain snows that to ford it was impossible. Mr. Percival and two other men who were strong swimmers decided to try the depth of the river. They found that the waters only reached their chins and were, therefore, obliged to abandon the wagons and carry over all those of the company who could not swim or wade, as well as all goods which could be strapped upon their backs and upon the animals. Jack distinguished himself on this occasion by swimming the river three times with packages strapped on his shoulders. Alga and her mother were carried across upon the backs of the men. To the animals were tied ropes, and the men on the opposite banks of the river pulled, coaxed and hauled them through the shallow places, where the mud and quagmires prevented them from swimming.

Down across the bottom lands, white as snow with the saleratus deposits of the water, across the great desert our little party started. The sand was knee deep in places. The pitiless sun was unclouded. The road was lined with abandoned wagons containing trunks and boxes of clothing, tools and machinery, bearing written labels, "Take what you want." But our footsore and weary travellers could carry no heavier loads than those under which they were already fainting and falling by the way. Day by day their numbers grew less. Mrs. Percival and Alga were the only surviving women now. Since crossing the Humboldt River they had found no water to drink, and the small quantity which they had been able to pack upon the oxen was almost exhausted, and the Carson River, for which they were in search, might be many miles distant still.

Mrs. Percival had been very weak for some days, and the little family of four had fallen behind the remainder of the party, and then suddenly Mr. Percival grew delirious and dropped down by the wayside, moaning, "Water! water!"

Mrs. Percival called Alga and Jack to her side, and said solemnly: "Children, your father has his death sickness. I want you to kneel and pray with me. We must abandon all thoughts of going on and prepare to die together."

They all knelt in silent prayer for a moment, only their sobs being audible. Then Alga's young voice pierced the air and shot like an arrow straight up through the sultry air to the brazen skies. "Oh, God, save papa! Save mamma! Save Jack and me! Send us water and send us help, and we'll serve you forever and ever, time and eternity. Amen!"

"So thirsty!" moaned the sick man. Why won't someone give me a drink? Can't you see it there all around you—oceans of water everywhere!"

"Moo-oo, moo-oo!" bellowed Buck, and lifted his nose and slowly sniffed the air. Then Bright did the same thing, and Spot and Speckle followed suit.

Alga sprang to her feet, her eyes ablaze with sudden hope, her little brown hands clasped eagerly.

"Oh, mamma! Oh, Jack! Did you hear that! Did you see that?" she cried. "We are saved—saved! God has heard us already!"

"Hear what, see what, child?" replied her mother, wondering if Alga, too, was seized with the delirium of fever.

"Oh, mamma, mamma," continued the young girl, "listen—look!"

Again there was the long, plaintive "Moo" of the oxen. Again they lifted their noses and sniffed the air. Alga watched them, her face radiant with joy.

"Mamma, dear mamma," she cried, "I tell you we are saved. Dick, the driver, told me that cows—oxen, I mean—could smell water ever and ever so far away when they were very thirsty; that as soon as they smelled it they lifted their noses and sniffed and moored a long, low moo; that it was a never-failing sign, and you had only to follow the cattle and you would find water. All four of the animals have done that twice. See, they are doing it again."

"But there is no one to go with them. Your father is ill, dying, and we cannot leave him." The discouraged woman's despondent words were broken in upon by the clear, firm voice of her young daughter.

"Mamma, I prayed to God for water, and he answered through a sign—just as he used to answer in Bible times. Buck and Bright were the instruments He used to make me understand that He heard my prayer. Now Jack and I must take the cattle and find the water. You must be brave, mother, and let us go, and trust it all to God."

"But you will have to walk, and it may be miles and miles—"

"It can't be over ten—I am sure Dick said ten at the most, mamma. And Jack and I will be together, and God will be with us, and with you, too, little mamma, for He can be in two places at once. Oh, yes, in ever and ever so many places at once."

It seemed strange to hear the young girl, scarcely more than a child, assuming the part of comforter and counsellor to her mother. But Mrs. Percival was strong physically, and the hardships and sorrows of the journey had completely wrecked her nervous system, while Alga was like some young shoot which a heavy rainstorm forces prematurely into blossom. The last month had made a full-grown woman of the girl, mentally and spiritually. It was she who was the mother now and Mrs. Percival was the child.

"Good-bye, dear mamma. Be brave and pray for us all," Alga called out as she set forth on her strange journey. She was holding Buck and Bright by ropes tied to their yokes as she spoke, and the forced smile on her lips hid poorly the tears in her eyes. Mrs. Percival stood weeping, with her hands clasped over her eyes, and above the sound of her sobs rose the piteous moan of the sick man calling for water.

"Good-bye, mamma. Cheer up. We'll soon be back," Jack called out as he followed his sister with Spot and Speckle.

"My poor, poor children, I shall never see you again," wept Mrs. Percival. Far better stay, and let us all die together."

"Mamma, God has sent us a sign, I tell you," cried Alga, almost sternly. "How can you doubt Him so? As sure as the sun is in the heavens, Buck and Bright will take me to the water. It may be only two or three miles away. It may be even nearer. Now, cheer up and moisten father's lips with the vinegar from the pickle bottle. Good-bye, Buck and Bright are anxious to be off. We will soon return, dear mamma."

The day was past noon when the journey was commenced. They proceeded slowly at first, for the cattle were weak and the sultry September day. But as the evening approached they revived; and ever and anon they lifted their noses and sniffed the air and gave utterance to their plaintive cry and accelerated their gait. It grew dark and Alga's feet were bleeding and sore, and she was almost fainting with fatigue, when Jack called her, "Alga, Spot is dying. He has fallen down and I cannot get him up. What will he be rested. If he dies, leave him and follow on with Speckle. I dare not stop till the oxen come to water. I think we are nearing it. Buck seems to sniff oftener now." So she plodded on, thinking her brother was not far behind her. By and by the cattle stopped and lay down exhausted. Alga dropped beside them and fell into a deep sleep. When she woke it was dawn, and the oxen were moaning and sniffing the air again. There was no sign of Jack far or near. Mile on mile of desert land stretched before and behind her, and not a human being was in sight. A sense of awful desolation seized upon her. She fell upon her knees, unable to form her prayer into words. She could only cry, "O, God! O, Christ!" and leave the Father and the Son to understand her need. She had some dried apples and bread in the bundle which she carried slung over her shoulder. This bundle contained several bottles in which she was to convey water back to her parents. She ate some of the fruit and bread; then, putting her arms about the neck of her oxen, she kissed them both between their honest brown eyes and urged them on their way again.

All day, all day, beneath the burning sky and over the arid plains, she staggered on, only pausing when the exhausted animals stopped to breathe, and while they lolled and panted Alga knelt under the burning desert skies and sent up her one cry, "O, Father, O, Son!" and then she stumbled on again.

Sometimes she sank to her knees in the sand. Thinking she could walk better without her shoes, she took them off, but the pain in her feet grew so intense she was obliged to replace them and limp along as best she could.

Once she clasped an arm about the neck of either animal and pressed her cheek first to one patient neck, then to the other as she sobbed out between her tears, "Oh, dear Buck! Oh, dear Bright! My heart is so sore for you. You haven't any faith or any knowledge of God's promise, and it must be some time before you know for you than for me by far. But you were the instruments He used to send me a sign, and I know he will take care of you as well as of me, you dear, dear comrades."

The second day was growing dark when she felt a sudden tightening of the ropes she held and a sudden straining forward of the ox team, and then, with a mad rush and a plunge and a wild bellowing they drove forward, dragging her headlong to the banks of a stream, the Carson River, where she sank, weeping, laughing, praying, praising God, almost mad with the ecstasy of the sound, the taste and touch of water—blessed, beautiful water.

It was not until dawn that she set forth on the return journey. Her body was refreshed, but her heart was tortured with the fear that she should find herself too late to bring succor to her parents, and that her brother was either lost on the plains or already dead. There was no trace of him on the homeward route. As the young girl drew near the spot where she had left her almost dying parents more than three days before her limbs refused to move at her bidding. Again she fell upon her knees, and now her prayer found words: "Oh, God, let me find them alive. Let me hear their voices once more. I cannot bear this awful silence longer."

Then she arose and went on, on and on until she looked straight into her mother's eyes. But Mrs. Percival was babbling now in delirium and did not know her daughter, while the father, lying white and wasted by her side, was asking feebly for "Water, water."

With a wild sob Alga clasped them both in her arms as she poured out the coveted beverage and pressed it to their burning lips. But it seemed at best only a brief respite for life for all of them. The supply of food would not last more than another day and the supply of water she had brought but two or three, even by the most sparing use of it. As the second night drew on, for the first time the young girl's courage and faith failed her. She dropped on the sand beside her parents and wept aloud. "God has forsaken us!" she cried. "Dear Lord Jesus, receive our souls!"

And just then there were a tramping sound of feet and a noise of voices, and she sat up and listened.

"It is the Indians coming to massacre us," she said. That is to be the end of it all. Pray God it may be swift."

But the next thing she knew there was Jack leaning over her—Jack, picked up and brought back by the relief party sent

out from Georgetown to look up and assist the delinquents. And they brought food and medicine, horses and carriages, and every one of the four Percivals reached Sacramento alive, and Speckle and Buck and Bright as well as the rest. Only poor Spot was left by the wayside.

Afterward, when Alga was a famous society queen, she spoke with tears in her eyes of her two valued pets who had recently died of old age—Buck and Bright. But Alga and Jack are living to-day, and so are their parents, for every word of this story is true and it happened just as I have told it.

Our Library Table

"JOHN KING'S QUESTION CLASS." Charles M. Sheldon.—This author and speaker is so well known, "In His Steps" and other of his works have been so widely read, that introduction seems unnecessary. This is a cleverly-conceived book, a story being woven in with the question class in an interesting way. John King, an earnest minister, sets apart an evening in each week at his home for the reception of young people connected with his church; not girls and boys exactly, but those old enough to take their place in society. The plan was that each member should write (and sign) a question on any subject whatever, religious or secular. These questions were left with John King, and answered by him the following week, not, however, mentioning the names of his questioners, although in many instances they were guessed, because all these young people knew each other. This book is thoroughly wholesome, and should find a place in our households, especially where there are young people. John King is a fine type of a man, pure in word and deed, and thoroughly in sympathy with the many perplexities which often beset men and women when they come in contact with the world. He believes in youth and its need of recreation, and is the dear and valued companion and friend of his question class. Published by W. J. Gage & Co., Toronto.

"MORE CARGOES." W. W. Jacobs. "SUSPENSE." Henry Seton Merriman.—Anyone who read and laughed over "Many Cargoes," lately reviewed in our journal, can have a few more laughs over this most amusing book. Mr. Jacobs possesses an inexhaustible fund of anecdote, which he tells in the funniest manner. When the workers come home tired, let them have their tea-supper, and read aloud or to themselves "More Cargoes."

In "Suspense" Mr. Merriman has given us a very remarkable book. At first the story seems to be somewhat drag, the actors are almost too quiet. All this, however, is for a special purpose, and the masterly description of the Russian siege of Plevna brings to a climax a story in which the reader seems suddenly to have a vital interest. The author's thorough familiarity with human nature is here shown, as in his fine novels, "The Sowers," "With Edged Tools," etc. Mr. Merriman has a peculiar faculty of letting his readers become acquainted with his characters gradually. Often there is no detailed personal description, but it all seems to dawn upon one, and you see the people just as he means you to see them.

Published by Copp, Clark & Co., Toronto. The Canadian Almanac for 1900, brought out by this firm, contains a large amount of information. Price 25 cents. FELIX.

Domestic Science.

There is a movement on foot in Toronto to establish a School of Domestic Science, and we heartily endorse the scheme as a decided step in the right direction. To quote from a leading paper:

"Such a school, in our opinion, is as necessary as the Law School, the Technical School or almost any other educational institution in the city. There is a proper or scientific way of preparing food, of ventilating and furnishing houses, and there is a slovenly, unscientific method of performing these services. Between the two there is all the difference in the world. Domestic science is, unfortunately, but very imperfectly understood and practised by those in charge of our households. The science of cooking is almost a liberal education in itself, but how many women are there who have studied the question from an economic or gastronomic standpoint? Sanitation in the household is a subject upon which books might be written without exhausting the question. Very few houses, however, are furnished with a view to securing the highest degree of health for their inmates. It is said that the taking of a bath invigorates the body as much as three hearty meals. How many workmen are aware of the fact? The house is the place where we spend the bigger part of our time. No kind of education is more desirable than that which concerns our health, and the management of the household as much to do with our health and happiness as any other factor in life. We do not expect that a college of domestic science will bring about the millennium in the household, but it will help to ameliorate present conditions. If such a school can elevate domestic service to a higher level, so as to attract a more intelligent and a better class of girls, it will have ample justification for its existence."

No Great Difficulty.

A greedy boy is capable of clever misunderstandings.

"No, Willie, my dear," said the little boy's mother, "no more cakes to-night. It is too near bedtime, and you know you can't sleep on a full stomach."

"Well," said Willie, "but I can sleep on my back."—Harper's Round Table.

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The Dragon Tamers.

(Continued from page 17.)

When all the town children brought their bread and milk, Tina emptied it into the wash-tub, and when the tub was full she knocked at the iron door, and said: "May we come in?"

"Oh, yes," said the dragon; "it's very dull here."

So they went in, and with the help of nine other children they lifted the tub in and set it down by the dragon. Then all the other children went away, and Tina and Johnnie sat down and cried.

"What's this?" asked the dragon, "and what's the matter?"

"This is bread and milk," said Johnnie; "it's our breakfast."

"Well," said the dragon, "I don't see what you want with breakfast. I'm going to eat everyone in the town as soon as I've rested a little."

"Dear Mr. Dragon," said Tina, "I wish you wouldn't eat us. How would you like to be eaten yourself?"

"Not at all," the dragon confessed, "but nobody will eat me."

"I don't know," said Johnnie, "there's a giant—"

"I know. I fought him, and beat him—"

"Yes, but there's another come now—the one you fought was only this one's little boy. This one is nine times as big."

"And the mayor told him where you are," Tina said, "and he is coming to eat you as soon as he has sharpened his big knife. The mayor told him you were a wild dragon, but he didn't mind. He said he only ate wild dragons—with bread sauce."

"That's tiresome," said the dragon, "and I suppose this sloppy stuff in the tub is the bread sauce?"

The children said it was. "Of course," they added, "bread sauce is only served with wild dragons. Tame ones are served with apple sauce and onion stuffing. What a pity you're not a tame one; he'd never look at you then," they said. "Good-bye, poor dragon, we shall never see you again, and now you'll know what it's like to be eaten." And they began to cry again.

"Well, but look here," said the dragon, "couldn't you pretend I was a tame dragon? Tell the giant I'm just a poor, little, timid, tame dragon that you kept for a pet."

"He'd never believe it," said Johnnie. "If you were our tame dragon we should keep you tied up, you know. We shouldn't like to risk losing such a dear, pretty pet."

Then the dragon begged them to fasten him up at once, and they did so. Then they went away and told the people what they had done, and Johnnie was made mayor, and had a glorious feast, with nothing in it but sweet things, for all the children in the town.

This was all very well for Johnnie and Tina; but if you are kind children you will feel sorry for the poor deceived, deluded dragon—chained up in the dull dungeon, with nothing to do but to think over the shocking untruths that Johnnie had told him.

When he thought how he had been tricked, the poor dragon began to weep, and the large tears fell down over his rusty places. And presently he began to feel faint, as people sometimes do when they have been crying, especially if they have not had anything to eat for ten years or so.

Then the poor creature dried his eyes and looked about him, and there he saw the tub of bread and milk. So he thought, "If giants like this damp, white stuff, perhaps I should like it too," and he tested a little, and liked it so much that he ate it all up.

The next time the tourists came, and Johnnie let off the colored fire, the dragon said, shyly: "Excuse my troubling you, but could you bring me a little more bread and milk?"

So Johnnie arranged that people should go round with carts every day to collect the children's bread and milk for the dragon. The children were fed at the town's expense on whatever they liked.

They ate nothing but cake and other sweet things, and they said the poor dragon was welcome to their bread and milk.

When Johnnie had been mayor ten years or so he married Tina, and on their wedding morning they went to see the dragon. He had grown quite tame, and his rusty plates had fallen off in places, and underneath he was soft and furry to stroke. So they stroked him.

And he said, "I don't know how I could ever have liked eating anything but bread and milk. I am a tame dragon now, aren't I?" And when they said "Yes," the dragon said:

"I am so tame, won't you undo me?"

Some people would have been afraid to trust him, but Johnnie and Tina were so happy on their wedding morning that they could not believe any harm of anyone in the world. So they loosed the chains, and the dragon moved off down those mysterious steps into the darkness. In a few minutes he returned, carrying a bag of gold in his mouth.

"It's no good to me," he said; "perhaps you might find it useful. Then he fetched more and more and more, till they told him to stop. So now everyone in the town was rich, and they all got rich without working, which is very wrong. But the dragon had never been to school, as you have, so he knew no better."

As the dragon came out of the dungeon, following Johnnie and Tina, he blinked his eyes as a cat does in the sunshine, and he shook himself, and the last of his plates dropped off, and his wings with them, and he was just like a very, very extra-sized cat. And from that day he grew furrer and furrer.

"The Eavesdropper."

Now, this is a terrible state of affairs. But you see, if there occurs a sudden lull in the music, little Sissy wonders what it means, and hearing perhaps one or two mysterious words which she doesn't quite understand, she thinks she would like to hear a few more until she *does* understand! Well, it is a pretty picture. Nearly all pictures dealing with the "old-new" story are pretty, and we hope no great mischief will accrue through this childish yet wise-looking little Eavesdropper. The artist has cleverly depicted a decided likeness between the sisters, with the difference of expression—the one speaks of young love's dawn, the other of childish astonishment and curiosity.

MINNIE MAY'S DEPARTMENT.

MY DEAR NIECES,—

We have got the key of 1900, and with it we have unlocked the door of the New Year. Standing on the threshold, can we help wondering what this New Year may contain for us—what doors its key may unlock in the future? The word *key* is very small, but it opens the door into an extensive subject. Mythology tells us that Janus, an ancient Roman deity, was represented carrying in his hand a key, as he was supposed to have invented doors. Cybele, a goddess whom the Greeks believed to be the mother of the gods and had locked up in her bosom the keeping of every kind of seed, was also represented as sitting with keys in her hand. So we find the key used in older times as a symbol of safety.

Keys play a prominent part in history, too. In feudal days, when one chieftain made war with another, the vanquished noble reluctantly gave up to his foe the keys of his castle. The keys of besieged cities, too, were unwillingly delivered over to the conquerors, who received them triumphantly. Every one of my nieces knows how Mary Queen of Scots escaped from Loch Leven Castle. This castle was built on an island in the middle of Loch Leven, and in one of its dismal dungeons poor Mary was a prisoner. It was the custom every evening for the keeper to have the key of that particular cell placed beside him at supper. But one evening the page, while attending to his master's wants, apparently inadvertently dropped a napkin on the key, and when picking up the napkin he also picked up the key unnoticed by any one. When he was free, the page, George Douglas, speedily released Queen Mary and rowed her across the loch to a place of safety. It is said that he dropped the stolen key into the waters of the loch. The key of the Bastille, that terrible old French state prison, may still be seen at Mount Vernon in the old home of Washington, who received the famous key from Lafayette.

Who has not read in childhood days the thrilling story of Bluebeard? Who has forgotten his blood-stained key? What schoolboy does not know Jack Shepherd, who defied all keys, and came and went as he pleased and when he pleased? Do my nieces recollect how Queen Mab, of fairy-tale fame, with her coach and six—"six white mice and their silver bells"—used to punish little girls who said what was not true?

"For if you tell her a fib, my dear, She'll fasten a door-key to your ear."

Talking of youthful days makes us blushing remember the bad use we made of the poor word *key*. Such as, which is the most stupid key? The don-key. The meanest key? Flun-key. The most mischievous key? The mon-key. The Christmas key? Tur-key. Some of us even whisperingly asked which key the Scotchman drank. Now confess, girls, has the word *key* never, never tempted you to pun?

Some of my nieces are musical, and of course their thoughts are upon musical keys. How much are we indebted to musicians such as Bach, Handel, Beethoven, Mendelssohn, who by touching their glorious keys have unlocked such wonderful immortal harmonies! How many darkened, imprisoned souls have these set free with the keys of their heavenly gift! Away back as far as the days of King Saul, we read of David, the sweet singer of Israel, touching the keys and producing the soothing melodies which refreshed the king in mind and body, and expelled "the evil spirit" which troubled him.



"THE EAVESDROPPER."

and he was the beginning of all cats. Nothing of the dragon remained but the claws, which all cats have still, as you all know.

And I hope you see now how important it is to feed your cat on bread and milk. If you were to let it have nothing to eat but mice and birds, it might grow larger and fiercer, scallier and taller, and get wings, and turn into the beginning of dragons. And then there would be all the bother over again. E. NESBIT.

Lost.

What! lost your temper, did you say? Well, dear, I wouldn't mind it; It isn't such a great loss— Pray do not try to find it.

'Twas not the gentlest, sweetest one, As all can well remember Who have endured its every whim From New Year to December.

It drove the dimples all away, And wrinkled up your forehead, And changed a pretty smiling face To one—well, simply horrid.

It put to flight the cheery words, The laughter and the singing, And clouds upon a shining sky It would persist in bringing.

And is it gone? Then do, my dear, Make it your best endeavor To quickly find a better one, And lose it—never, never!

Bilkins—"I know what I want." Filkins—"Then you must know a great deal."

Judge—"You are accused of not supporting your wife." Prisoner—"But, Your Honor, you don't know my wife. She is insupportable."

How sweetly, too, sounds the keynote of song:

My father he has locked the door,
My mother keeps the key;
But neither bolt nor bar shall keep
My own true love from me.

They say "Love laughs at locksmiths," and my nieces need not be reminded of the many, many tales in which love triumphed over all the plans of parents and guardians to keep the lovers apart. You know the story of the old-fashioned blue Willow Pattern plate; how the maiden was stolen by her lover in spite of the father's precaution of locking up his daughter for safety.

How many secret hidden keys there are which could unlock many a story in the lives of those around us! Many a carefully-locked box could, if opened, reveal what would explain many a mystery; would disclose faded photographs, flowers once fragrant and fresh, letters yellowed by age, and many another souvenir of the "days that never shall return." Sacredly guarded secrets are these, hidden away from the common gaze, and jealously concealed. Let us turn away from them gently, and not seek to enquire too closely. We can only guess about them, and so we lock them up again with a sigh of sympathy. Such keys often hold the secret of a life, and perhaps explain the outwardly cold, cynical and bitter man or woman.

Now that the door of the New Year has been unlocked and thrown open, let us step in and all do our best to make the most of this year, to spend it in such a way that we shall not be ashamed at its close to show what it contains; that we shall not feel as if we should like to gather up its events and place them in the casket of oblivion, locked with the key of forgetfulness.

But it is time for us to retire now, so we shall quietly close the door and turn the key.

Your loving old Auntie,
MINNIE MAY.

THE QUIET HOUR.

From Darkness to Light.

"There is no unbelief!
Whoever plants a seed beneath a sod
And waits to see it push away the clod,
He trusts in God.
Whoever says, when clouds are in the sky,
'Be patient, heart; light breaketh by and by.'
Trusts the Most High.
Whoever sees, 'neath winter's field of snow,
The silent harvest of the future grow,
God's power must know.
Whoever lies down on his couch to sleep,
Content to look each sense in slumber deep,
Knows God will keep.
There is no unbelief!
And day by day and night unconsciously,
The heart lives by that faith the lips deny—
God knoweth why."

This has been called an age of unbelief; not without reason, perhaps, for men are more bold than they were in the open expression of infidelity. Still, it is easier to fight an open foe than a secret one, and a profession of faith joined to an utterly irreligious life probably does more real harm than the daring statements of acknowledged unbelievers.

"Thy doubt outspoken may perchance pass on
To pure faith. The fault that saps the life
In doubt half-crushed, half-veiled; the lip-assent
Which finds no echo in the heart of hearts;
The secret lie which, conscious of its guilt,
Atones for falsehood by intenser zeal."

Certainly, if it is an age of doubt; it is also an age of faith. Some people fancy that Christianity is out of date. Is it? Is any other subject more alive? Is any other discussed year after year with more eager interest? How many writers and speakers are throwing all their force into the battle against evil? How many lives are devoted to the cause of Christ? We hear of a few men who are openly opposing it, but only God can count the number of names enrolled under His banner.

I don't intend, to-day, to speak of unbelief generally, but particularly. Some of you may possibly be trembling on the edge of the dark road of Doubt, longing for a gleam of light, feeling that you would give anything to have the untroubled faith of childhood back again. Or, sadder still, you may be fancying yourself emancipated from superstitious belief, thinking that your eyes have been opened, when in reality you have closed them to eternal truth. To this latter class I do not speak. Before very long they will find out that man must have faith, or he can never satisfy the deepest instincts of his nature. We are all religious at heart. A man may laugh to scorn the idea of a future life, but God knows how to teach him better. Let him stand by the coffin of an only and dearly-loved child, or a wife who may be dearer still. Will he laugh at the hope held out to him then?

But I should like, if possible, to lend a helping hand to those who do not know the value of faith; to those who are seeking after God and yet have not found Him. Perhaps you fancy that others have not really found Him either; that they do not, cannot feel sure of Him; that they only hope death does not end everything, without feeling any certainty about it. Now, to begin with, I wish to set you right on that point. Faith is not darkness, it is light. God does reveal Himself to men even in this life. It was not only St. Paul who could say positively, "I know Whom I have believed." This grand certainty, this manifestation of God, is not left to chance. It is offered to all, on certain conditions. Hear our Lord's words: "If any man will do His will, he shall know of the doctrine, whether

it be of God." You see the offer is not restricted to a few favored individuals—"any man." It is not an offer of an uncertain hope—"he shall know." The condition is simple obedience—"do His will." If your faith is weak, the best cure is not study of Christian Evidences, but active service. Obey God, and the darkness of doubt will surely fade away; live for Him, and you will learn to love Him.

A learned infidel may assail a poor ignorant Christian with arguments which he cannot answer; and yet, if he knows God—a very different thing to knowing about God—his faith will not be shaken in the least. It does not rest upon reason, although it may draw reason up after it. A blind man might easily bring reasonable arguments against the possibility of there being a sun in the sky. He might say it could not go on burning for ages without being consumed, it could not be hung up in space without support. Suppose he tried to convince even a little child with such arguments, would he have much chance with one who could see? He might convince a person who was blind like himself, but anyone else could say confidently, "I don't understand how it can be possible, but I know it is so."

Some people are spiritually blind, and to them God is invisible; while others can and do see Him with the eye of faith. One cause of this blindness is a lack of inward purity. "Blessed are the pure in heart, for they shall see God." Are you searching for Him without success? Look to your own heart. If you are outwardly obedient and yet are not pure and holy in thought, then you need not wonder if God is invisible to you. Are you proud and self-righteous? He dwells with Him "that is of a contrite and humble spirit."

If you would know God, then you must serve Him, and continue to serve Him. Grow careless and disobedient, neglect the praise and worship due to Him, and you are leaving the door wide open for unbelief to come in. If your faith is weak, and you begin to doubt God's love, remember that our Lord has promised to manifest Himself to those who keep His commandments. If you are really in earnest about seeking Him, you will surely find Him. Leave the darkness of doubt for the path of obedient service, which is a path of light shining ever more and more until we come out into the full sunlight of God's presence.

Don't wait to prove your belief by argument. Live it; and you will soon find that doubt has fled, as darkness must always do when Light comes.

"I have a life with Christ to live,
But, ere I live it, must I wait
Till Learning can clear answer give
Of this or that book's date?
I have a life in Christ to live,
I have a death in Christ to die—
And must I wait till Science give
All doubts a full reply?
Nay, rather while the sea of Doubt
Is raging wildly round about,
Questioning of life and death and sin,
Let me but creep within
Thy fold, O Christ! and at Thy feet
Take but the lowest seat,
And hear Thine awful voice repeat,
In gentlest accent, heavenly sweet,
'Come unto Me and rest';
Believe Me and be blest!"

HOPE.

How to Dry Wet Shoes.

First, wipe off gently with a soft cloth all surface water and mud; then, while still wet, rub well with kerosene oil, using for the purpose the furred side of Canton flannel. Set them aside till partially dry, when a second treatment of oil is advisable. They may then be put in a conveniently warm place, where they will dry gradually and thoroughly. Before applying French kid dressing give them a final rubbing with the flannels, still slightly dampened with kerosene, and your boots will be soft and flexible as a new kid, and will be little affected by their bath in the rain.

Puzzles.

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

1—CHARADE (phonic, two words).

I am a rancher of the West,
So one fine morning, looking my best,
I went to that busy town, Se-attle
To see a drover about some cattle.
I wended my way to the drover's house,
And, looking as sleek and smart as a mouse,
I knocked at the door of his handsome lair.
'Twas opened by his daughter fair.
One, two, three, lovely she gave me a scare,
As she sweetly told me to take a chair.
I did not sell many cattle that day,
But mentally vowed as I drove away
That she was the prettiest girl I had met,
And how I'd woo her and have her yet.
So every week I drove to Se-attle,
Called at her house, but not to sell cattle.
I wooed her and thought her far sweeter than honey,
She said she liked me, but, I found 'twas my money.
For a handsome and wealthy man came to Se-attle,
And met the fair daughter of the man who bought cattle.
Three now they are married and gone on their "moon."
One two my sweet courtship is ended full soon.
And now, dear puzzlers, 'tis my fondest whim
To take complete and two three him.

ROLLY.

2—REBUS.

A true saying is suggested by this illustration.



CARNATION.

ROLLY.

3—DOUBLE ACROSTIC.
(Words of equal length.)

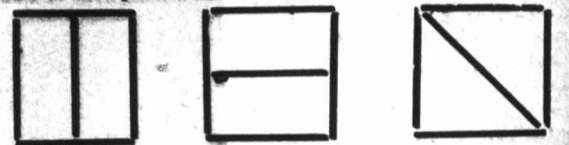
1, A piece of money; 2, an Irish acclamation; 3, a runner; 4, a day (phon.); 5, receives; 6, correct; 7, a kind of engine; 8, flavor; 9, covering; 10, hatred; 11, above your head; 12, to please; 13, found on a door; 14, short; 15, bright.
Primals and finals will name something attractive, useful, and interesting.

4—A DOZEN RINGS.

What ring makes a pleasant sound?
" " joins two together?
" " is a useful article?
" " adorns the ladies?
" " tells what prima donnas do?
" " tells what boxers do?
" " belongs to the brave?
" " belongs to the mother?
" " is found in the water?
" " is done in most houses?
" " is a nuisance?
" " is now found in South Africa?
" " "ARRY 'AWKINS."

5—A MATCH PUZZLE.

Form three squares, each with four matches. Then in the center of each place a fifth match, as shown:



Of these fifteen matches you are to take away six and still leave ten.
F. L. S.

6—TOWNS AND CITIES.

1—What town is an inexperienced nobleman?
2—What town is to take a province by surprise (abbr.)?
3—What town is a king's weight?
4—What town is a modern fortress?
5—What town is to crush a writer (phonic)?
6—What town is a quiet resort (phonic)?
7—What town is a colored trench?
ROLLY.

7—A MENAGERIE.

What animal will name a noted inventor?
" " will name two vowels?
" " means to worry?
" " is a man's name?
" " is to fool with?
" " fish means to beat?
" " is a fisherman?
" " is an expert man?
" " means restraint?
" " is often used as an ornament?
" " bird is a river in Italy?
" " is a kind of fish?
" " is a township officer?

Answers to Dec. 1st Puzzles.

1—Where-here-ere.
2—Renew your subscription.
3—A distinguished author.
4—Flap, Rosa, aver, nook, cham, idea, shin—Francis Parkman.
5—Bloemfontein, Pietermaritzburg, Cape Colony, Natal, Johannesburg, Pretoria—Buller.
6—He has more than he wants, and he wants more than he has.
7—Stair (stare) car-pet.
8—Kit Kennedy, S. R. Crockett.
9—Anti, lead, folly, real, easel, dress, Toronto, elf, neat, nigh, Yale, Sark, Obi, Nau, strong. Alfred Tennyson, Idylls of the King.
10—A cow is worth five sheep.

SOLVERS TO DEC. 1ST PUZZLES.

"Jack & Jill," "Diana," "Williwil," "Rolly," "Arry 'Awkins," Roy M. Hunsley, Florence Kidd.

ADDITIONAL SOLVERS TO NOV. 15TH.

"Williwil."

Unfortunate Illustration.

An English journal tells a story, true or invented, to show the danger into which public speakers run when they indulge in untried object lessons.

The speaker in the present instance was a Tory who was addressing a large audience in Scotland. In the course of his argument he took from his pocket a nut and held it up between his fingers.

"Now, my friends," he said, "this nut represents the whole church question. The shell is the Free Church, good in its way, but not the best of things. Now crack the shell, and you get the Established Church."

At the word he cracked the nut, but, alas! it was rotten, and the orator was overwhelmed with derisive cheers.

Camphor Ice for the Hands.

Camphor ice, which is made with olive oil, is an old and tried family remedy for rough hands, and is easily made. Take three drams of camphor, three of white beeswax, and three of spermaceti. Add two ounces of sweet oil. Put the mixture into a jar, set in a saucepan of boiling water, and let it melt into a smooth mass. It will be white and almost translucent when cold. While it is in a liquid form, pour into little jars.

GOSSIP.

AN IMPORTANT COMING SALE OF SHORTHORN CATTLE.

Owing to the lamented death on the 7th of this month of Mr. John E. Birrell, of Mossboro' Ont., who was accidentally killed by a Grand Trunk Railway train near his home on that day, we are authorized to state that on or about March 20th (exact date to be announced in our next issue) the whole of the stock, implements, grain, etc., on the farm at Mossboro' will be sold by public auction. The cattle stock consists in part of 25 head of high-class, Scotch-bred Shorthorns, together with which will be catalogued 10 two-year-old heifers and 10 yearling bulls from the well-known herd of Mr. David Birrell, of Greenwood, Ont., father of the deceased young man, making in all 45 head. The sale will be held at the farm at Mossboro' Station, five miles west of Guelph, and we are instructed to state, will be without reserve. Many of the readers of the FARMER'S ADVOCATE are aware that this is the farm formerly owned by Mr. John I. Hobson, now of Guelph, who sold it to Mr. Birrell early in 1897, and held a depression sale of his herd of Shorthorns in the spring of the same year. Mr. D. Birrell's herd has been long established and carefully bred. He commenced to breed Shorthorns in 1867 in partnership with his brother-in-law, Mr. Arthur Johnston, of Greenwood. In 1875 the herd was evenly divided, and Mr. Birrell has been breeding from the highest class of imported Scotch-bred bulls ever since, indeed the crosses in his herd have been almost identically the same as those used in the Greenwood herd of Mr. Johnston. Part of the herd was transferred to his son in 1897, which, together with a few good things added since from other sources and their produce, will be included in this sale. This will be a very important sale, and fuller particulars of the stock may be looked for in our next issue.

Mr. Robert McEwen, Alloway Lodge Farm, Byron, Ont., from whose notes Scotch collie kennels the FARMER'S ADVOCATE premium puppies are secured, has recently added to his Southdown flock a selection of a ram and three ewes, bred by the Prince of Wales, and three ewes from the flock of the Duke of Richmond and Gordon.

R. J. & A. Laurie, Wolverton, Ont., write:—"Our stock of Tamworth pigs is doing finely; have on hand a grand lot of pigs. One show sow has good strong litters by Sam 3rd, which are doing well. In poultry we are offering a grand lot of young S. and W. Wyandottes, and P. and R. ducks from our prizewinners at the county shows, at very reasonable prices to clear our surplus stock."

Mr. H. N. Crossley, Rosseau, Ont., writes:—"Some of your readers may be interested to learn that I have recently sold the roan Hackney stallion, Rosseau Swell (71) C. H. S. B., who was foaled in 1897. Rosseau Swell has been exhibited three times and has won: 1st as yearling, Toronto Industrial, 1898; 2nd as stallion 3 years and under, Canadian Horse Show, 1899, being beaten by a 3-year-old; 1st as 2-year-old stallion, Toronto Industrial, 1899. He was sired by Royal Standard (3918), and out of (6357) Althorpe Countess. The purchasers are Messrs. Hodgkinson & Tisdale, Beaverston, Ont. Rosseau Swell now stands in 13 hands, has lots of action and good conformation, and is in every way qualified to get good carriage horses."

WM. THORN'S Ayrshires and Poultry, near LYNEDOCH, ONT.

During Mr. Thorn's farming career he has given his stock of Ayrshire cattle and poultry close and careful attention, and as time advances and the immense possibilities along this line present themselves, we find that gentleman's enthusiasm increasing in that direction. Development for milk and egg production, coupled with typical conformation and true characteristics, are his highest ambition, and at each succeeding visit we find that he has not only added fresh laurels to his already long string of prizewinnings, but we frequently find fresh blood selected from the choicest source, and the genial proprietor ever on the alert to locate suitable stock to improve and strengthen those on hand. Among the latest purchases was the typical young bull, Royal Star of Ste. Anne's 1756, by Glencairn 3rd (imp.) 6915; dam Margie of Williamstown 5659, by Duke of Park Hill from Mr. Reford, his breeder, and in him Mr. Thorn not only selected a choice pedigree, but an animal possessing the fullest of choice dairy conformation, with a vigorous constitution, and as he comes from a family of such prizewinners as the noted White Floss, of World's Fair fame, we consider that in him Mr. Thorn has made a wise selection. Royal Star was the favorite in the showings at Toronto and London in 1898, landing first premium in Mr. Boden's hands in very strong competition. Fourteen females of different ages are now on hand, many of which are directly descended from Lottie 1856, by Royal Chief (imp.) 75, and from out of Jess (imp.) 1293, a cow purchased at David Morton & Son's dispersion sale. She is 9 years old, and during her career has proven herself a prizewinner wherever exhibited, producing 64 lbs. milk in one day, and 11 lbs. 7 ozs. butter in 5 days. Norval Rose 2153, by Pride of Peel 899, and out of Daisy Deane 1253, was also purchased at the same sale, and has done valuable service in her present owner's hands. Verona 3404, by Oshawa Prince 1672, and out of Gurta of Sydenham 2342, was secured at the dispersion sale of the late Thomas Guy, and is now in her first milking; she also comes from a family of showing winners; her grandam won 17 first prizes in succession for Mr. Guy, and sold for \$300. A few very choice young things were on hand when we called early in December, and among those worthy of special notice is the 11-months son of Norval Rose, a straight, good young bull, worthy of the attention of parties requiring a sire of high order. In poultry Mr. Thorn has made rapid strides, and since he has added an elaborate, up-to-date poultry house, we expect to see still more advance in the future. In nearly all the breeds they carry, males of the highest possible type and truest characteristics have been obtained at big cost in many cases. Their specialties along this line are confined to such useful breeds as the light and dark Brahmas, Partridge (white and black) Cochins, black and white Minorcas, Barred Rocks and Silver Wyandottes, all of which have held their own, and many making a clean sweep at the larger poultry shows.

H. Gee & Sons, breeders of Shropshire sheep and Barred Plymouth Rocks, "Seven Maples," Fisherville, Ont., write:—"The Barred Rock cockerels we offer for sale are from our best pen of last season, and the head of the pen is the son of Direct, score 94, bred by Mr. Luffel, Springfield, Ohio. They are a very even lot, being close in the barrigon and of the nice clear blue shade of color so eagerly sought after. They are bred right, and will give every satisfaction. We have placed quite a few orders so far from our advertisement in the ADVOCATE since last spring, and our only fear is that we won't have enough stock to go around."

A. & G. Rice, Holstein breeders, Currie's Crossing, Ont., write:—"Your Christmas issue is a dandy, and will compare very favorably with the best in America. We have had many visitors lately to see our stock, and butter-making plant. We recently sold the handsome two-year-old heifer, Alice May of Peel, to Mr. Francis Stauffer, Washington. This is the second purchase made by him from our herd. Last winter we sold him Clothilde Belle. She was not two years old until July, 1899; she dropped a fine veal calf in April and in June, at 43 months old, gave him 348 lbs. milk in 7 days, an average of nearly 50 lbs. a day. When a man has the pleasure of milking such heifers, and knows from actual experience their worth, more are sure to be wanted. Mr. P. H. McDermid, Martintown, Ont., purchased a 9-months-old bull, Ruby's Albino De Kol, sired by our noted show bull, Homestead Albino De Kol, that stands the front of the group of Brookbank Holsteins illustrated in the Christmas ADVOCATE. Another of his sons, Fairmont Albino De Kol, has gone to head the fine herd of H. W. Norton, Howell, Mich.; his dam is Pauline Fairmont. In the advanced registry heifer calves were sired by Daisy Texal 2nd and Daisy Texal 3rd. This is a great family. It will be remembered Daisy Texal 2nd gave 68 lbs. milk in 1 day, 134 lbs. milk in 2 days, and 4.0 lbs. butter-fat—equivalent to 5.30 lbs. butter—in 2 days, in the Provincial test of 1898, in class under 36 months; highest record ever made in public test by a heifer of her age. As these heifer calves were sired by Calamity Jane's Paul, whose dam, Calamity Jane, has the highest milk record ever made in public test, viz., 85 lbs. in 24 hours, it will be seen there is here a combination of the blood of public test winners. Several good things are crossing these lines, showing the blood of public test winners is appreciated highly by these breeders best able to know the worth of such. Another one to go to Michigan is the bull calf, Calamity Jane's Paul, dam Pauline Fairmont, and sire Calamity Jane's Paul, just mentioned. This youngster goes to head the fine herd of Holsteins owned by Mr. Frank R. Crandall, Howell, Mich."

Nova Scotia Farmers' Association.

The fifth annual convention of the Nova Scotia Farmers' Association will be held at New Glasgow, Pictou County, on Wednesday, January 24th; Thursday, January 25th, and Friday, January 26th, 1900. A good programme is being prepared, and a large attendance is expected from all over the Province. A number of leading prominent provincial agriculturists and stock breeders will address the sessions, of which there are three each day, and Dr. Wm. Saunders, Director of the Dominion Experimental Farms, and Mr. J. H. Grisdale, the Agriculturist at the Ottawa Experimental Farm, will also be present and address the meetings and meet with the farmers of Nova Scotia.

Annual Meeting of the Canadian Jersey Breeders' Association.

The fifth annual meeting of the Canadian Jersey Breeders' Association was held in the Albion Hotel, Toronto, Saturday, Dec. 30th. There was a large attendance of breeders from various parts of the Province, and all seemed to be very enthusiastic over the little "Dairy Queen."

The President being absent, Mr. Geo. Davies, the Vice-President, took the chair. The report of the treasurer was read, showing a balance on hand of \$3.15.

The question of the formation of a Canadian Jersey Herd Book of Merit was earnestly discussed, and the matter left in abeyance for another year.

It was decided to become affiliated with the Dominion Cattle Breeders' Association, and keep the Jersey in front of the procession.

The directors of the Toronto Fair will be requested to make the following changes in the prize list for Jerseys:

(1) That the name of the breeder of each animal be published in the catalogue.

(2) That a prize be given for bull calves under six months.

(3) That the class for yearling heifers be divided into those in milk and those not in milk.

Mr. J. C. Snell, London, read a very interesting and instructive paper on "Judging Jerseys at the Fall Exhibitions," which will be found in this issue.

The secretary was requested to revise the constitution and have one hundred copies printed, and a copy be sent to each member.

The following are the officers for the year 1900: President, Mr. Geo. Davies, Todmorden; Vice-President, Capt. Wm. Rolph, Markham; Sec.-Treas., R. Reid, Berlin. Managing Committee—Messrs. D. O. Bull, R. Reesor, D. Duncan, S. Wicks, and W. E. H. Massey. Representatives on the various Fair Boards: Toronto, Messrs. D. Duncan and B. H. Bull; London, Messrs. John O'Brien and R. Smith; Ottawa, Mr. Conroy, he to choose another. The following were recommended as judges: Toronto, R. Reid and W. Ballantyne, with J. C. Snell as reserve; London, H. G. Clark, Norval; Ottawa, Wm. Rolph and D. Duncan; Winnipeg, David Duncan; Montreal, Capt. R. Reesor; Brandon, B. H. Bull; British Columbia, Capt. R. Reesor; Eastern Provinces, Capt. W. Rolph. Judges of dairy cattle at smaller fairs—Messrs. L. Bull, Brampton; George Davies, Todmorden; H. Smith, Highfield; P. A. Freeman, Box Grove; D. O. Bull, Brampton; H. C. Clarridge, Brampton; S. Wicks, Mt. Dennis; John Kenward, Woodstock. Representative to the Dominion Cattle Breeders' Association—Mr. B. H. Bull.

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Twelve New Subscribers



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TO ANY SUBSCRIBER sending us the names of 12 NEW yearly paid-up Subscribers we offer a young COLLIE, six weeks old or over, eligible for registration, and bred by Mr. R. McEwen, Byron, Ont., whose stock has been so successful in the leading shows in Canada and the United States.

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SEE HIS FINE CEMENT CONCRETE WALLS BUILT WITH

THOROLD CEMENT

AND THEN READ CAREFULLY HIS EXCELLENT TESTIMONIAL.

Size of Basement Walls, 46 x 76 x 10 feet high, with Root-house 14 x 26 feet.



THIS IS WHAT MR. ANGUS MURRAY SAYS ABOUT THOROLD CEMENT: Estate of John Battle, Thorold, Ont.

DEAR SIRS,—It is with much pleasure that I testify to the good qualities of your Thorold Cement for building purposes. During the past summer I built a barn 46 x 76, with 14 x 26 root-house at the back walls, average 10 feet from bottom to top of wall. It took 81 barrels of Cement, and 45 days' work for one man. I have a much cheaper wall than if I had built of brick or stone. The work was done under the management of your general agent and instructor, A. E. Hodgett, a gentleman of whom you may be proud. He is a hard worker and a good manager, and a jovial fellow with his men, and I consider him a thorough master of the business. I intend to cement the floors next summer with your Thorold Cement. Ten days after the wall was finished I had the frame of the barn raised (24-foot posts and very heavy timbers), without any injury whatever to the wall. My walls are here for inspection, two miles north of Drysdale, lake shore, Stanley Township. I recommend your Thorold Cement to anyone that intends building concrete.

November 14, 1899. Yours truly, ANGUS MURRAY, Drysdale, Ont.

NOTICE.

Feed Cooker.—An exhibit that attracted considerable attention at the Provincial Fat Stock and Dairy Show was the triple feed cooker, tank heater and steam generator, which was kept in operation in the farmers' pavilion during the days of holding the exhibition. It was used for heating skimmed milk and other purposes to show the great utility of the cooker. With good fuel it will heat a barrel of water to the boiling point in a few minutes, and keep it boiling with very little wood or coal. It is also useful for maintaining sheep dip at the right temperature while the dipping is in operation, and answers a useful purpose in pig scalding. Another important use the cooker has, besides heating or cooking food for all sorts of stock, is that of heating hog-pens and poultry houses by means of steam pipes conducted around the walls or through the center of the building.

Ontario Veterinary Association.

The annual meeting of this association was held in Toronto, Canada, on December 22nd, 1896. In the absence of Mr. S. Sisson, the president, the first vice-president, Mr. W. J. Wilson, of London, took the chair. On opening the meeting a very large mass of correspondence was reported, amongst the most important being numerous letters from over the Province of Ontario relating to measures that were being adopted to procure better legal protection for the veterinary profession. Fourteen graduates were reported as having registered since the last annual meeting. The auditors' report showed the finances to be in a good condition. The report of the committee appointed in connection with the efforts made to procure better legal protection for the profession showed the majority of legislative committees were opposed to the bill. The Chairman, Hon. J. M. Gibson, suggested that in consequence of the rather serious opposition the bill be withdrawn for this year, and if thought advisable introduced again next session of the Legislature, when he thought it would likely be carried. The Chairman called on members present to describe cases of special interest which they may have recently met with in their respective practices. Mr. John Wende, V. S., of Buffalo, U. S., in response described an outbreak of rabies which was quite extensive about Buffalo and the surrounding country, dogs, horses, cattle and hogs having been affected. He said that 75 per cent. of the dogs had the disease in what is called the dumb form. He gave an interesting account of his inoculation experiments. Mr. J. H. Tennant, V. S., of London, gave an interesting account of his results in adopting "Schmidt's Treatment" for purulent apoplexy. The treatment was surprisingly successful. Mr. W. J. Wilson, V. S., of London, spoke of the good results he had seen in the treatment of deep-seated fibrous tumors by injecting into the tumors with a hypodermic syringe a mixture of hydrochloric acid and pepsin.

It was resolved that the sum of \$25 be appropriated for a medal to be competed for by the graduating class at the next spring examinations. The following officers were elected for the ensuing year:—President, Mr. W. J. Wilson; First Vice-President, Mr. H. S. Wende; Second Vice-President, Mr. J. H. Tennant; Secretary and Treasurer, Mr. C. H. Sweetapple; Directors, Messrs. D. H. McMurtry, J. H. George, W. Steele, J. Wagner, W. Lawson, F. G. Hutton, W. Shillinglaw, and F. J. Gallanough; Auditors, Messrs. C. Elliott and J. D. O'Neill; Delegates to the Industrial Fair Association, Toronto, Prof. A. Smith and Mr. W. J. Wilson; Delegates to the Western Fair Association, London, Messrs. J. D. O'Neill and J. H. Tennant.

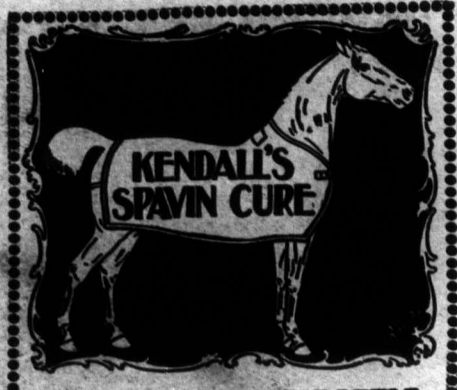
Why Throw Away One-Half Your Labor?

This is just what you do with almost all sprayers sold to-day. All the sprayer salesmen have to do to show this is to shut off all discharge outlets, and ask customers to pump up the pressure. When this is done the handle is held tight, nothing is lost, showing the perfect mechanism. All other machines will lose from five to fifteen strokes each minute from leakage with a pressure of 100 pounds. One machine in the market, which is claimed to have no packing, but which is in reality packed with metallic rings, lost ten strokes each minute from leakage back through the plunger, and to overcome this difficulty put on leather-faced valves and plunger in the machine used at the Fall fairs during 1896, displaying the rings to the public. A metallic packing in a steam engine is a very satisfactory packing, as it can be oiled and kept in proper working order, and are made to expand in width as well as in diameter, but all mechanics know what the result is when it is not kept oiled, and they are amused when told that it is a suitable packing for a sand pump, which is just what a sprayer is when using Bordeaux mixture or whitewash. Take two pieces of brass and put sand and water between, and rub them together and you will see what the result is.

Why throw away one-half your labor, when with the Spramotor you use it all at the nozzle? Each Spramotor is guaranteed, and the guarantee is good. The Spramotor Treatise, of 76 pages, is yours for the asking.

Address: **SPRAMOTOR CO.,**
68-70 King St., London, Canada.
Please mention this paper.

PLEASE MENTION FARMER'S ADVOCATE.



KENDALL'S SPAVIN CURE

WORTH \$50 A BOTTLE
To This Man
It may be worth a like sum or even more to you....

Final, Barnes Co., N. D., March 15, 1896.
Dear Sir:—I have used your Kendall's Spavin Cure and think it a good Liniment. I have cured a Spavin on my best mare, and I would not take \$125 for her, which I offered for \$75 before. I will be pleased to have your book and receipt for the best stamp, as I read on the cartons.
Truly yours,
FRANK SMITH,
Hastington, P. O., Ontario, Mar. 6, '96.

Dr. E. J. Kendall Co.
Dear Sir:—Each bottle please find a two-cent stamp for your valuable Horse Book. I had one but it is lost. I have used your Kendall's Spavin Cure without one failure in years, and consider it the best Liniment for man or beast on the market. Please send me the book as you advertise on bottle, for horse. GEORGE BROWN.

It is an absolutely reliable remedy for Spavins, Splints, Curbs, Ringbones, etc. Removes the bunch and leaves no scars. Price 25¢ per bottle. As a Liniment for family use it has no equal. Ask your druggist for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," the book free, or address
DR. E. J. KENDALL CO., ENOSBURG FALLS, VT.

4-SHORTHORN BULLS-4

For Sale.
From 5 to 15 months. A few young cows or heifers; color red; good pedigree.
om **JAMES BROWN, Thorold, Ont.**

GOSSIP.

H. Smith Hay, writes:—"The young bulls I am advertising with you this issue are, I think, an unusually good lot. Among them is Free Lane, from a sister of the champion steer, Free Trade, and almost his exact counterpart, except that he is a nice roan in color. In the lot there is also a great calf got by Mr. Thos. Russel's 'New Year's Gift,' out of Vain Maid, a daughter of the old show cow, Vanity, and got by Abbottsford."

JONES AGAIN ON TOP WITH POLAND-CHINAS.

Such is the report which comes from the judges' returns at the late fat stock shows. The firm of Messrs. W. & H. Jones, Mt. Eglin, have held the above enviable reputation for several years, and as they keep actively in touch with the demands of the times it looks probable that the firm will continue to hold sway in that position. While at the Provincial Fat Stock Show Mr. Jones informed the writer that they were succeeding admirably in bringing the Poland towards the desired type by judicious mating and careful management, while the improved type retained in every particular their highly prolific and early-maturing qualities, and in glancing over their fat stock exhibit we had no reason to doubt their assertions. While the firm are by no means holding any animals in positive reserve, they have made a practice of annually returning a few of their higher-priced and most typical sows to their breeding pens, which they are mating to the best obtainable sires, with which they are constantly well supplied. At present the highly-satisfactory sire, Conrad's Model, is doing service, and as he has a long list of winners to his credit, he is naturally held in high esteem by his owners. Conrad's Model possesses the ability of transmitting the even uniformity and rugged constitution essential to successful show and stock animals. Besides him are the two hogs, Lennox and Klondyke, a pair of tested animals, and considered sufficiently good to still retain. The firm have on hand about a dozen each of grand young boars and sows (at the serviceable age), for disposal, and for parties requiring breeding stock we would consider this an exceptional opportunity of purchasing young sows bred to noted sires. They are an even, strong lot, possessing splendid length, with the best of backs and loins. The boars are also as choice as their sisters, and possess the bone in keeping with the immense weight the breed attain. Watch the firm's offerings.

NOTICES.

Expert Cement Mechanic.—The serviceability of a concrete wall or floor is dependent not only on the quality of the cement, the time of year in which the work is done, but also on the quality of the gravel or sand used, and their preparation and application as well. Mr. Robert Taggart, of Woodstock, Ont., offers his services in our advertising columns for this line of work with which he has had considerable experience, enabling him to understand all the conditions necessary for a reliable job.

Noxon Farm Machinery and Implements.

The Noxon Manufacturing Co., Ingersoll, Ont., advertise in this issue three implements which they make and for which there should be a vigorous demand. Their out-throw disk harrow, with adjustable pressure springs, is a valuable cultivator for any land, but especially effective on hard or uneven ground. Their spring-tooth cultivator, to which can be attached a grain or grass seed box, is one of the very best cultivators made for preparing a seed-bed for ordinary surface cultivation, and for cutting thistles; while the Noxon drills have made themselves famous, and are always being improved when desirable new features present themselves. Their new 1900 catalogue is comprehensive and detailed.

Dispersion Sale

of the entire flock of registered breeding ewes, the property of the late firm of E. Gaunt & Son, comprising 24 of the choicest gems of the breed in America, and their stock ram, The Czar, to be held at the farm of Mr. E. Gaunt, 3 miles from Lucknow, G. T. R., Con. 12, West Wawanosh, on

Wednesday, Jan. 24th, 1900.

Terms.—Nine months' credit will be given on all sums over \$10.00; under \$10.00, cash. Six per cent. per annum off credit amounts.
Conveyances will meet trains from the east and west in the forenoon of the day of sale. No reserve. Must be sold.
Edwin Gaunt,
Lucknow P. O.

For Sale

FOR A MAN WITH SOME CAPITAL...
A Farm, unsurpassed for mixed farming, only 10 miles from Whitewood, Assa.; one section and a quarter good land, with creek running through it; timber to last for years for building purposes and firewood; hay lands; house and stable improvements; all fenced with numerous cross fences; post office and school within a couple of miles; 100 acres broken and more available. A bargain. For further particulars apply to—
Box 143, Whitewood, Assa., N.-W.T.

For Sale.

The Samuel Hanna Estate,
at Griswold.

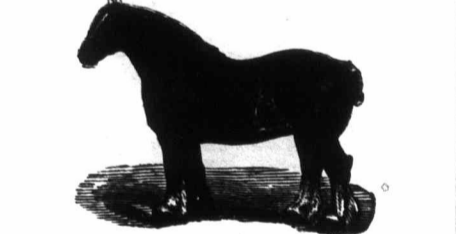
As this estate must be closed out, it has been decided to offer for sale all those splendid farms owned by the late Samuel Hanna, and comprising about seventeen hundred acres within a few miles of Griswold. The land will be sold in parcels. It is highly improved with buildings, fences, and cultivation.

A great opportunity is here offered to any one desiring a first-class farm.

For particulars apply to
Edmund W. Hanna,
Box 243,
GRISWOLD.
Barristers,
Brandon.

THORNCLIFFE Stock Farm

The largest stud of Clydesdales in Canada, headed by the Champion Stallion of all ages,
"LYON MACGREGOR."



Stallions, Mares, Colts and Fillies
Of all ages, from the best blood in Scotland and Canada.

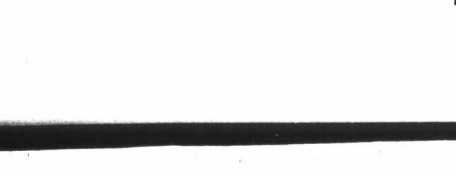
Now is the time to purchase a young colt and raise him yourself.
We have on hand weanlings weighing over 900 lbs., also year-olds, 2-year-olds and 3-year-olds, colts and fillies.
Ayrshire bulls and heifers from imported stock. Best milking strains, with good teats.
Terms reasonable.
A visit to Thorncliffe will well repay you.

ROBT. DAVIES,
Thorncliffe Stock Farm, TORONTO.

DALGETY BROS.,
463 KING ST., LONDON, ONT.

"Largest Importers in Canada."

Third consignment this season of
CLYDESDALE
stallions and mares will arrive about 25th this month (January), ages ranging from two to eight years, including several extra heavy ones. No exorbitant prices asked. Small profits and quick returns.



FOR SALE: Hackney Stallion



D. & O. SORBY,
GUELPH, ONT.

Edward R. Hogate Company

IMPORTERS OF
English Shire and Clydesdale Stallions.
We have them on hand from 3 to 5 years old, weighing from 1,800 pounds upwards. Write now for particulars and where you can buy the cheapest. We expect our next importation from England to arrive about January 1st, 1900.

ADDRESS:
EDWARD R. HOGATE,
10 Maitland Street, TORONTO, CAN.
Barns: 84 and 86 George Streets.

A Few Durham Heifers

Two bulls; two bull calves; all of choice breeding. Berkshire boars; brood sows and sow pigs. Prices right.

A. J. C. SHAW & SONS,
THAMESVILLE, ONT.

ARTHUR JOHNSTON



Greenwood P. O. and Telegraph Office,
13 IMPORTED AND SHORTHORN BULLS
17 IMPORTED COWS and HEIFERS
22 home-bred COWS and HEIFERS
Many of them from imported cows, and by imported bulls. Catalogues on application.
Claremont Station, C. P. R.,
-om or Pickering Station, G. T. R.

SHORTHORN CATTLE AND LINCOLN SHEEP.

Imp. The Baron at head of herd. Seven young bulls for sale—good ones. Also a few females. Stud runs all imported from H. Dudding, Esq.; the same blood as the 1000-guinea ram.

J. T. GIBSON,
DENFIELD, ONT.

Shorthorns and Leicesters.

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

JAMES DOUGLAS,
CALEDONIA, ONT.

Eureka Veterinary Caustic Balsam.

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

PLEASE MENTION FARMER'S ADVOCATE.

W. D. FLATT, HAMILTON P. O. and TELEGRAPH OFFICE,



OFFERS FOR SALE

7 Imported Bulls, 5 Canadian-bred Bulls, 30 Canadian-bred Cows and Heifers;

IMPORTED COWS AND HEIFERS. The noted imported bull, Golden Fame, is at the head of my herd.

HAWTHORN HERD OF DEEP-MILKING SHORTHORNS. We are offering 5 young bulls for sale, of first-class quality, and AI breeding.

Wm. Grainger & Son, - Londonboro, Ont.

SHORTHORN BULLS AND HEIFERS FOR SALE. Cruickshank and other Scotch sort, headed by (imp.) Knuckle Duster.

Exceter Station, G. T. R., half mile from farm. H. SMITH, HAY, ONT.

Scotch Shorthorns FOR SALE. 100 head to select from: 23 grand young bulls by Valkyrie.

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

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

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

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

SCOTCH SHORTHORNS. About 10 head cows and heifers in calf to Golden Stamp (\$1330). Also 5 nice young bulls.

Shore Brothers, White Oak, Ont.

SCOTCH SHORTHORN BULLS AND HEIFERS HERD ESTABLISHED IN 1872.

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

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

FITZGERALD BROS., Mt. St. Louis, P. O., Offer for sale six Shorthorn Bulls from 9 to 14 months old.

Offer for sale six Shorthorn Bulls from 9 to 14 months old; also 2-year-old roan bull, St. Louis =24418=, a Morton-bred bull with exceptionally grand pedigree.

Also a few females of all ages, bred to imp. bull, British Statesman (63729) =20833=, now at head of our herd. Hillsdale Telegraph Office; Elmvale Station, G. T. R.

JAS. DORRANCE, SEAFORTH, ONTARIO, BREEDER OF

Shorthorn Cattle and Berkshire Pigs Young stock always for sale.

SPRINGBANK FARM. Shorthorn Cattle, Oxford Sheep, and Bronze Turkeys. Young bulls for sale.

JAS. TOLTON, WALKERTON, ONT. PLEASE MENTION FARMER'S ADVOCATE.

GOSSIP.

WILLIAM R. McDONALD'S FARM, NEAR RIDGETOWN, ONT.

For six years Mr. W. R. McDonald has been laboring faithfully along the line of bacon-hog production, having selected the Tamworths as being most suited to his ideas. We found, in answer to our enquiries a short time ago, while his calling upon him near Ridgetown, that his foundation matrons were descendants of animals introduced into the country by the Ingersoll Packing Co. from England, tracing back chiefly to the Whitacre herd, so famous in that country. Purchases were also made from Mr. A. Elliott, Galt, in the matron, Concord Cloe 1205, by Spring Grove Duke 668, dam Concord Cloe 602. Concord Cloe is now in the herd, with her second litter at foot. Another sow of note is May 1218, by Ridgetown Boy 899, and out of Howard Queen 742, tracing through Buffalo Hill, Revell's Boar, to Dorridge Countess, a pedigree which carries weight wherever recognized. This sow is worthy of her gilt breeding; she also was suckling at the time of our visit. Lady Laurier 955, by Whitacre Prince 184, and out of Susan 397, although retired to the matron list, demonstrated her ability to win at the Fat Stock Show last year. She is an even, good length, and splendid bone. Her litter at foot demonstrates her ability as a matron. Mr. McDonald has fully realized the importance of employing only the best-bred and well-developed sires. Whitacre Prince did three seasons' service. He was the sweepstakes boar in '97, and from his stock Mr. McDonald has been easily able to select show-yard winners. Honest John 551, by Duke of Lorchester 131, and out of Surprise 299, did two seasons' service and sired many of the Fat Stock Show winners of '98. The coming season finds Mr. McDonald in good shape having farrowed, with a fifth due in January. He also had some splendid young things, about six months old, among which we noticed three choice, straight, good young boars, true in Tamworth conformation, smooth and evenly made, and in good form; their conformation would recommend them at sight, while their breeding is excellent. Mr. McDonald has from year to year added, and has each year won the local showyards, frequently in the severest competition; nearly always carrying a full class to each fair, and upon different occasions exhibiting at two places upon the same date. Watch his offerings.

TAPE BROS.' DUROC-JERSEYS.

The firm of Tape Bros., near Ridgetown, Ont., retain their activity along the line of early-maturing swine production, and in view of the demand for the bacon type, they have been laboring vigorously to mount their ideal breed to meet the requirements of the packer. Their efforts in this direction have not been fruitless, for at our visit we found they had a splendid bunch of young matrons, possessing length and depth of body seldom met in so young a stock, while they have retained to a remarkable degree their early-maturing qualities. Durocs are naturally early maturing, made so from the demands upon them, which have been found the most profitable. They are also prolific producers to a degree equalled by very few breeds, and probably excelled by none. The firm have heretofore recognized the necessity of employing only the choicest of sires, possessing the strongest characteristics peculiar to the breed. At present, Prince Imperial 196, by Duke of Kent 10 and out of Della B 92, is a splendid type of an animal and an impressive sire, due, no doubt, to his excellent ancestry, as both his sire and dam were bred in leading American herds. He was their first-prize boar for two years at the large fairs. His daughters are being retained as matrons, and among them we were shown some splendid young animals, being readily topped and carrying their weight well under command when ready for the market or showyard. Anglo-American 343, by Pansy's Boy and out of LaReene, was selected from Quincy McBride's herd to do service, and is proving himself highly satisfactory. Among the matrons, about half of the choicest of last season's crop are being retained, and are the descendants of Prince Imperial and Nimrod (imp.), out of such families as Duchess of Kent, Janie 155, by Nabob 11, Blossom 216, and others having won laurels in the large competition. The firm had on hand at the date of our visit a quantity of four-months animals of either sex for disposal, which carry in their pedigrees a combination of the firm's most fashionable and useful animals, as past showyard records have fully attested to the fact, and never lose an opportunity of securing something gilt-edge when they find room for it, and as they have now on hand several strong and useful registered Shorthorn cows, producing annually to the firm's Indian Chief (imp.), their female list is increasing annually, and a good young bull may frequently be found on their hands. This year we were shown the splendid thick roan April son of Queen Lil, which should attract attention the moment he is offered for sale. He is an even, good calf, full of Shorthorn character, with a great wealth of natural flesh and growing up very even. Watch the firm's offerings in our advertising columns.

NOTICE.

Weeders.—It has become a well-established and understood fact that stirring the surface of the soil, even while the crop is growing, is a great help to the crop since it not only destroys weeds in their young stage, thus preventing them becoming competitors with the crop for the plant food and moisture in the soil, but the gentle stirring the surface hinders the evaporation of moisture in a remarkable degree; thus it will be seen that the judicious use of these implements increases the chances of a maximum yield are very much increased. Not only in grain crops in the early stages of growth have these implements a special value, but their use in cultivating potatoes, corn, etc., frequently throughout the season of growth, will appeal especially to stockmen who grow broad areas of these crops. With this issue is commencing the new advertisement of Hallock's Success Anti-Clog Weeder, manufactured by D. Y. Hallock & Sons, York, Pa.

10 Imported Shorthorn Bulls

ALL SCOTCH.

21 IMPORTED HEIFERS. ALL SCOTCH.



21 IMPORTED HEIFERS. ALL SCOTCH.

Heifers all in calf to imported bulls. Also a number of first-class home-bred animals of either sex. The oldest home-bred bull we have was calved in April last. Correspondence or a personal visit solicited. Catalogues on application.

H. CARGILL & SON, CARGILL, ONT. Cargill Station and Post Office on G. T. R., within half a mile of barns.

20 - Imported Scotch Shorthorns - 20

2 BULLS, 1 and 2 YEARS OLD; 14 HEIFERS, 2 YEARS OLD; 4 YEARLING HEIFERS.

THIS importation came out of quarantine on the 13th July, and representatives of many of the leading Scotch families are amongst them, including Minas, Brawith Buds, Secreta, Mysias, Beauties, Lady Mays, Lustres, etc. The home-bred herd contains Indian Statesman =23094=, and 15 young bulls from 6 to 18 months old, and 50 cows and heifers of all ages. Registered Shropshires, yearling rams and ewes, ram lambs from imp. Flashlight. Any of the above will be sold at reasonable prices. Correspondence or a personal visit solicited. Catalogues on application.

Burlington Junction Station and Telegraph Office, G. T. R., within half a mile of farm. W. G. PETTIT & SON, FREEMAN, ONT.

GOSSIP.

Mr. D. J. Gibson, Bowmanville, Ont., writes under date of Jan. 11th:—"Please change my advertisement in the next issue of the FARMER'S ADVOCATE. I have sold 46 turkeys from my advertisement with you to different points in Ontario, Quebec and the United States, and have no more to sell this season. My White Wyandotte cockrels are also all disposed of."

R. Mitchell & Son, Nelson, Ont., in ordering change in advertisement writes:—"Of the young bulls we offer for sale four are ready for use, and in really good condition. The heifers, mostly reds, are being bred to imp. Prince William, which we recently purchased from Messrs. H. Cargill & Son, being a rich red in color, and of the low-set, thick-fleshed sort, with a neat head, plenty of substance and style, and his pedigree containing a number of the very foremost Cruickshank sires."

G. A. Brodie, Bethesda, Ont., writes on January 10th:—"I have recently sold 11 head of Shorthorn cattle advertised in your valuable paper—4 heifers to Mr. Alex. Love, Eagle, Ont.; 3 heifers and a roan stamp, to Mr. Robert Miller, Strathroy, for shipment to the United States; cow and bull calf to Mr. Wm. C. Wilson, East Oro, Ont.; and cow, Isabella 17th, to Mr. A. B. Stickley, Bethesda, Ont. I have still some choice young cows and heifers in calf, and a few yearlings for sale. My young bulls, 23 in number, have done remarkably well since coming off grass, and are a very promising lot, and just in right condition to be sent out. I have 4 grand ones sired by Redmond, a son of the noted Toffhills; 2 choice Scotch-bred ones, got by imp. Northern Light; 6 very large ones, got by Prince; a pure Miss Ramsden bull, sired by imp. Hopeful; one out of an Isabella cow, and sired by Mina Chief, and one out of a Strathallan cow. As I have a large number to dispose of, I offer them at very reasonable prices."

CLYDESDALES AND SHORTHORNS.

J. Devitt & Sons, Freeman, Ont., write:—"Enclosed find cheque as payment for advertisement. Our stock has gone into winter quarters in good, healthy condition; the young things are thin, but growing. We have three fine horse colts just weaned, two by Grandeur II, and one by Douglas Macpherson, and out of a Grandeur mare; have also a good strong yearling of good quality. Our brood mares are in fine breeding condition; 18 in number, ranging from 1,400 lbs. to 1,900 lbs., and from 3 years old to 9 years, and in foal to Grandeur II., Lord Charming, and Douglas Macpherson. Our stallions are made a good season, while Grandeur II. was reserved for service in our own stud and a few other choice mares. He has developed into a fine big horse, weighing 2,200 lbs. and in nice growing condition; will easily carry 2,300 lbs. by spring. We consider him one of the best draft horses in Canada. We have a few Shorthorns, which are doing well. Have a fine red bull calf by Indian Statesman, 6 months old, which will make a good one."

The American Cotswold Association.

The annual meeting of the above association was held at Chicago, Ill., November 23rd, 1899. The election of officers for the ensuing year resulted as follows:—President, D. McCrae, Guelph, Ont.; Vice-President, J. Hal. Woodford, Shakspeare, Ky.; Secretary-Treasurer, Geo. Harding & Son, Waukesha, Wis.; Board of Directors—D. McCrae, J. Hal. Woodford, T. C. Phelps (Greensboro, Ind.), Geo. Harding, F. W. Harding.

Vice-Presidents for States and Provinces were re-elected, with the following exceptions: D. McCrae, Guelph, Western Ontario, succeeded by John Rawlings, Ravenswood; R. C. Judson, St. Paul, Minn., by John Pritt, Fredley; J. B. Ririe, Weber, Utah, by J. R. Allen, Draper, Utah.

Cash premiums not less than \$500 were voted by this association for Cotswold sheep at the proposed live stock show to be held in Chicago in 1900. A subscription by patrons of the American Cotswold Record will likely increase the amount to \$1,000, to be offered on recorded Cotswolds.

Hillhurst Farm.

ESTABLISHED 1864.

Scotch Shorthorns.

SIRE IN SERVICE:

Scottish Hero and Joy of Morning.

BRED BY W. DUTHIE, COLLYVIE.

Oldest Stud of Hackneys in America. Shropshire, Dorset Horn and Hampshire Down Sheep.

M. E. COCHRANE, Hillhurst Station, Compton Co., P. O.

SPRING GROVE STOCK FARM

Shorthorn Cattle and Lincoln Sheep. Herd prize and sweepstakes at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by Topman =17847=, champion at Winnipeg, Toronto, London and Ottawa, 1899. High-class Shorthorns of all ages for sale. Also prize-winning Lincolns. Apply

T. E. ROBSON, Ilderton, Ont.

I am prepared to offer at reasonable prices, for a short time, a few very choice young registered

Shorthorn Bulls and Heifers in good health and fine growing condition.

Samuel Dunlop, Coldwater Station. Eady, Ont.

SHORTHORNS

Two choice young bulls, 17 months old; also a number of young cows and heifers.

A. F. ALTON & SON, Burlington Jct. Station, Appleby P. O., Ont.

8 SHORTHORN BULLS 8

From 5 to 19 Months.

Thick-fleshed reds and roans, out of Bates-bred Scotch-topped dams, and by Lord Stanley 4th, twice a winner at Toronto. Registered Yorkshires later.

G. & W. GIER, Grand Valley, Ont.

25-Shorthorn Bulls-25

From 6 to 18 months. Also a limited number of females, among which are grand, thick-fleshed and choicely bred animals, mostly solid red colors. Speak quick, for they will not last long.

G. A. BRODIE, STOUFFVILLE STATION, G. T. R. BETHESDA, ONT.

BONNIE BURN STOCK FARM

Forty rods north of Stouffville Station, has for sale three excellent young Shorthorn Bulls, yearling and two-year-old Heifers in calf. Shropshire Lambs, both sexes; also Berkshires. At very moderate prices.

D. H. RUSSELL, Stouffville, Ont.

SHORTHORNS

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

D. ALEXANDER, Bridgen, Ont.

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tion, and in Scot- Montreal, 97; also T- sion herd and special and W. W. individual shed honors for sale

ACY, and Breeder, ttle, Ont.

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Zenda and assisted by good young the coming

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at, 26.66 lbs. 26.57 " 25.77 " 25.45 "

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Farm.

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RESIANS by Colanthus "eak's King eat test and

l 2nd's Paul ; dams; the melia Artis, om

ge, Ont.

SALE. elves. Size, Six young am Primrose brain (imp.) Five of their London, and s sold.

SHROPSHIRE FARM. UE, QUE.

N BULLS, DeKol, ed strains as and Jesse, a son of the list of official ills. C. ONT.

CHOICE AYRSHIRE BULLS

I OFFER for sale 1 August and 1 October, 1899, bull, and an April, an August, and a November calf, of 1899. The August calf is a son of that exceedingly fine cow, Daisy 1st of Auchinbrain. Good individuals. Dams of heavy milking ancestry, and sired by prizewinning imp. bulls.

W. W. BALLANTYNE,

Formerly Theo. Ballantyne & Son. Stratford, Ont. "NEIDPATH FARM" adjoins city, main line G.T.R.

AYRSHIRE CATTLE.

KAINS BROS., Byron, Ont. (R. R. London), are offering a number of grand young bulls, prizewinners; also a few choice females. Prices right.

FOR SALE:

Six choice young Shorthorn bulls—bargains for quick sale. A few heifers could be spared. E. JEFFS & SONS, Bondhead, Ont.

Choice Ayrshires

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

FOR SALE.

1 Three-year-old Ayrshire Bull; 4 Ayrshire Bulls, one year old; 3 Ayrshire Bulls, 3 months old; Bulls and Heifers under two months, and Cows of all ages; 8 Shropshire Ram Lambs, also Ewes; 1 Berkshire Boar, 1 year old; 2 Boars under one year, also Sows, pairs not akin. Plymouth Rock Hens and Chickens; a few fine Cockerels left. J. YULL & SONS, Props., Carleton Place.

Ayrshire Bull Calves of 1899

3 YET on hand, and more to come within the next month, from some of our best imported cows. Will sell at reasonable prices. Address: ROBT. HUNTER, Manager to W. W. Ogilvie. LACHINE RAPIDS, QUE.

Maple Cliff Dairy and Stock Farm

Ayrshires and Tamworths for Sale: 1 yearling and 5 fall calves, and a number of heifers. Five Tamworth boars, fit for service, and 40 fall pigs.

R. Reid & Co., - Hintonburg, Ontario.

EUROPEAN ADVERTISEMENTS.

The Danesfield Pedigree Stock

IMPORTERS desirous of securing selections of either Shire horses, Aberdeen-Angus cattle or Hampshire Down sheep should inspect the stud, herd and flock, property of Mr. R. W. Hudson, which are kept in the highest degree of purity that care and selection can produce at Danesfield, Marlow, Bucks, England. Specimens of horses, cattle and sheep have been largely exhibited at the principal English shows during 1899 with very prominent success. For full information, etc., apply:

MR. COLIN CAMPBELL.

ESTATE OFFICE, DANESFIELD, MARLOW, BUCKS. who will be happy to make arrangements for inspection, or to quote prices.

FAMOUS ALL OVER THE WORLD.

ALFRED MANSELL & CO.,

LIVESTOCK AGENTS AND EXPORTERS, SHREWSBURY.

BRITISH STOCK selected and shipped to all parts of the world. Write for prices to ALFRED MANSELL & CO., Secretaries of the Shropshire Sheep-Breeders' Association, Shrewsbury, England.

J. E. CASSWELL,

Laughton, Folkingham, Lincolnshire, breeder of Lincoln Long-wooled Sheep, Flock No. 46. The flock was in the possession of the present owner's great-grandfather in 1785, and has descended direct from father to son without a single dispersion sale. J. E. Casswell made the highest average for 20 rams, at the "Annual Lincoln Ram Sale," 1895 and 1897. The 1896 rams were all sold for exportation. Ram and ewe hoggs and shearlings for sale, also Shire horses, Shorthorns, and Dark Dorking fowls. Telegrams: "Casswell, Folkingham, Eng." Station: Billingboro, 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.

SHROPSHIRE SHEEP AND COLLIE DOGS.

200 Bronze Turkeys, the Farmers' Daughter strain. 100 White Holland Turkeys. W. H. BEATTIE, Wilton Grove, Ont.

GOSSIP.

While in the vicinity of Morpeth, in Kent County, Ont., Mr. W. J. Duck's stock farm was made the object of our visit, where we were shown over the pure-bred stock. We found the young imported Shorthorn bull, purchased from Mr. Arthur Johnston at a long price, in excellent breeding form. Though not fat, Mr. Duck informed us that he was able to defeat all-comers at the fall fairs in that locality, frequently meeting very strong classes. He is an all-round good young bull, and owners of pure-bred cows in that section have an opportunity rarely presented of employing sires of such quality and breeding. The presence of such a boar as the Poland-China Gold Bug is another opportunity not met with in every section, and deserves patronage. We wish the enterprising Mr. Duck every success.

As will be noticed in the advertising columns of this and future issues of the FARMER'S ADVOCATE, the business of Oak Lodge Yorkshire herd will in future be conducted by Messrs. Brethour & Saunders, Burford, Ont., instead of Mr. J. E. Brethour. This change, which was referred to in our Christmas number, has grown out of the constantly increasing business attendant on the growing demand for stock from this noted herd. Mr. Brethour's partner, Mr. C. F. Saunders, whose farm is adjacent to Oak Lodge, is well informed on breeding and care of swine, and on his farm he is erecting an extensive and suitable pig-gery, where every condition necessary for the well-being of the pigs under his supervision will be met.

Mr. A. C. Hallman, breeder of Holstein cattle and Tamworth hogs, New Dundee, Ont., writes: "Spring Brook farm was never in as good shape to supply the public with choice stock in the various lines as at the present time. My Tamworths are a superior lot since the introduction of my imported boars, Whitacre Crystal, a Royal winner, and British King, first prize at Toronto, 1898. Crossed on my Nimrod and other choice sows, many of them winners in this and the old country, my stock has reached a high standard of excellence in quality and form. My September litters contain a very high percentage of really choice pigs (both sexes), which will make very strong pigs for early spring service. Having decided to reduce my herd, I offer a large number of choice sows, ready for spring litters, which will prove valuable to any one requiring breeding stock of an improved type. My Holsteins are also in the best of condition, and contain a lot of choice animals. My newly-imported herd bull, Judge Akkrum de Kol, is, I believe, the best animal ever owned at Spring Brook. He is choke-full of quality, nicely-finished and good sire. Only other bull left, now eight months old, a son of Ideal's Netland, is a good one, and will please the one that is fortunate enough to get him. My Barred Plymouth Rock cockerels are as nice a lot as I ever saw—large birds, with correct marking and very typical."

PUBLIC SALE OF LANCETER SHEEP. As announced in our advertising columns, Mr. Edwin Gaunt, Lucknow, Ont., will sell by public auction, without reserve (which is made imperative owing to the death of his son, Mr. James Gaunt), at his farm, on January 24th, his grand flock of registered Lancelot breeding ewes, 24 in number. Mr. Gaunt and there are no culls, every one having raised lambs in 1899, with the exception of one shearing, and are supposed to be due to lamb in March. They include the prize ewes that won in the sweepstakes for pen of Canadian bred in 1897. This offering presents an opportunity to breeders that does not often occur, when they can add to their flock new blood of such undoubted quality.

NOTICES.

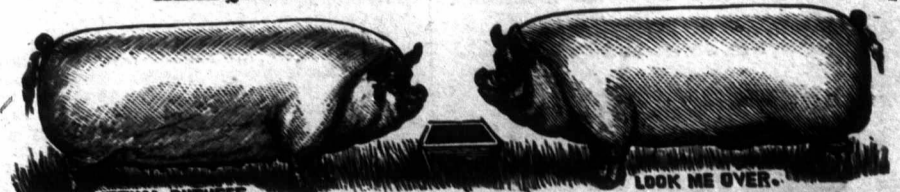
Thirty Years Ago.—Just 30 years ago (Jan. 2nd, 1870), on the grounds formerly occupied by the old Grammar School, corner of Jarvis and Adelaide streets, Toronto, was the Wm. Rennie seed business first established. Since the retirement of Mr. Wm. Rennie, Sr., some ten years ago, and on by his three sons, Robert, John and Thomas. This firm is now acknowledged to be the largest mail-order seed establishment in Canada. Not only are the Rennies well-known in Toronto, but throughout the whole of Canada and the United States the name is familiar, more particularly to the farming community. It is scarcely necessary to add that the Rennies, as sports have earned prominence, especially as curiers, while the Bisley Rifle Team of 1899 had a valuable addition in Capt. Robt. Rennie.

Forage Crops.—Until the production of a recently-issued volume by Prof. Thos. Shaw, of the University of Minnesota, on "Forage Crops Other than Grasses," there was no book at command that one could turn to for real help upon the cultivation, harvesting, and the growing of this useful class of plants to the farmers and for such a work was not pressing, but the ever-increasing need for these supplementary and regular forage and fodder crops has been fittingly associated with the issuing of this valuable work. In order to give our readers a fairly clear idea of the scope of the book, we quote the headings of the thirteen chapters, occupying 261 pages. The chapters deal with the subject under the following heads: Forage Crops; Indian Corn; Sorghum; The Non-Saccharine Sorghums; Plants of the Clover Family; Leguminous Plants Other than Clover; Rape and Cabbage; The Common Cereals; Millet; Root Crops; Miscellaneous Plants; Succession in Forage Crops; and Sheep Pasture Grown at the Minnesota University Experiment Farm. In discussing the various plants the author dwells upon their distribution, the soils to which they are adapted, the rotation in which they should be grown, the preparation of the land, the time for sowing them and the methods of doing the same, the modes of cultivation, and of pasturing them when grown. The work has a practical bearing about it, from beginning to end, that betrays confidence in the reader as to the value of its contents.

PLEASE MENTION FARMER'S ADVOCATE.

Summer Hill Herd

HEADQUARTERS FOR THE IDEAL BACON HOG.



The largest herd of pedigree Yorkshires of the large English type in Canada. Purity of breed, size, and general excellence is my motto. One hundred awards with one hundred and five exhibits at 7 shows in 1899. A choice selection of young boars and sows of all ages for sale; also boars fit for service, and pregnant sows. Fifty breeding sows, of which 25 (twenty-five) are imported; also three imported stock boars bred by such noted breeders as Sanders Spencer and Philo L. Mills. Am also using two Canadian-bred stock boars, first prize at Toronto in 1898-99. Express charges prepaid. All stock carefully shipped and guaranteed as described. Telephone, Millgrove, Ont. Telegraph 254 Bay St. S., Hamilton, Ont. D. C. FLATT, MILLGROVE, ONT.

Shropshires...

I offer for sale SHEARLING EWES, sired by imported Newton Stamp 99631, prizewinner at Toronto, 1897; also RAM and EWE LAMBS, by Standard, a son of Newton Lord. GEORGE HINDMARSH, ALSA CRAIG, ONT.

Shropshire Rams and Ewes

Newly imported from the greatest English breeders. Home-bred rams and ewes of best quality. Scotch Shorthorns and Clydesdale horses for sale at moderate prices, and in large numbers, by ROBERT MILLER, STOUFFVILLE, ONT.

Shropshire Sheep.

Shorthorn Cattle, Tamworth Hogs, American Bronze Turkeys.

40 Ewes imported in November last, in lamb to noted English stock rams. A handsome red SHORTHORN BULL, 9 months old, by a grandson of Abbotstford. A dozen young BRONZE GOBBLETS, weighing 23 to 25 lbs.

W. S. HAWTSHAW & SONS, GIANWORTH, ONT.

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. 61-70

Oxford Down Sheep

Flock Established 19 Years.

Have a few ewes of different ages for sale, in lamb to imported ram.

HENRY ARKELL, ARKELL P. O., ONT.

Guelph: Telegraph and Telephone.

Berkshires and Tamworths

My Berkshires were founded upon Snell, Teasdale, Coxworth and Dorrance selections, with Varna Duke and Manor Lad, the second-prize boar at Toronto last fall, standing at the head of my herd.

My Tamworths have the blood of imported Nimrod, Middleton Mimusius, O. A. C. 110, the silver medal sow at London in '98. Her son, Parkhill Prince, with imported Nimrod, heading the herd. Write for what you want. W. I. TUMELTY, Madoc, Ont.

LARGE ENGLISH BERKSHIRES.



Herd headed by five first-prize boars of large size and fine quality. Twenty-five young sows and ten boars for sale, bred from prizewinners. Pairs supplied not akin.

GEORGE GREEN, - FAIRVIEW P. O., ONT.

om Telegraph and Station: Stratford, G. T. R.

Large English Berkshires.

WE offer for sale the imported boar, Nora E's Duke, first prize winner at every fair exhibited in 1899. Young boars and sows bred from imported prize-winning stock. Write for prices. H. BENNETT & SON, ST. WILLIAMS, ONT.

Yorkshires, Berkshires, and Shorthorns.

Yorkshire boars fit for service. Sows ready to breed, and sows safe in pig, of bacon type. Berkshire boars fit for service. Sows safe in pig, smooth type. 1 bull calf, 9 months; 1 heifer calf, 10 months. Write for prices.

JAS. A. RUSSELL, Precious Corners, Ont.

SNELGROVE BERKSHIRES AND COTSWOLDS.

We can supply singly, in pairs, or trios, not akin, or in larger numbers, registered Berkshire pigs and Cotswold sheep of the highest class. Young boars fit for service, sows old enough to breed. Young pigs 6 to 8 weeks old. Ram lambs and ewe lambs. Write for prices and particulars.

SNELL & LYONS, SNELGROVE, ONT.

We lead, others follow.



Oak Lodge Yorkshires have a special type of their own, and are acknowledged to be the highest class of bacon hogs. Grand sweepstakes over all other breeds on foot and for dressed carcasses at Provincial Winter Show. Won all herd prizes offered at the largest Canadian exhibitions.

Improve the quality of your pigs by securing some of Oak Lodge blood. Quality! quality! our motto. All stock fully guaranteed.

Brethour & Saunders, Burford, Ont., Can.

WOODSTOCK YORKSHIRES, BERKSHIRES, SHORTHORNS

40 head of improved White Yorkshires. Boars and sows from 2 mos. to 9 mos. Sows in pig to imported boar. 30 head of choice Berkshires, same age. Six Shorthorn bulls from good milking strains. Address: H. J. DAVIS, BOX 290, WOODSTOCK, ONT.

OXFORD HERD OF POLAND-CHINAS

The home winners of the winners. Having again won the sweepstakes at Toronto, London, Ottawa, and Provincial Fat Stock Show, we are offering again young boars and sows of superior quality; bred along the same lines as our winners.

W. & H. JONES, OXFORD CO., MT. ELGIN, ONT.

DUROC-JERSEY SWINE.

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

A Few

Young BOARS yet for sale at a bargain; also two young sows (due to farrow about Jan. 20), one of them out of the same litter as the first prize (dressed carcass) Chester Whites at the Provincial Fat Stock Show, which dressed 52 pounds per 100 pounds live weight—the highest in the show. Also Dorset and Shropshire sheep. For particulars write om

R. H. HARDING, Maplevue Farm, THORNDALE, ONT.

W. R. BOWMAN, MT. FOREST, ONT.

Is offering

10 Choice Yorkshire Boars,

Weighing over 200 lbs., at \$10.00 each, if taken by February 1st. Also a

Choice Lot of Brood Sows.

BORNHOLM HERD IMP. CHESTER WHITES.

Stock for sale at all times, all ages. Nothing but first-class stock shipped. Inspection invited. Correspondence answered. Daniel DeCoursey, Bornholm P. O., Ont.

COPP'S Farmers' Boiler

Registered 1898.
Nos. 30, 45 and 60.



With pleasure we draw the attention of our farmers to our

EXCELLENT MODERN FEED BOILER.

which is constructed on new lines. It has a strong and well-secured Cast Iron Front and Back, with lagged out Flue and Collar Top, so as to receive a straight pipe, which is preferable to the elbow attachment.

The sides are made of Steel plate with a band at the bottom.

The Feed Door is large and the body of the Furnace is very roomy, calculated to admit the roughest kind of wood.

The Boiler is designed to set on the ground or brick foundation.

Without doubt this is the Best, Cheapest, Most Economical and Practical Agriculture Furnace in the market. Already it has commanded a large sale.

THE COPP BROS. CO.,
HAMILTON, ONT.

OHIO IMP. CHESTER WHITE PIGS

I have a few good boars yet, ready for service. Also young stock, both sexes.

TILMAN E. BOWMAN, Berlin, Ont.

E. D. GEORGE,
PUTNAM, ONT.,
Importer and Breeder of
Ohio Improved Chester White Swine.

The largest and oldest established registered herd in Canada. I make this breed a speciality, and furnish a good pig at a fair price. Write for prices.

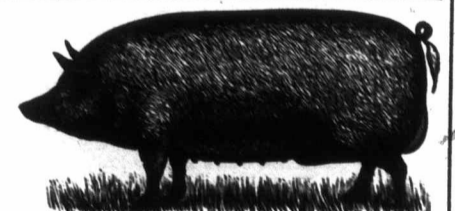
Spring Brook Herd of Tamworths.

Great opportunity for choice stock. A number of choice young pigs sired by British King, first prize Toronto Industrial, 1899, and also by Royal winner, Whitsre Crystal. Pairs and trios not akin. Now in your time. Send for catalogue. Stock of all ages for sale.

A. C. HALLMAN, NEW DUNDEE, ONT.

Bargain Days in Tamworths and Yorkshires

For next 30 days we are going to sell our surplus stock of Tamworths and Yorkshires at very low prices to make room for young litters. They include half a dozen Tamworth Boars from 5 to 12 months old, most all prizewinners. Some grand sows. Also half a dozen Yorkshire Boars and Sows; all of excellent quality and breeding. Write for prices and particulars at once. COLWILL BROS., Newcastle, Ont.



One hundred Tamworth and Improved Chester White Spring Pigs of a true bacon type, our herd having won the best prizes offered at the leading exhibitions throughout Ontario and Quebec for the past ten years. Stock for exhibition purposes a speciality. We pay express charges between stations, and guarantee safe arrival of all stock shipped. Pairs furnished not akin. Write for prices.

N. GEORGE & SONS, Crampton P.O., Ont.

TAMWORTHS

Descended from prize-winning sows, tracing through the most noted imported sires, and from equally well-bred boars. Young things a speciality.

WM. R. McDONALD,
"Pine Lane Farm,"
Box 51, RIDGETOWN, ONT.

GOSSIP.

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

Jno. Fulton, Jr., breeder of Tamworth swine, Brownsville, Ont., writes:—"My Tamworths have done very well this season. I was very successful at the shows. My yearling boar, Revell's Choice, won first wherever shown, showing against aged Tams, as well as some Yorkshire boars. Have a young boar from Revell's Choice that won first at six fairs and is now for sale. Sales have been very good lately, although the business was dull in the summer. I have sold several pigs to buyers from the States; have just received the third order from one man in Wisconsin, who says he has been very successful showing pigs I sent him last fall and last spring, beating everything where he showed them, and has just ordered a pair of sows for show pigs next fall, and I am to send him a boar next spring. My breeding stock is all registered in the American Tamworth Record as well as in the Canadian Record. I have also had orders from Manitoba. Have sixty head of pure-bred Tamworths on hand just now; some extra good young boars for sale."

As a result of action taken in Chicago by the breeders' organizations, which met in that city recently, an International Live Stock Exposition in 1900 seems assured, and the interested visitor to the live stock metropolis during the Exposition—Dec. 1 to 8, inclusive—will view a display of live stock on foot and dressed, packing-house by-products, feeding appliances, draft horses, and other things pertinent to the live stock world, never before attempted in America. The Union Stock Yards and Transit Co. of Chicago, and allied interests, put the plan on foot, and the breeding associations which met there lent it their enthusiastic co-operation. Much enthusiasm was manifested throughout the meeting, and that the entire Exposition will be successful seems certain. The Aberdeen-Angus Association appropriated \$5,000 to be offered for premiums on that breed. The Shorthorn Association set aside \$5,000. The Hereford Association devoted \$5,000 to that breed at the show. The Polled Durhams, the Red Polled and the Galloway Associations offer \$1,000 each in premiums, and the Cotswold Sheep Association \$500. The live stock interests of Chicago, together with the business element represented in other lines, will put up from \$25,000 to \$50,000 to be divided among the breeds and the fat stock. Feeders and breeders all over the continent are urged by the management of the International Live Stock Exposition to write at once for any information they may desire, and to begin feeding something for exhibition. Address all communications to International Live Stock Exposition, Union Stock Yards, Chicago, Ill.

B. SNARY & SON'S SHORTHORN CATTLE, POLAND-CHINA AND CHESTER WHITE SWINE, AND PLYMOUTH ROCK POULTRY.

Messrs. Snary & Son, Croton, Ont., have been closely associated with Shorthorn cattle for upwards of a quarter of a century. During the hard years of depression in that business, Mr. Snary kept right on paying strict attention to the sires he was employing, in the hope of being in the swim when a reaction would occur, with the result that the firm have on hand some thick-fleshed, grand individuals, whose pedigrees may be classed among the select and most desirable in the breed. The foundation of the herd was laid by Mr. Snary, Sr., in the purchase of Duchess of Boston 2nd, by Grand Duke of Thorndale 2nd (Imp.), and out of Lady May 3rd, a cow whose goodness did not cease with her excellent individual qualities and breeding, but one of those hardy, prolific individuals whose progeny inherited their dam's strong constitution and characteristics. Aided by such matrons, the herd progressed rapidly, and the result was that the owner aimed at retaining the most desirable in his breeding herd until his full capacity was supplied. Among the sires most recently employed may be briefly mentioned: Chief Captain, by the famous Indian Chief, who did four seasons' service, and who left unquestionable evidence of his value as producer of stylish animals, full of thick-fleshing qualities, combined with rugged constitution. Famous Wildeye, from the herd of Richard Gibson, also did service in the herd. He was a descendant of the Bates strain of Wildeyes, so famous in their day. The present crop of calves on hand are the result of the services of Scottish Chief, by Scottish Pride, whose dam was a daughter of Imp. Guardsman, and whose excellent qualities show up to very decided advantage in combination with the strong, early-maturing qualities of the Boston-bred females. When we called upon the firm we found a few choice things for sale, mostly females, in the best of condition from a breeder's standpoint; not in high flesh, yet in sufficient form to bring out the true type of their race; and in the face of the present demand for young females we can scarcely see how such animals can remain long in their present quarters when it is known that they are among Mr. Snary's offerings, as we have seen few (very few) such females held for sale. A few choice young bulls are also among those for disposal, and will attract the attention of parties requiring young sires to head herds. In Poland-Chinas and those excellent qualities show up to very decided advantage in combination with the strong, early-maturing qualities of the Boston-bred females. When we called upon the firm we found a few choice things for sale, mostly females, in the best of condition from a breeder's standpoint; not in high flesh, yet in sufficient form to bring out the true type of their race; and in the face of the present demand for young females we can scarcely see how such animals can remain long in their present quarters when it is known that they are among Mr. Snary's offerings, as we have seen few (very few) such females held for sale. A few choice young bulls are also among those for disposal, and will attract the attention of parties requiring young sires to head herds. In breeding, as they have imported sires from the most noted herds for several years at great cost. Among the most recent purchases were the excellent sires, Gold Bug and Stark King, which are being employed upon Illinois and Ohio bred females. Gold Bug has proven a wise investment, and we were shown some choice young things from him, having grand uniformity, with great length and quality. Chester Whites have also received the same careful consideration at the firm's hands in the selection of foundation stock, and the best in this class, as with others, is none too good. In poultry the firm carries a few pens of Barred and Buff Rocks, from which they offer a choice lot of cockerels, the best and most typical of this season's crop.

TAMWORTHS AND POULTRY.

Pigs of both sex. Also Silver and White Wyandottes, White Rocks, Hamburgs and Leghorn cockerels. Pekin and Rouen ducks, and 2 Embden males. Prices reasonable. R. J. & A. LAURIE, Wolverton, Ont.

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CANCER

GUARDED WITHOUT KNIFE OR PLASTER. FULL PARTOUT-LARS FREE. -ON

F. STOTT & JURY, Bowmanville, Ont.

Chatham HERD OF Tamworths



1 two-year-old boar, and some splendid pigs 3 months old, by White-acre Lad (Imp.), and by the old show boar, Sambo; also some good pigs, fit to wean. These are extra choice ones. For full particulars write: -o

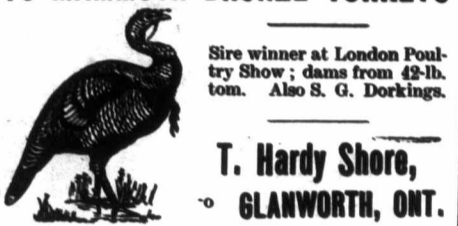
J. E. SIMONTON, Box 304, CHATHAM, ONT.

Tamworth Boars and Sows.

Descended from the noted strains of (Imp.) Nimrod, Oak Hill Hugo, Countess, and Whitacre Prince; all ages. Also Berkshires, Baron Lee 4th strain, 6 weeks old. Satisfaction guaranteed.

D. J. GIBSON, Bowmanville, Ont.

75 MAMMOTH BRONZE TURKEYS



Sire winner at London Poultry Show; dams from 42-lb. tom. Also S. G. Dorkings.

T. Hardy Shore, GLANWORTH, ONT.

For sale:

Several good Buff Rocks (Scott strain), also some Barred cockerels. Would like to exchange Pekin and Rouen ducks for Toulouse geese or Bronze turkey hen.

Robt. Steven, Box 176, Petrolia, Ont.

BARRED PLYMOUTH ROCKS.

WE have for sale good breeding cockerels with straight narrow barring and good even color. Also a few Pekin ducks.

Haldimand Co. H. GEE & SONS, Fisherville, Ont.

EGGS.

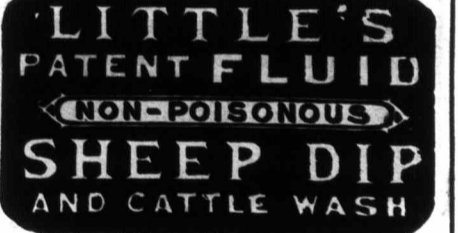
It pays to get the best. We have them in L. and D. Brahmas, S. G. Dorkings, W. Wyandottes, Black Minorcas, and Indian Game, at \$1.25 per setting.

JACOB B. SNIDER, German Mills.

Mammoth Bronze Turkeys

S. G. Dorkings, E. P. Rocks, S. C. Br. Leghorns, Black Minorcas. Over 100 grand young birds from winning strains. Pairs and trios mated not akin.

om T. & H. SHORE, WHITE OAK, ONT.



Disinfectant AND Germicide

A Highly Concentrated Fluid for Checking and Preventing Contagion from Infectious Diseases in Animals.

"Little's Patent Fluid" will destroy the infection of all fever germs, and all contagious and infectious diseases, and prevent contagion from one animal to another, and will neutralize any bad smell whatever, not by disguising it, but by destroying it.

NO DANGER! SAFE, CHEAP, EFFECTIVE. BEWARE OF IMITATIONS.

Sold in large tins at 75c. 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, ONT. Sole agent for the Dominion. -om

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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. -o

New Term

from January 2nd

In each department of the CENTRAL BUSINESS COLLEGE

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The largest and strongest school in Canada. Our calendar tells you why. Write for it.

W. H. SHAW, Principal.

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CENTRAL Business College STRATFORD, ONTARIO.

A school offering advantages not found elsewhere in Canada. Handsome catalogue free.

W. J. ELLIOTT, Principal.

WOODSTOCK

AND SHORTHAND SCHOOL. Students enter any time. Increased teaching staff. The best that can be had is given. Write for particulars.

H. M. KENNEY, PRINCIPAL, WOODSTOCK.

HOME STUDY

Young farmers who would like to get a business education, but who have not the time or, perhaps, the means, should procure some suitable books, and study at home during the long winter evenings. The

NORTHERN Business College OWEN SOUND, ONT.

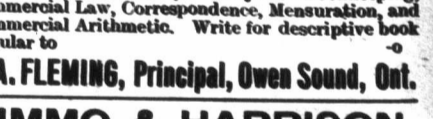
has published a series of Business Books, which are not only suitable for use in the college, but are excellent for home study. Subjects—Bookkeeping, Commercial Law, Correspondence, Measurement, and Commercial Arithmetic. Write for descriptive book circular to

G. A. FLEMING, Principal, Owen Sound, Ont.

NIMMO & HARRISON,

Business and Shorthand College, Cor. Yonge and College Streets, Toronto.

Enlarged premises and increased number of teachers. Industrial instruction. Open entire year, day and evening. Call or write for free prospectus. -o



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Eggs.

Rose-Combed Buff Orpingtons

GRAND layers and table birds. Mine are the finest strain in England; four unrelated pens. Eggs from first pen containing cockerel 1st and special prize Buff Orpington Show, and pullet 1st and special at same show, and other first-class pullets. 21s. per setting. Other pens which contain prize cockerels, 10s. 6d. per setting.

T. G. BINNEY, Houghton Green, Playden, Sussex, Eng.

PLEASE MENTION FARMER'S ADVOCATE.

POTASH gives color, flavor and firmness to all fruits. No good fruit can be raised without Potash.

Fertilizers containing at least 8 to 10% of Potash will give best results on all fruits. Write for our pamphlets, which ought to be in every farmer's library. They are sent free.

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

Wanted:

THE ADDRESS of parties who will be wanting, this spring, maple sugar or syrup of a superior quality, made from the pure juice of the maple. Largest and best-equipped sugar orchard in the Province. For sale: A low-down, up-to-date milk wagon; hangs 15 inches from the ground; used but 4 months. Also 2 pure St. Lambert bulls of the choicest breeding. Price very low, or would exchange for registered Shorthorn heifers. For particulars and prices, address

C. G. Hanson, Coaticook, Quebec.

FARMERS, ATTENTION!
Cement Stables, Walls, Floors, ETC.,

Built on short notice by an expert cement mechanic. Work done anywhere in Ontario or Manitoba.
Address: **ROBERT TAGGART,**
Box 616, Woodstock, Ont.

RELIABLE SEEDS

For FARM and GARDEN.

Our stock includes all that is best in Garden and Field Roots, Flower Seeds and Flowering Plants, Grasses, Clovers, and Seed Grain.

Illustrated Catalogues mailed free on application.
WILLIAM EWING & CO.,
SEED MERCHANTS,
142 MCGILL ST., MONTREAL.

Cheese & Butter

Makers of these articles, in many instances, do not pay the necessary attention to the quality of the Salt they use. Some people think that "Salt is Salt," and it does not matter where it comes from or who makes it. This is a great mistake, for it is essential that to produce the best Butter or Cheese nothing but the purest salt should be used. The number of prizes obtained by users of Coleman's or Rice's Dairy Salt at the various exhibitions is conclusive proof that these brands of salt stand unrivalled.

FOR PRICES, ETC., ADDRESS
R. & J. RANSFORD
CLINTON, ONT.
Established 1863.

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

PLEASE MENTION FARMER'S ADVOCATE.

GOSSIP.

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

W. S. Hawkshaw & Son, Glanworth, Ont., in ordering a change of ad., write: "We have a handsome red Shorthorn bull, nine months old, by a grandson of the noted bull, Abbottsford, and from a deep-milking strain. Also a dozen young American Bronze gobblers weighing 23 to 25 lbs. each, bred from Munger's strain, whose aged toms weighed 45 to 48 lbs. The 40 imported Shropshire ewes landed in November were bred to first-class English rams before leaving, and are showing forward with lamb. Two nice young Tamworth sows ready to breed are offered for sale."

The nineteenth century round-up of the Woodside flock of Southdowns, John Jackson & Son, of Abingdon, Ont., have broken all previous records in the showing in this class. Commencing with the Toronto Industrial, and ending with the Provincial Fair Stock Show at London, have been awarded 102 first prizes, including the grand sweepstakes at the latter show for best single sheep any breed, 37 seconds, 19 thirds, 3 fourths and 1 fifth on their Southdown sheep, with sales extending from Newfoundland to British Columbia, and in nearly every State from Maine to Kansas.

The seventeenth annual meeting of the Holstein-Friesian Association of Canada will be held at the Albion Hotel, Toronto, on Tuesday, Feb. 6th, 1900, at one o'clock p. m. The Executive Committee will meet at ten o'clock. Mr. A. C. Hallman, New Dundee, Ont., gives notice that he will move to reduce the registry fees for animals over one year old; also transfer fees. Everyone interested in Holstein-Friesian cattle is invited to attend. Members will please note that the annual fee for 1900 is due Feb. 1st. Wm. G. Killis, President; G. W. Clemons, Secretary.

SALE OF CLYDESDALE STALLION, "KING OF THE CLYDES."

Mr. J. M. Gardhouse, Highfield, Ont., has recently purchased from Messrs. Dalgety Bros., the extra big imported two-year-old Clydesdale stallion, "King of the Clydes," bred by Alex. Gibson, Smiddyhill, Brechin; got by Ringleader 10427, dam Jess 11346, by Young Darnley 1834. Mr. Gardhouse has heretofore been to Shires, but as this was an extra large Clyde, and considered one of the grandest that has come into this country, his preference for size with quality has evidently been suited.

OFFICIAL TESTS OF HOLSTEIN-FRIESIAN COWS FROM JULY 1 TO NOVEMBER 1, 1899.

These tests were made by Agricultural Colleges and Experiment Stations. The age is at the date of calving; the test is for seven consecutive days, commencing at the close of the day from calving; the fat is determined by the Babcock test, and the butter is estimated first at 80 per cent. fat to a pound, the ratio employed at the World's Fair; and second at 85 5-7 per cent. fat, the method of the Agricultural Colleges. Summary: The average product of butter of cows five years old or over is 16 lbs. 9.3 oz. at 80 per cent. fat, or 15 lbs. 8 oz. at 85 5-7 per cent. fat; of those between four and five years it is 14 lbs. 9.9 oz. at 80 per cent. fat, or 13 lbs. 10.3 oz. at 85 5-7 per cent. fat; of those between three and four years old, 13 lbs. 4 oz. at 80 per cent. fat, or 12 lbs. 5.8 oz. at 85 5-7 per cent. fat; and of those under three years old, 11 lbs. 3.6 oz. at 80 per cent. fat, or 10 lbs. 6.7 oz. at 85 per cent. fat. The total number of tests, 24.

S. HOXIE,
Supt. Advanced Register, Holstein-Friesian Association,
Yorkville, N. Y., Nov. 28, 1899.

MESSES. A. & D. BROWN'S SHORTHORNS, AT IONA, ELGIN CO.

The firm of Messrs. A. & D. Brown, as has been before stated, have been keeping in close touch not only with the pure-bred Shorthorn business, but have been extensively exporting finished cattle to the English market, and in their desire to obtain cattle of highest possible breeding type have been actively instrumental in the introduction and production of this class of stock. A score or more matrons is their usual stock, and a glance at their pedigrees reveals the fact that they carry the blood of such well-known Scotch families as the Syme, imported Charlotte of the Cruickshank Ceceillas, Lavender, Victor, Isabella, and Nonpareils, the former somewhat predominating in numbers, came through importations made by the Millers, of Markham and Pickering, from the herd of Mr. Robert Syme, in Scotland, and from their highly satisfactory qualities their owners have felt disposed to retain the choicest, most promising young females in the herd; yet they have not worked upon this plan exclusively, and believe in disposing of whatever brings satisfactory prices. Much attention has been given the subject of judicious mating, and in no case has the services of inferior sires been permitted, and a review of the pedigrees of the younger things on hand reveals the fact that imported Warfare, Royal George, and Scotland Yet by Scarlet Velvet and out of Centennial Isabella 23rd by Stanley, have each in turn been employed with marked success, and as the result of the employment of such noted sires we find a lusty, strongly-constituted lot of young things, full of the best early-maturing qualities, rich in natural flesh, and covered by splendid, richly-marked coats of hair (reds and roans). Imported Blue Ribbon is now doing service at the head of the herd, and of him we can only repeat what is already well known to all breeders at all familiar with pedigrees, that his breeding is in the purple, and as a sire he ranks with the best. From him the firm look forward to the most satisfactory results, and we can scarcely see where they will be disappointed, for wherever he has been employed his strength of breeding has shown up in his progeny in a degree highly satisfactory to his owner. At our visit we found him in the best of shape and enjoying excellent health. On account of a great scarcity of feed, due to the past drought, the firm feel disposed to offer at very reasonable prices a bunch of three very choice strong yearling heifers, along with their present crop of bull calves approaching the serviceable age, and parties requiring either will do well to speak quick, for animals of their quality and breeding will not remain long at the prices we heard quoted in face of the activity in Shorthorn circles. Watch their offerings.

The Fence Of the Times.

The best spring steel wire, twisted main cables, well woven cross wires. Heavy enough for all purposes, yet low in price. Heavy galvanizing, expansion and contraction provided for. Once properly put up will last practically forever.

THE ELLWOOD FENCES

Sold by our agents everywhere. If no agent in your town write direct to
AMERICAN STEEL & WIRE CO., Chicago or New York.

EPPS'S COCOA

GRATEFUL COMFORTING
Distinguished everywhere for
Delicacy of Flavour Superior
Quality and Highly Nutritive
Properties. Specially grate-
ful and comforting to the
nervous and dyspeptic. Sold
only in 1-lb. tins, labelled
JAMES EPPS & CO., Ltd.
Homoeopathic Chemists,
London, England.

BREAKFAST SUPPER
EPPS'S COCOA

BANKERS AND BROKERS.
GEO. SKALLER & CO.,
CONSOL. STOCK EXCHANGE
BUILDING.
60-62 Broadway, New York.

LOTS OF MONEY

can be made through speculation with deposit of \$30.00 (thirty dollars) upward (or 3% margin upward) on the Stock Exchange.

The greatest fortunes have been made through speculation in Stocks, Wheat or Cotton.

If you are interested to know how speculations are conducted, notify us and we will send you information and market letter free of charge.

Usual commission charged for executing orders.

Government, Municipal and Railroad bonds quotations furnished on application for purchase, sale and exchange.

DES MOINES INCUBATOR Co

The BEST and the CHEAPEST.

95 Per Cent. Hatches are often reported by those who use these Incubators.

One reason for this record is absolute uniformity of temperature in egg chamber; correct instructions for operating; has fireproof lamp. A great mistake it would be to purchase an Incubator or Brooder without first getting a copy of our 148-page catalogue. Send 3 cents for illustrated catalogue of Incubator, Brooder, Poultry and Poultry Supplies.

"THE POULTRY GUIDE" (new edition) 15 cents by mail.

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

9 CORDS IN 10 HOURS

BY ONE MAN with the FOLDING SAWING MACHINE. It saves down trees. Saves any kind of timber on any ground. One man can saw more with it than 2 in any other way. Made at Essex Center, Ontario. No duty to pay. Write Main Office for illus. catalogue showing latest IMPROVEMENTS, and testimonials from thousands. First order success agency. Address **FOLDING SAWING MACHINE CO.,** 52-57 39 No. 4th Street St., R 72, Chicago, Ill.

310 First Premiums

Awarded to the PRAIRIE STATE INCUBATOR. Guaranteed to operate in any climate. Send for catalogue. PRAIRIE STATE INCUBATOR CO. Homer City, Pa.

FERRY'S SEEDS

Always cheaper in the end than any seeds that only cost half as much. Tested, true to name, fresh and reliable. Always the best. Ask for Ferry's—take no others. Write for 1900 Seed Annual. **D. M. FERRY & CO.,** Windsor, Ont.

THE IMPROVED Combination Cobbler's Outfit.

Better than ever before. Greatly improved for 1900. Every person wants one.

THE COMBINATION FAMILY COBBLER TINKER'S HARNESS MENDER
A COMPLETE OUTFIT FOR MEN'S SHOE HARNESS & TIN WARE REPAIRING.

Contents: One iron stand for lasts, 1 last for men's work, 1 last for boys' work, 1 last for children's work, 1 shoemakers' hammer, 1 shoemakers' knife, 1 patent peg awl handle, 1 peg awl, 1 sewing awl handle, 1 sewing awl, 1 harness awl handle, 1 harness awl, 1 wrench for peg awl handle, 1 bottle leather cement, 1 bottle rubber cement, 1 bunch heftles, 1 ball shoe thread, 1 ball shoe wax, 1 package 1/2 half-soleing nails, 1 package 4-8 half-soleing nails, 1 package 1/2 half-soleing nails, 4 pairs heel plates, 3 shoe and harness needles, 1 saw and harness clamp, 1 box harness and belt rivets, 1 harness and belt punch, 1 soldering iron with handle, 1 bar solder, 1 box rosin, 1 bottle soldering fluid, 1 copy directions for soldering, 1 copy directions for half-soleing, etc. Securely packed in wooden box. Weight, 16 lbs.

Price, only \$2 for the whole outfit.

Mend your own shoes. Get an outfit at once. Mend your own harness, and get ready for the spring work. Send the price, viz., \$2, in a registered letter, and cobbler will be shipped promptly. Every buyer pays his own express charges. This box will be worth \$5 to you. Our price is only \$2. Address **Letter Order Department, Stanley Mills & Co.,** HAMILTON, ONTARIO.

BOYS FOR FARM HELP.

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

PLEASE MENTION FARMER'S ADVOCATE.

Hallock's Success Anti-Clog Weeder

More than 40,000 of our Weeders now in use. Does this mean anything? We expect our sales in the year 1900 alone to crowd these figures. Why? Listen, please: Material used in manufacture of implements has advanced fully 100 per cent. Your dealer will ask you largely advanced prices for all implements. If you doubt this, call on him.



LET US REPEAT.—It is an absolute fact that the price of all implements has advanced from 25 per cent. to 50 per cent., but Hallock's celebrated Success Weeder will be sold at the old prices. Trade always follows where our Weeder is introduced; therefore, to get this trade, we will quote Special Prices to first purchaser. Remember, we are the Weeder people, and have the price that sells.

TAKE NOTICE—Hallock's Success Weeder will be sold at the same old prices—not one cent advance.

More than 7,000,000 farmers in the United States, every one of which will own a Weeder in the next few years. Practically every one of them would buy in the year 1900 if they knew as much about the value of our Weeder as the 40,000 who now own one. We have decided that we may just as well have practically all of the "Weeder trade." To secure it, we have decided on prices that are bound to bring it. Just write and see if you do not think so.

WE SOUND A NOTE OF WARNING.

UNDER U. S. patent No. 600,782, issued on March 15, 1898, we have the exclusive right to make a Weeder having teeth substantially round at lower end and a flat spring yielding upper portion. This style of tooth gives our Weeder great superiority over all round-tooth weeders, and has caused it to become immensely popular. Farmers demanded of their dealers a weeder having such teeth, and the dealer in turn demanded them of the manufacturer. This led different manufacturers to assume the risk of using a similar tooth. Therefore, we hereby notify manufacturers, dealers and farmers that we have already brought suit against several, and will promptly and vigorously prosecute all similar offenders.

D. Y. HALLOCK & SONS,
BOX 823, YORK, PA.

Persianic Sheep Dip and Animal Wash.

A NON-POISONOUS LIQUID "DIP."

Kills Ticks. Kills Red Lice. Heals Wounds.

Greatly Improves quality of WOOL.

For Horses, Cattle, and Pigs.

Removes all insects. Thoroughly cleanses the skin.

Leading "STOCKMEN" endorse it as the CHEAPEST and most EFFECTIVE "Dip" on the market.

SOLD BY ALL DRUGGISTS, 50 cents PER QT. CAN. Special rates in larger quantities.

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

Built for Business!

That's the idea. There's nothing fancy; nothing foolish about them; just straight, practical, lasting, honest goods. The



CYPHERS INCUBATORS

are positively warranted to last TEN YEARS, without repairs, and are guaranteed to OUT-HATCH, during three trials, any other make of incubator on the market—bar none. THIS, OR YOUR MONEY BACK. Used exclusively at Experimental Farms, Guelph and Ottawa; also six American Experimental Stations. Daniels, the universal provider in the Poultry Supply business, has the sole agency for the Cypers Incubators and Brooders for Canada. Our list of Poultry Supplies are too numerous to mention here, but just drop us a line and state what you require. We handle nothing but the best. Satisfaction every time, or money refunded. Mention ADVOCATE. C. J. Daniels, 221 River St., Toronto, Ont.

FAMILY KNITTER!

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

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

PRICE, \$5.00.

DUNDAS KNITTING MACHINE CO.,
DUNDAS, ONTARIO.

NOTICES.

Ontario Veterinary College, Toronto, Canada.—The Christmas examinations of the Ontario Veterinary College, Toronto, were concluded on Friday, December 22. The Board of Examiners, who are prominent veterinary surgeons in the active practice of their profession in various parts of the country, met in Toronto on Thursday and finished their duties next day. The following gentlemen passed a stringent examination and were awarded diplomas:—Alva George King, Moosup, Conn., U. S.; Arthur N. Norwood, Nantucket, Conn., U. S.; Millage Philips, Wallaceburg, Ont.; Wm. S. Schultze, Marengo, Iowa, U. S.; David J. Smith, Barre, Vermont, U. S.

Canadian Hereford Herd Book.—The Canadian Hereford Breeders' Association, the president of which is H. D. Smith, Compton, Quebec, and the secretary is Henry Wade, Toronto, has sent out the first volume of their Herd Book. In it are recorded 1,024 bulls and 1,405 cows, making a total of 2,427 animals. The number would have been much larger but for the destruction of a large number of pedigrees in the Agriculture and Arts Association building fire of 1894, which have not been recovered. These are still eligible for subsequent volumes if copies are ever sent in to the secretary at Toronto. The volume just issued appears to be well prepared, and is nicely printed and attractively and substantially bound.

Christmas Horseman.—The *Horseman*, published at 358 Dearborn St., Chicago, not only sets a lively pace for light-horse journalism by its live, practical matter turned out each week, but its annual Christmas box of a special holiday number comes out as a souvenir worthy of careful perusal. Its special articles this year are especially fine, among which may be mentioned: The Teeth of the Horses; The Horse's Foot, Its Structure and Functions; List of Triple Racewinners in 1899; The Great 210 Table; Performers in 2.10 or Better in 1899; and many other valuable articles. Among its wealth of illustrations are portraits of trotters—new comers to the 2.10 list in 1899; trotters who reduced 2.10 records in 1899; pacers with new records better than 2.08 in 1899; pacers and pacers with new or reduced records better than 2.08. The number also contains the great table for 1899 of 2.30 trotters and 2.25 pacers, under their sires. These are just a few of the special features of the Christmas number of the *Horseman*, which is grand, with a handsomely tinted cover.

GOSSIP

Hon. M. H. Cochrane, Hillhurst, Que., writes: "The 20 Hampshire Down ewes recently imported from the flocks of the Earl of Carnarvon and L. H. Baxendale, England, have already begun lambing, the first having dropped a fine ewe lamb on Christmas day. I have sold to Mr. Chas. Allan, of Kinnear's Mills, P. Q., the very promising red Shorthorn bull calf, Hillhurst Patriot, six months old, and to Mr. John Racey, Jr., Lennoxville, Que., two in-lamb Shropshire ewes."

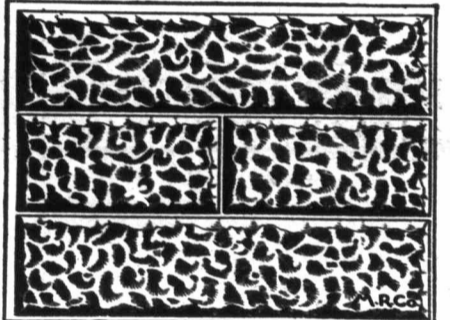
The Original Swiss Electro-Chemical Ring.

A positive cure for Rheumatism in all its forms—Neuralgia, Lumbago, Gout, etc. These ailments are due to the presence of Uric Acid in the Blood. The Ring—in connection with the action, removing the acid and curing the disease. To demonstrate the remarkable curative properties of our Ring we will sell it on Five Weeks' Trial. Money refunded if not satisfactory. We know what our Ring has done in thousands of cases—some pronounced incurable. Price \$2, by Mail or C. O. D. Express. For size, cut hole in card that fits finger snugly. Sold only in Wooden Abrasive Case. All others are imitations. SEND FOR BOOKLET. THE SWISS-AMERICAN CO., 4 Opera Block, Or Express Bldg., Windsor, Ont. DETROIT, MICH.

HAVE YOU SEEN OUR

Rock Faced Stone?

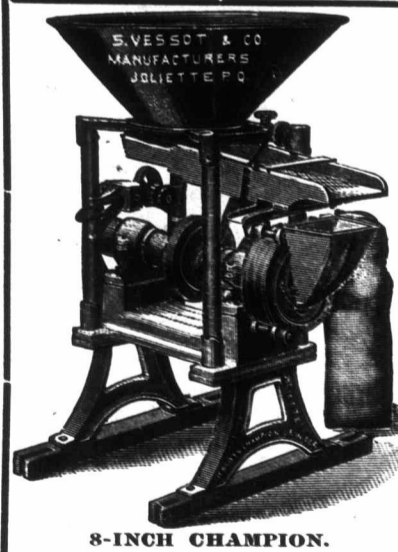
AS USED ON ALL KINDS OF BUILDINGS.



It makes a most economical protection, and yet gives a particularly fine effect. Remember its fire, cold and damp proof qualities, and decide to use it in your spring building or fixing up. Supplied either galvanized or painted. Very quick and easy to apply, and costs but little. Write us.

THE METALLIC ROOFING COMPANY, LIMITED

1185 King St. West, TORONTO.



8-INCH CHAMPION.

We Make the Best Grinder on Earth.

Don't take our word, but read what customers say:

DEAR SIRS,—Please find enclosed settlement in full for 12-inch Champion Model 39 Grinder (Sectional Plate Grinder). I am perfectly satisfied with it, and consider it worth its cost twice over, more than any solid plate mill which I have used for five years. I have ground one thousand bags before sharpening the plates and five hundred since, and they are doing well yet. Will let you know their limit when worn out. (Signed) J. S. ZEHR, Wellesley, Ont., Dec. 7, 1898.

Catalogues free. Ask for one.

S. VESSOT & CO.,

Sole Manufacturers,

JOLIETTE, P. Q.

STAY AT HOTEL LELAND

The Leading Hotel of the West.

ALL MODERN CONVENIENCES. RATES, \$2 TO \$4 PER DAY. BUS MEETS ALL TRAINS.

W. D. DOUGLAS, Prop., Winnipeg, Man.

Mammoth Bronze Turkeys

Chester White swine. 20 Shropshire ewe lambs.

W. E. WRIGHT, GLANWORTH, ONT.

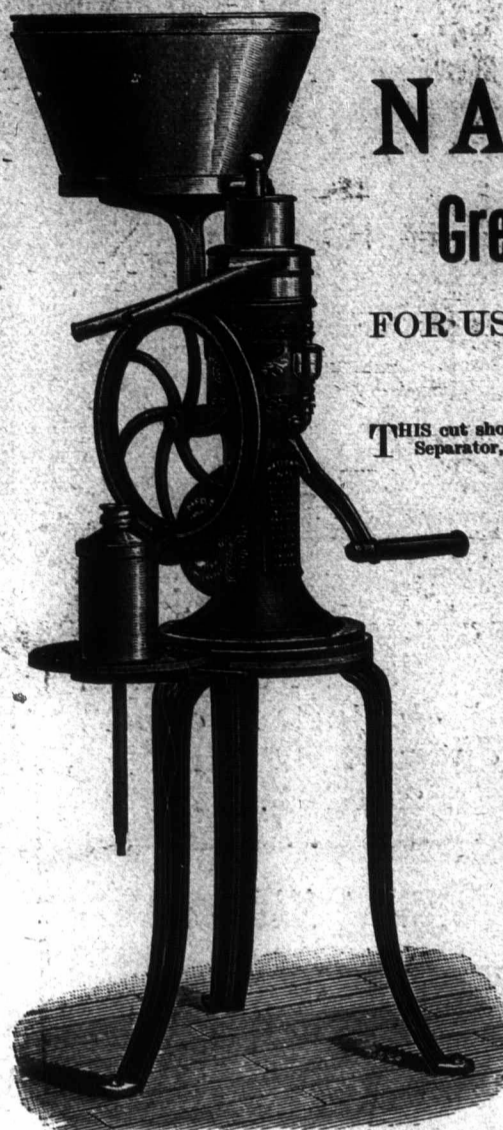
A MACHINE

to weave fence of coiled hand steel spring wire at half price of factory fence. \$25 buys wire for 100 Rod Fence. Catalogue Free. Address, Carter Wire Fence Mach. Co., Box 6, Mt. Sterling, O.

S. CROUCH, Box 12, Ridgeway, Ont., General Agent for Ontario. FRED SMITH, Box 16, Brandon, Man., Agent for Manitoba and N.-W. Territories. No duty on wire.

Myself cured, I will gladly inform any one addicted to Morphine, Opium, Laudanum, or Cocaine, of a never-failing, harmless Home Cure. Mrs. M. F. BALDWIN, P. O. Box 1212, Chicago, Ill.

PLEASE MENTION FARMER'S ADVOCATE.



THE
NATIONAL
Cream Separator

FOR USE IN FARM DAIRIES

THIS cut shows the "National" No. 1 Hand Power Cream Separator, manufactured by The Raymond Manufacturing Company (Limited), Guelph, Ont. Since the introduction of this machine, it has taken so well that we have not been able to supply the steadily increasing demand. It has proved a decided success from the start. We have consequently been obliged to increase our manufacturing capacity, and have put in a number of the most improved machines obtainable, by which we are now in a position to more than double our former output. No expense is being spared to make the "National" a perfect machine, and we believe we have succeeded so far as to claim that it has no equal for:

- 1st. Closeness of Skimming, and smooth, even condition in which it leaves the cream under all circumstances.
- 2nd. Easy Cleaning. It takes only about half the time that other Separators require, on account of the few pieces there are to handle.
- 3rd. Ease of Running. Its simplicity of construction, having so few bearings, and those being anti-friction ball bearings, makes it such an easy-running machine that a boy or girl from ten to twelve years of age can operate it.

A trial of the "National" is all that we ask in order to ensure a sale to an intending purchaser. The sale of this machine for the Province of Ontario is in the hands of

THE CREAMERY
SUPPLY CO.,
GUELPH, ONT.

"NATIONAL" NO. 1 HAND POWER.
Capacity, 330 to 350 lbs. per hour.

The Raymond Manufacturing Company of Guelph, Limited, Guelph, Ont.

Government Analysis.

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

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

St. Lawrence Sugar Refining Co.'s

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

99⁹⁹/₁₀₀ TO 100 per cent. of pure Cane Sugar, with no impurities whatever."

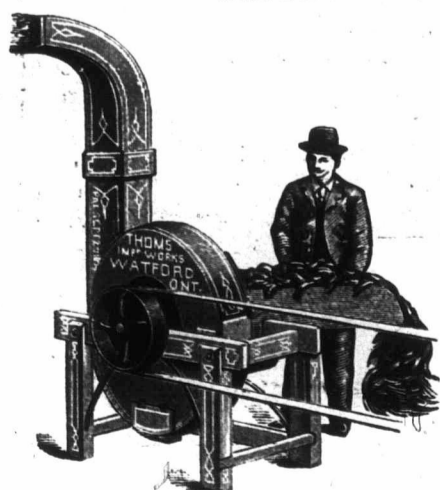
(Signed) JOHN BAKER EDWARDS, Ph. D., D.O.L.,
Prof. of Chemistry and Public Analyst, Montreal.

Great Success!

THOM'S PNEUMATIC AND PROPELLER
ELEVATOR

FEED CUTTERS

"With Our Machine Canada Leads the World."



Suitable for all kinds of farm power, from the two-horse tread to the threshing engine. A successful record since '94. Speed required only 450, and marvellous results. Also patentees and sole manufacturers of the famous

RIPPER FEED CUTTER.

Cornstalks cut with the Ripper will fatten stock quickly. All that is LATEST and BEST in feed cutters and tread powers. Place your orders now, prices must advance before next fall.

THOM'S
IMPLEMENT WORKS,
WATFORD.

Send for testimonials. Established 1873.

BINDER
TWINE

FARMER'S

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

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

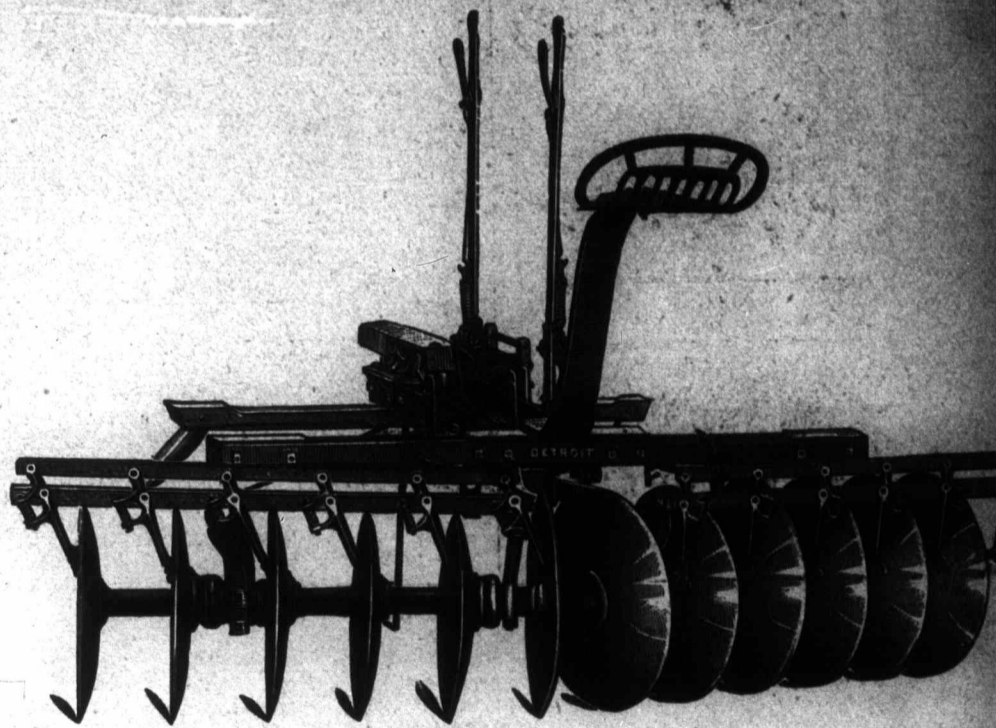
We pack our twine in bags of the size of ordinary grain bags, and we are not ashamed to put our name upon it. Don't take any other.

CONSUMERS' CORDAGE CO.

Limited.

MONTREAL.

Head and Shoulders!



BOWEN & SONS, ENG. THE WINDSOR DISK.

The Largest Makers of Disk Harrows in Canada.

"Why" take a flimsy, cheap-made harrow when for a few dollars extra you can buy the "Windsor," with ball bearings, double levers, double steel frames, patented pole attachment, etc. This harrow is Head and Shoulders above any other. All sizes. See sample.

THE Frost & Wood Company
LIMITED.

Smith's Falls,
Toronto,
Winnipeg.

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

Bell Piano

And there is no better to be had.

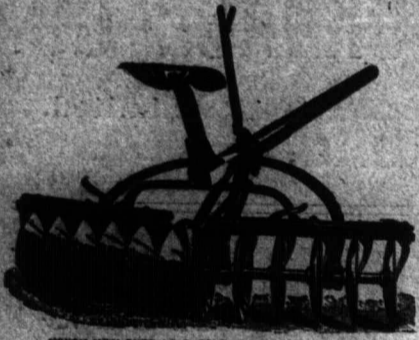
The orchestral attachment renders possible the effect of sixteen different stringed instruments. It is used only in the "BELL." Send for free booklet, No. 40, it tells all about it.



Built to last a lifetime.

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

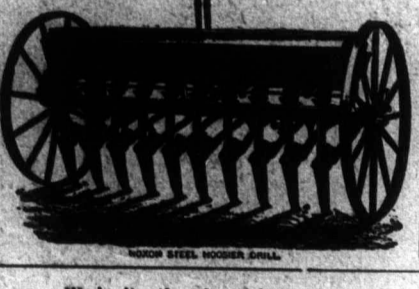
Have you noticed that one pound of Blue Ribbon Ceylon Tea is equal to a pound and a quarter of any other kind?



NOXON NEW BUFFALO PATENT ALL STEEL DISC HARROW.



NOXON No. 12 SECTIONAL SPRING TOOTH CULTIVATOR.



NOXON STEEL HOOSIER DRILL.

The Universal Favorite Noxon Disc Harrow (OUT-THROW).

The only Disc Harrow that has adjustable pressure springs. This feature is invaluable on hard or uneven ground.

NOXON New Sectional Spring Tooth Cultivator

(Fitted with grain and grass sowing attachments if desired), with reversible points, also thistle cutters if ordered. The lightest draft, best working and most easily operated cultivator manufactured. The teeth work directly under the axle and within the wheel line.
See the New Spring Lift.

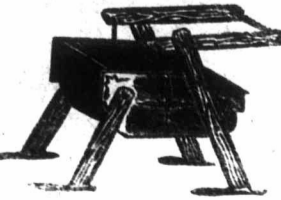
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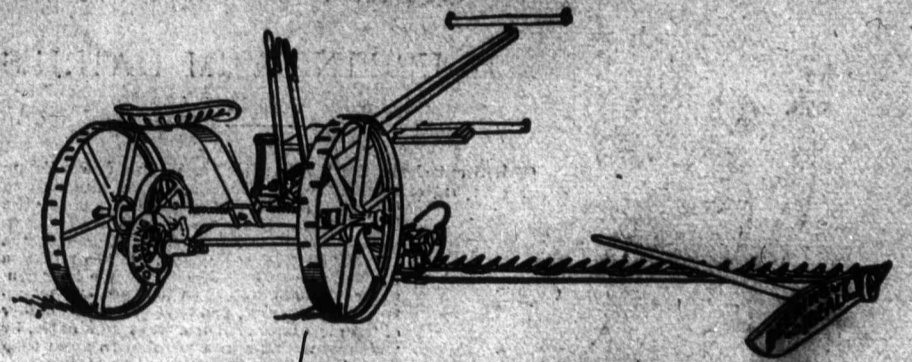


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