

**PAGES
MISSING**

THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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VOL. XXXII.

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No. 443.

EDITORIAL.

Dealing with Tuberculous Animals at the Iowa Experiment Station.

In conversation with Prof. C. F. Curtiss, Director of the Iowa Agricultural Experiment Station, a member of our staff learned recently that from time to time (once in four or five years being considered sufficient where the herd is properly cared for) their herds of cattle are subjected to the tuberculin test, and out of quite a large number of animals injected never more than three or four have responded at any time. We also made enquiries as to their method of procedure in case of animals responding to the test, which is an important point for the consideration of stockmen at the present juncture. Such animals are at once separated from the others and are fitted rapidly for beef. When fat enough for the market they are sent to the Chicago yards and subjected to the regular yard inspection, which is very rigid, and if, upon slaughter, the condition of the flesh is found to be wholesome, the station receives beef price for them; but if otherwise, they go into the tanks for soap grease, fertilizer, etc., the station receiving tankage value. Very seldom has an animal ever had to be sacrificed to the latter purpose, as in almost every case the disease has been in very early stages or thoroughly encysted so that the flesh was regarded as perfectly healthful by the inspectors.

Live Stock at the Dominion Experimental Farms.

Recurring to the subject dealt with in a leading editorial in our last issue on the topic above indicated, we desire to say we are persuaded that in the case of these experimental stations where there is no school of agriculture connected with them and no pupils are to be instructed regarding the distinctive characteristics of the different classes of pure-bred stock, it is a mistake to undertake to keep on exhibition representative animals of the various breeds of stock.

In the first place, they are not needed at these stations for educational purposes, and if, at a public institution to the maintenance of which all contribute, samples of a few breeds are kept, to the exclusion of others which have equally as honest admirers and as strong advocates, the procedure savors of favoritism and an invidious distinction, while as a matter of fact all the established breeds are entitled to recognition on equal terms, and it is manifestly impracticable to keep on one farm representatives of the forty different breeds of horses, cattle, sheep, and swine. An example of the folly of favoring one breed was afforded by the Dominion Government a few years ago in their engaging Percheron stallions, from a company in the Province of Quebec, to stand at the different experimental farms at a nominal fee for the improvement of stock, the result being that a beggarly few availed themselves of the privilege and that many others protested against the introduction at the public expense of stock which they claimed was not suited to the needs of the country.

In the second place, the men in charge of these stations may not all be good judges of all the breeds of stock, and if they were they are not allowed a free hand to purchase the best within reasonable limits as to price for that sort.

In the third place, the official in charge of the stock department may have predilections and prejudices with regard to certain breeds and may be disposed to favor one breed in preference to another and to give his favorites better care and treatment, and thus to create a prejudice against some breeds. In the fourth place, the sale of surplus breeding stock from these farms for breeding purposes must, in order to be free from suspicion,

be made by public auction or tender—thus they improperly come into competition with breeders—and if the stock offered is inferior, as it is liable to be, judging from what we have seen at the farms, the low prices obtained set a low standard and a false one of the value of good stock, which reacts upon the business of breeders and gives a wrong impression of the value of improved stock.

We submit that the proper sphere of these stations, in their agricultural sections, outside of the regular operations of the farm, is to conduct experiments in the management and feeding of cattle, sheep and swine with a view to ascertaining the possible gain of weight in a given time or the quantity and quality of milk and the cost of production, the quality of meat produced from the feeding of different foods and rations, and so on. For the purposes of these tests suitable animals could readily be purchased at the market prices and their slaughter conducted under inspection of expert judges of the quality of meat, so that valuable lessons might be demonstrated which would be helpful to farmers and feeders in determining the best methods to be pursued in breeding, selection and feeding. Limited herds of grade beef and dairy cattle might also be kept on the farms and experiments conducted to determine the advantage or otherwise of such points as feeding beef and dairy animals tied in stalls or loose in large covered enclosures part or all of the time during winter months, a system followed at the farms of Hon. Mr. Mulock; W. C. Edwards, M. P.; John McMillan, M. P., and others, and by some dairymen as well. The question of the relation of constant or periodical water supply to milk flow is one of special interest to every dairy farmer from Prince Edward Island to British Columbia. The effect of exercise and the length of the fattening period on the production of the modern type of bacon, cross-breeding, and grading and rations, toward the same end, all open up important lines for continued investigation. The consumptive demand for food products is all the while becoming more critical and competition keener, so that we must produce a more fancy article at a lower cost if possible. Then there is still work to be done in the line of experiments to determine the best means of producing the largest quantities of fodder and foods for fattening or producing flesh, milk, butter, wool, etc. So important are these and the problems arising in connection with animal diseases that the U. S. Secretary of Agriculture in his annual message the other day recommended the establishment of a national experiment station on an extended scale solely for such work. It would therefore seem that the time is ripe for an advance movement along these lines at the Dominion Experimental Farms, where comparatively little has been attempted in the past.

Transportation of Pure-bred Stock.

A question which may well engage the attention of the stock breeders at their annual meetings at Brantford during the week of the fat stock show is the feasibility of securing reduced freight rates on pedigreed stock eastward on the same terms as are now conceded by the C. P. R. for the transportation of registered animals to Manitoba, the Northwest, and British Columbia. This would greatly facilitate the interchange of "fresh blood" and enable Eastern breeders, such as those in the Maritime Provinces, the more readily to obtain extra supplies for their provincial trade should their own stock run below the demand, because we look for a great impetus to breeding operations throughout Canada at an early day. More reasonable transportation charges is the one thing needed to bring this about. We will go further and say that we see no reason why the privilege granted for the Manitoba and Northwest trade should not be granted for the carrying of pure-bred male animals

at least from one point to another anywhere in the Dominion. Viewed from a business standpoint, we are free to state our opinion that the railroad companies would ultimately be the gainers by this course, as the impetus which would be given to the live stock industry would in a very few years bring large returns to the roads in increased shipping of stock not only from point to point on the road but from the extreme West to the extreme East and for the export trade, as well as from East to West for breeding purposes.

The opinions given by Mr. Hobson, President of the Dominion Cattle Breeders' Association, in an interview since his return from Great Britain, where he studied the requirements of the cattle markets, emphasize the necessity of improving the breed of our beef cattle if Canada is to get her own share of the export trade, which she is not now enjoying, for the simple reason that so small a proportion of our cattle are good enough for that trade. The fact that leading Canadian exporters have for several years found it necessary to buy cattle in Chicago during the winter months, and lately in Buffalo, in order to meet their engagements, and that one of them has gone to Argentine for a larger field of operations, points to the absolute necessity of Canadian farmers and feeders taking vigorous steps toward the improvement of their offerings by breeding and feeding on up-to-date lines if they would not be left far behind in the race for supremacy in the British market, and one of the first steps toward that end is to secure reasonable rates of transportation for pure-bred stock, so that all who have the ambition may have the means of securing the new blood that is necessary to accomplish this end.

The Request of the Breeders.

Below we give the resolution adopted by the Dominion Cattle Breeders' Association at the last annual meeting, held in Guelph, Ont., on Dec. 7th, 1896, a similar memorial being passed by the Dominion Sheep Breeders' Association, and ordered to be forwarded to the Dominion Minister of Agriculture:

"That this association respectfully memorialize the Minister of Agriculture in the Dominion Government to appoint to the position of agriculturist at the Central Experimental Farm, not only a practical farmer, but also a man thoroughly in touch with and acquainted with the needs of the livestock raisers of the country, and that a copy of this resolution be forwarded to the Minister of Agriculture for the Dominion."

These emphatic declarations indicate very plainly the mind of the influential and representative agriculturists and breeders composing these organizations regarding the carrying on of work at the Central Experimental Farm. No one begrudges the \$73,000 or \$74,000 (some \$32,000 of which goes to the Central Farm at Ottawa) that it costs to run these institutions, or more if really needed, nor desires to belittle a good deal of what has been undertaken; but in a country like Canada, where live-stock keeping is the farmers' sheet anchor and where the natural adaptability and past achievements alike show that a position of pre-eminence is to be maintained, farmers and breeders have a right to insist on more appropriate recognition of these lines of investigation, which in comparison with others they have not received in the past.

Returned to His First Love.

To the Editor FARMER'S ADVOCATE:

SIR,—I am much pleased with your paper, the ADVOCATE. I have been taking it for about twenty years, with the exception of about three years. Lately I have been trying other agricultural papers that came from the other side, but I find none so good for this province as the FARMER'S ADVOCATE. I would say every farmer in Canada should take the ADVOCATE.

JOHN HOLBORN.

Elgin Co., Ont.

THE FARMER'S ADVOCATE AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN
THE DOMINION.

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JOHN WELD, MANAGER.

1. THE FARMER'S ADVOCATE is published on the first and fifteenth of each month.
- It is impartial and independent of all classes or parties, handsomely illustrated with original engravings, and furnishes the most profitable, practical, and reliable information for farmers, dairymen, gardeners, and stockmen, of any publication in Canada.
- TERMS OF SUBSCRIPTION—\$1.00 per year in advance; \$1.25 if in arrears; sample copy free. European subscription, 6s., or \$1.50. New subscriptions can commence with any month.
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- LETTERS intended for publication should be written on one side of the paper only.

Address—THE FARMER'S ADVOCATE, or
THE WILLIAM WELD CO.,
LONDON, ONTARIO, CANADA.

Government Dealing in Breeding Stock.

We are in receipt of letters from two different breeders of pure-bred stock in the Maritime Provinces, in which they vigorously condemn the system adopted by the Government of one of the Provinces of sending out agents or commissioners to purchase breeding stock to be exposed for sale at public auction to the farmers, public money being used, and the loss, being the difference between the cost price, including expenses, and the price obtained, being charged up against the people. One of our correspondents writes: "The importation of cattle by our Provincial Government has doubtless driven nearly all the old breeders of beef cattle out of business, as well as injured the breeders of dairy stock, and I think that any Government that should have made an importation of dairy stock at a time when young breeders were endeavoring to organize and get down to real good work deserves the severest censure. Breeders prefer doing their own importing and making their own selections rather than entrust that work to men who have no knowledge of good stock whatever." It must be admitted that there is some force in these arguments, and especially if selections of stock are made by men inexperienced and uninformed in regard to the qualities of the different breeds of stock, and when inferior animals are purchased, for the reason perhaps that the price is low. Our second correspondent says: "The writer had the privilege of attending the sale of 100 sheep that our Government imported from Ontario this fall, and the lambs could not compare with our own for size." We understand that these sheep were sold at prices representing a heavy loss as compared with the cost price, which, from what we know of the stock, we judge was not high, but the fact that they were not of a high standard of excellence probably accounts in a large measure for the unsuccessful sale, while the introduction of inferior stock hurts the reputation of breeds and breeders, and paying freight charges and other expenses on that class of stock cannot be justified on business principles. Since exception is taken, and with some foundation, to this system, we submit that probably equal or greater service could be rendered the farmers of the Maritime Provinces, who are desirous of securing from time to time good fresh blood for breeding purposes, if reduced rates of freight were arranged for the transportation of registered stock on the same basis as that on which such stock is now carried by the C. P. R. from Ontario to the Northwest Territories and British Columbia, instead of paying high freight rates on inferior stock. The eastern farmer and breeder could then arrange to make his own selections or entrust the selection to competent men in the West, and by this means business could be promoted and improvement of stock encouraged to the advantage of both buyer and seller. The Maritime breeders and farmers should also be accorded by the local railways the advantages of special lower rates on pure breeding stock shipped from point to point within the provinces.

A Personal Request.

DEAR READER,—In the last copy of the FARMER'S ADVOCATE for 1896 we promised a number of improvements for 1897. Among these was a new and substantial cover of fine paper in corn and gold colors. But first in importance, as far as practical value to the farmer—be he stock breeder, feeder, dairyman, fruit grower, poultryman, or beekeeper—was an increased and improved quota of articles and letters. Has the pledge been redeemed? We are content to abide by the judgment of the reader. "An excellent paper, full of valuable information," writes Mr. David Robertson. "Holds its own against all comers," says Mr. C. A. Cass. "Every farmer," writes Mr. Alfred Judd, "should take and read the ADVOCATE thoroughly." Mr. G. C. Caston observes: "Glad to see you still lead." "Worth \$5 a year," says another in a postscript; and so on through scores of unsolicited testimonials that every mail brings. Encouraged by the cordial appreciation of the past, and the better times (which we predicted a year ago), we have mapped out a further advance for 1898. To get out a high-class paper of this sort requires the "sinews of war." Will every present reader, by prompt renewal, and at the same time sending us one or more NEW SUBSCRIPTIONS, sustain us? We believe they will. Wherever the paper goes it helps to make farming pay better. We should have at least 50,000 Canadian readers before the end of 1898. The current issue gives a fair idea of what may be expected in reading matter and illustration. If you wish extra sample copies for persons whom you know ought to take the paper, send us their addresses or drop us a post card for samples yourself.

The Christmas Number for 1896, our initial effort, proved a unique success, 11,000 or 12,000 extra copies being required to meet the demand. With that experience we have planned for the number of 1897, to be issued on Dec. 15th, a much handsomer and more valuable treat, both in illustration and articles, from the most skilled artists and capable writers in Canada, from the Maritime Provinces to British Columbia, and in Great Britain as well. A very wide range of subjects—national in their importance—will be ably presented, bearing mainly on the fundamental conditions of progress and success in Canadian agriculture, but introducing many new and interesting features. The advancement of Canada's live stock interests will be fully dealt with by men who understand every phase of the question. The interests of Western Canada will be ably set forth both by writers and illustrations, a magnificent set of original photographs having been secured for the latter purpose. Our artists have for some months been at work on the colored illustrations—to be in ten-color effect—for cover and inside, which are now sufficiently advanced for us to speak with assurance regarding them. Worth at least half a year's regular subscription price to the paper, we have, however, decided to supply a copy of this splendid number free to every new subscriber during the present month (Dec.) and January for 1898. Persons desiring extra copies as a holiday souvenir for mailing abroad or to friends away from home should advise us at once as to the number required. We will supply our regular subscribers with extra copies at 10c. each, or non-subscribers at 25c. each.

It is not necessary to direct the attention of our readers to the Bagster Bible, book, jewelry and other beautiful premiums, which speak for themselves, and which are being very widely taken advantage of.

Thanking you for past appreciation and support, and looking for an early and hearty response to the requests indicated above, we remain,

Yours faithfully,

THE WM. WELD CO. (LIMITED).

Couldn't be Without It.

I hardly know what we farmers would do without the FARMER'S ADVOCATE. It is invaluable. I at least would miss it.

A. D. GAMLEY.
Selkirk, Man.

Farmers' Institute Speakers.

BY "M."

The twelfth annual series of Farmers' Institute meetings will shortly commence, and the announcement is suggestive of many things in connection with them. It is too late in the day to question their usefulness. Statistics afford proof of the success of the system. There has been a steady annual increase in the attendance. Last year 659 meetings were held; 3,277 addresses were delivered; and the total attendance was 125,177. These are impressive figures, and must be very gratifying to those who are responsible for the work. We need not, however, imagine that each one of those 659 meetings was a success, or that every address was a model of its kind. Nor need we think for a moment that there were 125,177 people who were perfectly satisfied with the meetings and the speakers. It is not proposed here to analyze the circumstances that lead to and accompany failure, but rather to throw out some critical and suggestive thoughts concerning one great factor in the success or failure of these meetings—to wit, the speakers. We may say, however, in passing, that we do not by any manner of means wish to intimate that speakers are mainly responsible for the way things go. Half the battle lies with the local officers and the chairman; and audiences themselves can do much to make or mar a meeting. We recall a case in point which happened last season in a district which shall be nameless. After a long, cold drive in the dark, the delegates arrived at the place of meeting. The audience numbered two, one of whom left the room directly the delegates entered it! A cheerful kind of secretary in that Institute, surely! A great deal, too, lies with the chairman. This, indeed, is a more important matter than most people realize. We have seen as many meetings ruined, or at least fall short of success, from the fact that an unsuitable man was in the chair as from any cause whatever. A chairman is supposed to keep order and to introduce the speakers. If he can't do the first—and some of them can't—he will undoubtedly kill any meeting. But even if he can keep order and can introduce the speakers, something more is wanted. It is for him to say the bright word, suggest questions, guide discussion wisely, rouse the enthusiasm of the crowd, and without much talking on his own part, create such an atmosphere that everybody else is glad either to talk or to listen. If a man consents to take the chair, he should feel qualified to do so. He should realize that on him in no small measure rests the success of the meeting. It is to no purpose that a man is a successful farmer, a good citizen, an amiable father, etc. He may be all these, and at the same time a "stick" of a chairman. The fact is, a chairman should prepare himself for his office as carefully as if he were one of the principal speakers—which he is.

But while all this is felt rather than understood, it is the official speakers—the delegates—on whom usually fall the praise, the criticism, and the censure; and on them lies a large share of the responsibility. The ideal Institute speaker is more easily imagined than found, and far less easily found than the ideal critic. It's a small meeting that doesn't hold at least half a dozen full-fledged critics. The ideal speaker is obviously he who understands experimentally all the practical details of his subject, and who can at the same time so translate his knowledge into words as to impart to his audience all he knows, and carry them with him by the swing and interest of his speech. Not very easy to do, perhaps, but an ideal at which all speakers can aim. As it is, we are too often confronted by men who are eminently practical and successful, and yet who, from sheer lack of manner and language, cannot once rouse the interest of their audiences; or, on the other hand, by men with a fatal fluency of speech, but no real and comprehensive knowledge of facts. Undoubtedly the keynote to success is thorough preparation, and this not only as to the matter but as to the manner of the speech. A famous preacher used to say, "There are three kinds of speakers—those whom you can't listen to, those whom you can listen to, and those whom you can't help listening to." The last sort only become such after the most patient and strenuous attention to all the details which contribute to success. There are many reasons why Institute speakers should prepare thoroughly for their work. For one thing, the very process gives him unconsciously more confidence in himself. For another thing, these Institutes have been some time in operation, and people are beginning now to compare speaker with speaker, and in the threshing out of some knotty problem, the unconvincing answer of speaker A is met with "but Professor B told us so-and-so." A delegate may at least pay himself and his audience the compliment of a close study of the scientific side of his subject. Woe to him if he doesn't! In the dullest of audiences he is likely to run up against a "snag." His pseudo-scientific statement, laid down with an air of finality, will meet with some pertinent, house-searching question from an O. A. C. graduate, or from a man who reads, and he is put to hopeless confusion, and the good he really did do is straightway undone. While we believe that it is wise for a speaker to utter what is in him boldly and confidently, rather than to shove things out diffidently and tentatively, yet it is equally wise and unspcakably more honest to "plank out" a plain "I don't know" than to come out with a plausible but shaky and unsatisfying answer.

As to the question of reading versus speaking, one should be lenient in judging. An old hand at

Institute work, who has gone over his subjects again and again, is, of course, free from the hampering restraints of a paper; but there is a danger of a man getting too discursive and disconnected if he doesn't restrain himself by a methodical plan of campaign. A thorough familiarity with the subject, and the use of full notes, we believe to be the best plan. A beginner taking a somewhat ambitious subject will probably read his matter, and we have known such things well done, but there is doubtless a hampered feeling, and, as a rule, such reading is a failure; the old objection will crop up: "A didna like the sermon for three rizzins: first, ye read it; secondly, ye didna read it well; and thirdly, it was na worth readin'."

One thing that sometimes bothers and sometimes helps a speaker is the question of humor. Some of the jokes which are now worked off on inoffensive audiences are very grandfatherly ones indeed. There is no hard and fast rule to lay down. The joke has its place. "A joke," says Horace, "will often decide a weighty matter more powerfully and better than severity." We have known more than one speaker fail from an utter lack of humor. People come a long way to such meetings, and some of them have little enough to lighten the burdens of life at home. Small blame to them if they look for and enjoy a good laugh at such times. They will listen all the better for so natural a relief. But joking must not be overdone nor degenerate into a string of nonsense. We believe the most successful and desirable speaker to be the prepared man—equipped both as to manner and matter, alive to the importance of the small details, light in touch, and weighty in argument. While, however, audiences will never be wanting to such a man, it should be remembered that audiences are not without their duties. Good listeners are almost as scarce as good speakers, and a generous, responsive and sympathetic audience will assist in lifting the speaker to higher levels.

How Should the Stock be Watered?

During the few years preceding 1896, when dairying had to be conducted economically and wisely in order to insure a profit, many of the most valuable lessons in conducting the business have been learned. When a happy-go-lucky method could be indulged in without a pinching of the pocketbook, few people troubled themselves as to whether the animals were made comfortable or otherwise. It has now become generally recognized that the maximum of profit cannot be obtained in either milk or meat production except the comfort of the animals be given due consideration. This fact has been recognized and acted upon by a number of FARMER'S ADVOCATE readers, as was clearly indicated by those valuable letters on the subject of watering stock in Nov. 15th issue. As pointed out by Mr. Tillson and Mr. Hallman, a great deal of discomfort and insufficient watering must result from the too frequent method of outdoor watering once a day. It might be mentioned just here in passing that Mr. Tillson made a strong point, unintentionally, however, we believe, in favor of dehorning cattle, with which practice we understand he is not in sympathy. His letter pointed out that "in outdoor watering it was found necessary to have quite a number of long watering troughs, in order that they may all drink in a reasonably short time, and then they are inclined to hook and drive one another about, and some of the weaker and more timid ones will not get a chance to drink at all unless left out a long time, which is bad for them on cold, stormy days." Since Mr. Tillson has adopted such a complete system of inside watering, there is very little reason for having his excellent herd dehorned, but where Mr. McMillan's system is adopted, that of wintering the cattle in loose pens, dehorning is a necessity, while the great advantage of continued increased docility is a benefit throughout the entire year, whether the cattle are in the pen, field or paddock.

In this issue we have a very valuable and practical letter from Quebec Province, from the pen of Mr. Chas. S. Moore, who has not only solved the difficulty of winter stock-watering, but has also learned how to economize labor and save in the best possible condition all the manure from the stock and litter. A note of warning may aptly be sounded here in regard to a danger that is likely to arise when cattle have not to be turned out for water—that of too little exercise and fresh air. While it does not follow that because they have not of necessity to be turned out for water that they will never be allowed a run in the open yard, still there is a tendency, when people are busy and the stock appears contented, to leave well enough alone, and neglect to turn them out perhaps for a month, or in some cases three months, at a time. It needs little argument to prove that such close confinement cannot end in good, as it requires active exercise to cause an animal to use its entire lung capacity in breathing, and when cattle are hardly moved out of their tracks for weeks together

the bottom lobes of the lungs must, especially if confined in a close stable, become loaded with effete material, and thus rendered a fitting culture for the bacilli of tuberculosis. We would not contend for a moment that the cattle—milking cows especially—should be turned out of a warm stable and left until they become chilled and humped up, for a great deal of money has been lost by that very method. The thing to do is to use judgment, without which no business can be made successful.

Such letters as those referred to, and many others recently published, must be recognized as exceedingly helpful to thousands of readers. There are hundreds of others of our readers, we are sure, who have just as good suggestions to offer upon methods which they have found of great advantage but are not generally known. These, if given to the hosts of the agricultural fraternity who read the FARMER'S ADVOCATE, would confer an invaluable favor, and by a liberal exchange of views on these points, to which our columns are always open, all will be benefited and encouraged in the honest effort for an honorable livelihood.

Agriculture in the Public Schools of Ontario.

The teaching of agriculture in the public schools has been a live topic for a number of years in more than one Canadian province, and from time to time schemes have been adopted to fit teachers for taking up this subject in a practical way, but as yet the results have not been the most satisfactory to those who have the subject at heart. During the past twenty-five years the teaching of agriculture in Ontario has at different times been both compulsory and optional, but the indifferent results attained indicate that in the carrying out of both plans there has been some fundamental weakness. About ten years ago the Ontario Agricultural Text Book, prepared by Profs. Mills and Shaw, of the Ontario Agricultural College, was issued, but teachers did not take it up enthusiastically. Trustees were given power to make the teaching of agriculture compulsory, but this evidently had not behind it a sufficiently advanced public sentiment, and since many teachers were unqualified and indifferent this proved futile. To remedy the defect of inefficiency on the part of teachers the Honorable Minister of Education for Ontario has arranged that teachers in attendance at the Toronto Normal School shall spend one day each term at the Provincial Agricultural College and Experimental Farm examining the experiments being conducted on the farm, the work of the laboratories, the dairy and other departments. Besides this, it has been arranged with the faculty of the Guelph College that a course of ten lectures be given at the Normal School on the subjects of geology, economic entomology, botany, etc., as they apply to agriculture. The Ottawa Normal School is situated within a short distance of the Central Experimental Farm, and on each Monday morning the teachers in attendance go out to the farm by street car, and by observation and lectures become familiar with the scientific and to some extent the practical aspects of agriculture. A competent knowledge of agriculture, at least technically, is necessary in order to obtain a Normal School certificate. Before the opening of the schools in September, 1898, it is proposed to have an elementary course in agriculture mapped out for all the rural schools.

Winnipeg Industrial, July 13th to 18th.

The Winnipeg Industrial Association has decided upon holding the 1898 fair one week earlier than usual, from July 13th to 18th. This is a move in the right direction and will prove a great convenience to nearly all visitors and exhibitors, especially live stock breeders. Haying generally begins about the 20th of July and few farmers can afford to be away from home at this important time; the fair coming a week earlier will permit of them visiting the Industrial and returning home in time to start the hay harvest. It will also be much better for any of the other fairs that may wish to form a circuit along the main line of the C. P. R., as was done this year. It may come a little hard on stallion owners, as it affords little time to get stallions into fix after coming off the road. Exhibitors of vegetables and roots will also be diminished to some extent, but little can be expected along this line at a July show. There is no doubt that the earlier date will meet with general approval.

A Profitable Expenditure.

I am absolutely certain that the most profitable expenditure on my part in the past year has been on agricultural papers. I consider that every number of the ADVOCATE is worth a year's subscription to any thinking and practical farmer.

Alberta.

CHAS. W. PETERSON.

STOCK.

New York Horse Show.

The thirteenth annual New York horse show came to a successful conclusion on Nov. 20th, after a week's keen competition and liberal patronage. While the Chicago event of two weeks previous played a strong hand for society support, their effort resulted more generally in a characteristic horse show than the Madison Square undertaking. In the West every class of horses in Chicago was given its full value, the various draft breeds as well as the light-legged sorts and ponies. In New York it is different; the heavy sorts are evidently not wanted. They did not come out numerously when more prizes were offered, but it would seem a wiser policy to undertake to induce the useful heavy breeds rather than to almost eliminate them from the list. Their presence might not add much to the gate receipts, but they certainly would help to better fulfill the purpose of a horse show in teaching the different types and styles of horses fitted for the different purposes of pleasure or work;—with the heavy sorts, work.

The show is becoming more and more made up of schooled horses. The harness classes, as well as those shown under pigskin, largely predominated. While there were just five entries in Thoroughbreds, Standard-bred trotters made a capital display. The great sire, Stamboul, 2.07½, by Sultan, owned by E. H. Harriman, was the champion of the breed, followed by Harry Hamlin's Chimes, 2.30½, by Electioneer. A number of other noted horses from extensive stud farms competed in the various sections.

Among the Hackneys many of the Chicago winners, from the studs of F. C. Stephens, Attica, N. Y., and A. J. Cassatt, Berwyn, Pa., asserted their claim to acknowledged superiority. The former, with the tidy, beautiful Clifton II., won the challenge cup for the second time, thus entitling Maplewood Farm to its ownership. Cadet and his family repeated the Chicago feat in competition for stallion and four of his get. The junior champion was found in E. D. Jodan's Prince Oropotton, by Danegelt. Both female championships went to Maplewood stud; the senior being awarded to Stella, by North Star; her stable mate, Lady Sutton, being reserve number. Lady Valentine, by Grand Fashion, won the junior champion honors, followed by a yearling daughter of Dr. Park, named Senorita, owned by Florham Farm.

Saddle horses and hunters filled full classes, and among the winners in a number of keenly-contested instances were entries from the notable stables of Mr. Adam Beck, London, Canada. Despite the fact that these animals had worked hard at Chicago two weeks before, and through railroad traveling became somewhat thrown off their feed and best condition, some notable winnings were recorded by them, among which were the following: Middleweight championship, with Lady Roseberry, who gave a capital account of herself; second prize on Melrose for lightweight green hunter; highly commended on Lady Kildare for ladies' qualified hunter; second prize on Lady Kildare for qualified lightweight hunter. Lady Roseberry, besides winning the middleweight championship already mentioned, stood third in high jump, clearing six feet three inches, while the champion, Chappie, cleared six feet six inches.

The Live Stock Outlook for the Future.

To the Editor FARMER'S ADVOCATE:

SIR,—It goes without saying that in Ontario we have a climate and other conditions that cannot be excelled in any other part of America for the support of animal husbandry on the farm. It has also become a conceded fact that from the competition of newer districts that have been opened up, and the exhaustion of our own soils from the constant growing grain crops, we cannot compete successfully with these newer districts in the production of cereals. But in animal industry our conditions are such that we can compete with better success. Now, I have never advocated specialties to be adopted generally, but there are cases where special lines should be chosen, either from the natural or acquired skill of the breeder or the market conditions. It is also a recognized fact that some parts of our Province are more peculiarly adapted to dairying, whilst others are better fitted for meat production. All these conditions should be carefully taken into consideration by the general farmer. Generally speaking, I think it better for the average farmer to have some of each of the lines of stock reared on the farm. Just here I am reminded of a remark made by a friend a short time ago, in which he said "a farmer should always have some pigs, as they might be low in price to-day, but it would not be long until they were 'in it.'" And I well remember an article published in the ADVOCATE some time ago, written by one of our foremost stock raisers and agricultural writers, in which he said "we should not have all our eggs in one basket." Neither would I advise all to go into the rearing of pure-bred stock of any of the breeds, but I would like to emphasize this, that every producer of farm stock should use a pure-bred sire, and by all means make a specialty of producing a larger share of such stock that meets the requirements of his market and environments the best. Just now it would seem to me that the conditions are favorable to breed more horses of such types as the market conditions require. Horses have been for a few years low in price. This has

discouraged many from breeding them, hence they are becoming somewhat scarce, and will, in my opinion, be so for a few years at least. Then, again, sheep and lambs are commanding better prices than they have for some time, because the market is higher in Buffalo and other American points. This has been brought about because the American farmer is somewhat different to his more conservative Canadian brother. As a general thing, he is either right in a thing or he is out of it, and just now many of them are out of sheep, and they are finding out that they want them. From these causes there is likely to be a good market, for a time at least, for both breeding and mutton sheep. Stall-fed and grazing cattle realized better prices the last season than they had done for some time formerly, but that should not be a reason why we should go into these lines of meat production too exclusively, nor should we go out of it altogether.

Bruce Co., Ont.

JAS. TOLTON.

Sheep—Cross-breeding.

To the Editor FARMER'S ADVOCATE:

SIR,—I was not a little amused on reading in your issue of October 15th the paper by Mr. John Renton on the above-named subject, in which, in my opinion, he went out of his way to get a kick at the Cotswolds. My amusement was caused in part by the little coincidence that in the same issue the result of the lamb-feeding experiment (No. 2) conducted at the Iowa Experimental Station appeared, in which Mr. Renton's arguments or theories are completely floored by actual results, not by guess or estimates, but by scale weights. In this test of Canadian-bred lambs of nine breeds, the report says: "The relative rank of the breeds in the comparison and cost of gains is much the same in both tests. *The Cotswolds again lead.*" The italics are ours. In the first test (see report in ADVOCATE for Nov. 16, 1896) the Cotswolds showed a greater

Method of Watering Stock -- Covered Yard.

SIR,—Our barn is a rectangular structure 100 feet long and 40 feet wide, with a neverfailing well outside the west end wall. Originally the cattle were stanchioned in two long rows on each side of the feeding alley, which ran from end to end through the center of the barn. A pump on the inside, at the west end, drew the water from the well and distributed it to the cattle in two long troughs which were placed above the mangers. This plan was not satisfactory, as the urine collected under the stable floor and polluted the well; hay seed and dirt collected in the trough and added other taints to the water; and the animals suffered from want of exercise, as they could not be turned out with safety into the icy barnyard. The manure had to be drawn out every day or else piled against the wall behind the cows.

Three years ago we adopted another plan. We divided the barn in the center by a board fence—principally gates—running across at right angles with the feeding alley. The south side of the east end contains stanchions and mangers for fifteen head. The north side of the same end will hold seven head of cattle and four horses. Two large box stalls capable of housing six or eight young cattle were built in the north end of the barn (we ultimately removed the floor and the stanchions from the entire half). All of the remaining room in the west end was devoted to a covered yard. After the floor had been torn out the ground was scraped clean and several loads of gravel were drawn in and levelled. My intention at first was to cement it, but the expense was considerable, so I tried the gravel as an experiment. The cattle were allowed to travel over it for several days until it became thoroughly packed down and all the droppings carefully removed in the meantime. I then put in a heavy bedding of straw and left the cows in loose at night and during the day when not being fed or milked. In front of the pump and

Watering Cows in Winter.

To the Editor FARMER'S ADVOCATE:

SIR,—Previous to this year I always let my cows out to water once a day in the winter to the trough, which was almost 40 yards away from the stable, although it was not what I considered the best or most profitable way. They would stand at a trough shaking with the cold until they considered they had a sufficient quantity to do them for another 24 hours. This I see is the system followed by most of the farmers on the Portage Plains. Some of them even go further, and after the cows have loaded up with cold ice water they are allowed to take a spell of four or five hours to stand shaking with their backs up beside a straw stack. In very cold weather I carried water to my cows. I suppose I would have carried it all the time if it had not been so far.

In laying out my new stock barn last summer one of my first considerations was to arrange it so that I would have a sufficient quantity of good fresh water in my barn at all times of the year, and so arranged that I can let the stock take it when they choose, or I can shut it off and only let them have it as often as I think they should. My well is outside the barn and connected with a force pump in one of the feed alleys, a distance of 67 feet from the well, by two-inch pipe laid five feet below the surface. My reason for having the well outside the barn is to make sure that the water will not be spoiled from any soakage from the stables, and the water after passing through the pipe will be about the same temperature as the earth. I am then placing a tank just below the upper floor and above the pump. This tank I fill with the force pump and have it distributed all over the stable with gas pipe connected with water troughs in front of each animal. In this way I will be able to water my cows twice a day, which, I think, will be sufficient when feeding a few roots once a day. A cow watered twice a day will not



FIRST PRIZE HOLSTEIN HERD AT THE PROVINCIAL EXHIBITION, NEW WESTMINSTER, B. C., 1897, PROPERTY OF WM. NEWLANDS, EBURNE, B. C.

daily gain in weight than any other of nine breeds, and at a less cost per pound of gain, and in the second test they gained 54 pounds more than Mr. Renton's favorites, and at a less cost per pound. Such stuff as Mr. Renton writes about Cotswolds is refuted every time a test of the breeds is made, and wherever good specimens of Cotswolds have come in competition with other breeds they have held their own creditably. For crossing purposes no better evidence is needed of the esteem in which they are held than that furnished by the great demand for Cotswold rams for use in the large flocks on the ranches of the Western States and Territories. This demand has been increasing for the last five years, as the result of satisfactory experience; and some idea of the extent of the trade may be gathered from the statement in the ADVOCATE for Nov. 15th that one firm has taken 1,100 Cotswold rams from Ontario to the States since July 1st, and I know that several other parties have taken out carloads during that time, and even since Nov. 1st, late as the season is, two carloads have gone from one section. Such papers as the one under review are calculated to prejudice and mislead people, and I have thought it right to enter my protest against statements which do not harmonize with the experience of the great bulk of the men who are raising Cotswolds. In no country do they do better than in Canada, and no breed is better adapted to this country, either as pure-bred or for crossing, to improve the grade sheep of the country and to establish a uniform type of profitable mutton sheep, while their fleeces bring as much money as those of any other breed. The case cited by Mr. Renton is certainly an exception to the rule, and may be accounted for by the selection of an inferior animal from a degenerate flock by an incompetent judge of Cotswolds, and an inexperienced shepherd, under unfavorable conditions; and if so, it is unfair to judge the whole breed by such an instance, while hundreds have proved the breed to their satisfaction. Having said my say, I subscribe myself,

Bruce Co., Ont.

"COTSWOLD YET."

against the wall a large tank with a capacity of sixty or seventy pails was placed. It is just low enough so that the animals can drink without difficulty, but high enough so that they cannot butt each other into it; they cannot hook, as their horns were removed before they became cows.

I consider my covered yard the best thing on the farm. In the first place, the cows are free from the stanchion or chain eighteen hours out of the twenty-four and have a plentiful supply of fresh water before them all this time. They are tied up the first thing in the morning, milked and fed, turned loose about nine o'clock, put in again at about three p. m., fed again, then milked and left in the yard all night. When the cows are eating their morning feed the manure and litter from the horses is wheeled into the yard and scattered, taking care to cover all the droppings from the cattle; this serves to keep them clean through the day and insures a thorough mixing of the manure. At night the yard receives a good dressing of straw. This method perhaps requires more straw than where cattle are kept tied and bedded, but not so much as some people would imagine, as ten or twelve tons is all that I require for a year. The yard is cleaned out three times during the winter and the manure spread at once on the snow. None of the juices are lost by leaching, for the gravel has become packed down until it is hard to distinguish it from cement. No nitrogen is lost by heating, because the horse manure absorbs enough moisture from the other manure to prevent it. The water in the well is perfectly free from any odor or taint of manure, and a drain which runs through the yard never discharges anything but clear water.

Before the barn was altered its capacity accommodated thirty-six head of cattle and six horses. We now have stall room for twenty-eight cattle and four horses, but more could be kept, for they might be allowed to take turns at the mangers and in the yard, one lot feeding while the other lot was loose in the yard.

Missisquoi Co., Que.

CHAS. S. MOORE.

take too much at once. I do not believe in watering cows immediately after feeding grain. I generally feed my cows hay in the morning, then water them, after which I give them their allowance of crushed grain; feed roots and a little hay at noon, after which I let them out for awhile, if the day is fine and not too cold. After they are put in again and eat hay until they are warmed up I again allow them to drink. In the evening I feed a little hay and a bucket of bran and crushed oats made into a slop to each cow.

In watering a fresh-calved cow, I always warm their water for them for the first two weeks, only allowing them a limited quantity of two pails a day for the first three or four days, after which I increase until they get all they want twice a day. I hope to hear the views of some or all of our more practical dairymen.

F. W. BROWN.

Marquette District, Man.

Changing Stock from Fall to Winter Feed.

The ordinary practice of most farmers in changing from fall to winter feeding is one that might be very much improved upon. Too often it is the case that stock are allowed to run until some more than ordinarily severe storm compels the owner to hunt them up and house them. If the weather continues severe they are at once put upon the dry feed ordinarily used in the winter. If it turns fine they are again allowed to run until the next storm. This is bad practice and poor economy. The change from the succulent feed of the pasture to the dry feed of the stable is too sudden—the digestive organs are not prepared for it—and even if it brings on no serious disorder the animal receives a check from which it takes some time to recover.

The working horses are least liable to suffer from sudden change of food. They are either stabled throughout the year or, in seasons of busy work, allowed to run only at night, and as they are fed in the stable during the day the digestive organs

have time to accustom themselves to the dry feed before there is a total secession of the more succulent feed of the pasture. But the brood mare, the colt and the young animals should receive particular attention at this time. If the mare has raised a colt during the summer she is probably reduced in flesh and in just that condition when she should receive good and careful feeding. The best time to begin this feeding is a little before the colt is weaned, when she should be given a small quantity of crushed oats and bran; but unless compelled to work no large quantity should be given until she has dried up her milk. By feeding her while the colt is with her the colt is taught to eat grain too, as he will pick a little out of his mother's dish. After weaning the mare should be stabled at night and milked night and morning. The dry feed will help very much in drying her off. The most critical period of a horse's life begins with his weaning and lasts through his first year. Up to the time of his weaning he has learned to eat a little grass, but has depended almost entirely upon his mother for support; but now all is changed. He should be allowed a good roomy box stall with yard attached, and given some fine sweet hay and a quart of crushed oats and bran night and morning. The object now is to keep him growing as fast as possible, and this he will not do unless in good health. Some succulent food, such as roots, should be given at noon to keep his bowels in good order.

During the fall milch cows will be getting some supplementary green food. As soon as the nights begin to get cool they should be stabled, and as the green food begins to run short it should be gradually replaced by dry food. If ensilage is used the change will not be very great, but full feeds should not be given at first. Steers that are to be fattened during the winter should receive special attention. If they have had good pasture during the summer they should be half fat by fall. They should then be given the run of the best grass to be had, and as cold or stormy weather approaches they should be stabled at night and given a feed of hay or grain. On many of our best farms now calves are not allowed to run out at all during their first year, and in such cases no great change from the ordinary feeding will be made; but if they have been on pasture they should be got in early. They may be allowed to run out during the day, but should be stabled at night and given some grain and what hay they will eat.

Sheep will find their own living much later in the season than any other animal, but they should not be allowed to lie out during the cold rains of fall. It will be found a good practice to house them at night. Lambs that are to be kept for breeding purposes should be separated from the ewes and given some clover hay. As they are gradually withdrawn from the pasture, roots and a little grain should be added to their ration. Breeding stock will do very well if given a little coarse fodder, such as pea straw, to pick. That and clover hay, with a few roots, will be enough for them until about a month before lambing, when they should gradually be given a little grain. Antigonishe Co., N. S. "AGRICOLA."

FARM.

What Farm Power Shall We Purchase?

In a country where land is expensive, farms not large, and stock-raising the principal line of agriculture, it has long since been learned that it pays to use considerable machinery in the preparation of stock food. For instance, fodder has to be cut, grain threshed and crushed, roots pulped, water pumped, and various other jobs done, such as turning the grindstone, separating milk, etc. To do these lines of work various sorts of power are in favor by different persons according to circumstances. In going among the various stockmen, as it is our privilege from time to time, we have good opportunity of seeing all the popular powers in operation, and so far as our observation directs, we are free to admit that from among the various perfected powers of the present day it would be difficult to decide which would be best to purchase for the work of food preparation, etc., on an ordinary stock farm. We believe, too, there are scores of our readers who intend to purchase some sort of power. In order to help those to decide, we herewith publish a number of letters from reliable farmers, setting forth their views regarding the actual working of various sorts of power, after considerable experience. We publish them as they have been received, and will cheerfully give place to the experience of others who will kindly endeavor to assist brother farmers in this and other matters. Time is too short and experiments are too expensive for every man to find out for himself the various advantages and disadvantages of doing a great deal that has to be done at considerable cost on every farm. We are pleased to occupy the position of collector and dispenser of practical experience, in order that all may be profited in the interchange of ideas and experiences.

Good for Every Farm.

JOSEPH BENOIT, Essex Co., Ont.—"I am glad to tell you that I am very satisfied with the FARMER'S ADVOCATE. Every farmer should read it."

Gasoline Engines Best for Heavy Work.

To the Editor FARMER'S ADVOCATE:

SIR,—We have used a gasoline engine for three or four years for all kinds of work about the Experiment Station, and it has given good satisfaction. The retail price of our machine at that time, the Otto Gasoline Engine, was \$1,500, including freight. We have used this machine for threshing, grinding, ensilage cutting, and wood sawing. We have probably had an expenditure of \$20 in repairs in four years. The cost per day for gasoline is about the cost of a gallon for each horse power. If we run the feed cutter that requires three-horse power, it would require three gallons of gasoline; in running a threshing machine which would require ten-horse power, ten gallons of gasoline would be needed. Gasoline costs us from 6c. to 10c. per gallon.

For ordinary farm purposes an engine not loaded too heavily ought to last from ten to twenty years, certainly longer than a steam engine. We have had a little trouble in getting the engine started sometimes owing to difficulty with dry batteries. With a battery properly arranged there is no difficulty whatever in this respect. Manufacturers are perfecting their manner of starting the engine with an electric spark in a way that I feel sure is not at all against the engine as now built. We have had some trouble in running the engine at a low temperature. Running outdoors when the thermometer registers below 15° or 20° is not a success. We have run the engine at 30° below zero by first warming it with hot water before starting.

The gasoline engine for our use here at the University Farm is, in our estimation, far ahead of anything that we could put in its place. It is a portable engine, and can be taken to any point where we need it, in the barn or around the farm. It does not wait for the wind to blow; we do not need to have a man stand for two or three hours firing up, as it can be started in from ten to twenty minutes at any time. It is much steadier and more satisfactory than tread power, and if it were not for the high first cost of the machine it would be indispensable on any large farm. Whether a small gasoline engine would take the place of the one- to three-horse tread power is doubtful. Where the gasoline engine cannot be afforded because there is not enough work to warrant it, the windmill will, of course, find its proper place, as will also the tread power, and in some cases the sweep power. For all heavier work the gasoline engine seems destined to displace steam engines on the large farms. W. M. HAYS, Agriculturist, University of Minnesota, St. Anthony Park, Minn.

[NOTE.—The gasoline engines manufactured in Toronto and advertised in the FARMER'S ADVOCATE are very much cheaper and more modern than the machine described by Prof. Hays. One-horse power sells for \$136; twenty-horse power for \$765, and intermediate power at a corresponding price. They can be started in a few seconds.—ED. F. A.]

Agreeably Disappointed With Windmill.

To the Editor FARMER'S ADVOCATE:

SIR,—My experience with windmill power leads me to say that I cannot sound its praises loud enough. Two years ago I purchased an "Ideal" windmill, manufactured by Gould, Shapley & Muir Co., Brantford. It cost me \$230, but, of course, I received in addition to the windmill a Maple Leaf chopper, two pumps, a tank, a quantity of piping, etc. I believe they are now some \$20 cheaper, but since that time it has cost me nothing for repairs, nor is there any sign of wear other than that of any ordinary machinery that had run for the same length of time. We pump all the water required for house and incidental use in addition to supplying 24 head of cattle, an average of 25 pigs the year around, and horses, etc., requisite for use on a hundred and fifty acre farm, and we have never yet had the tank into which the water is forced for distribution and emergencies so low that we had to resort to any other means of watering the stock; in fact, if there is enough wind to rustle the leaves on the trees there is enough to pump with the mill.

Besides this, during the winter we cut all our straw and cornstalks, chop from 600 to 800 bushels of grain, pulp from 2,500 to 3,000 bushels of roots, saw our firewood, churn, turn the grindstone, or drive any machinery that can be driven by a revolving motion, excepting the fanning-mill, which requires a very even motion that is not given by the mill on all occasions, although on some days even this would be accomplished perfectly. All of the lighter work can be done at almost any period of the day, as far as the wind is concerned, but the chopping and cutting requires more power, yet we never cut or chop more than we require for a week at a time, and have always found power enough by taking advantage of the wind to prevent us from ever running out. I believe that from fall to spring it would be impossible to find a week in which there would not at some period be power enough to do the heaviest work, and I believe by judicious management of other work the power will be waiting for you instead of you waiting for the power. The power not always being available is, I believe, the only argument that can be used against the windmill. It may convince in theory. I find the argument without foundation, as I have previously stated, in practice.

Our windmill was guaranteed four-horse power. I believe six-horse power is nearer the capacity in a fair wind, and here I might say that the even wind is far more effective than a strong hurricane,

be it ever so evenly furious. Taking everything into consideration, I have been very agreeably disappointed with mine, and consider it of inestimable value to me, because I cut more feed, pulp more roots and chop more grain than if I had to engage other power, as I had before, and the extra value in the feed, the improved condition in the stock, the handiness and saving in work are all valuable items, yet hard to give their true worth, and must, as far as I am concerned at least, be far beyond the cost of my windmill, which I consider the cheapest, most economical, and most satisfactory power for all progressive farmers in this progressive age. THOMAS A. ALDERSON.

Wentworth Co., Ont.

A Fourteen-Foot Windmill Gives Entire Satisfaction.

To the Editor FARMER'S ADVOCATE:

SIR,—I here endeavor to make as accurate a statement of the power and general utility of the windmill as possible. I might first mention that our mill is a fourteen-foot wheel, manufactured by the Gould, Shapley & Muir Co., Brantford, Ont. It is erected on a sixty-foot post, which passes through the roof of the barn. This one cost me one hundred and fifty-five dollars cash in 1895. I do not know whether it can be purchased any less now or not. The power of the mill varies according to the velocity of the wind. There are very few days—I scarcely remember one—when it would not pump. On a day that there is a good, fair wind it will do as much work as four horses, and with a very strong wind it will do as much as six.

I do all my own grain crushing, straw cutting, and pumping for eighteen head of horses, forty cattle and twenty-eight sheep. I also run the grindstone, fanning-mill, and intend getting a circular saw this winter. So far it has cost us nothing for repairs and is still running as well as ever. There is no power made as convenient for the farm; no moving, no setting. Anywhere you desire, the company erect a line of shafting, and all you have to do is to put on a belt and it is ready for work. I have four different lines of shafting.

Now, the only possible disappointment is no wind. When a windy day comes it is necessary that you use it. We accordingly make it a rule to use our power on these days. In my mind there is no power machine for the farmer equal to the windmill for convenience, general usefulness and economy. JOHN GUEST, Middlesex Co., Ont. "Rosenau Farm."

A Twelve-Foot Wheel Could Do a Lot More Work.

To the Editor FARMER'S ADVOCATE:

SIR,—I have used one of the Canadian Air-motors of Toronto for two years, and I am more than pleased with it. I grind all my grain, cut all my straw and cornstalks, run a root pulper, grindstone, and circular saw with a twelve-foot wheel, and could do a lot more if I had the machinery to attach. I also pump water from a well 150 feet away and elevate it into a tank in my barn, then pipe it through my stable. It has not cost me \$2.00 for repairs in the two years; in fact, I don't see where there is any expense connected with it after the first cost, only for grinding plates; and if a person cleans the grain before grinding, a pair of plates will grind 700 or 800 bushels, and they are not very expensive when needed new.

I have a sweep horse power which I have never hitched onto since I got the wind wheel, for the wheel is so much handier. I would advise any farmer wanting a power to buy a windmill. As to the cost, it varies a good deal according to what a person gets with it, the size of wheel, etc. A twelve-foot wheel, with mast grinder, would not come very expensive, and for farm use I would recommend a mast grinder. I have never had any bad disappointments since I got my mill, as I always take advantage of the windy days and get a supply of water and chop on hand. I would calculate with an ordinary wind that I get a four-horse power, but with a good stiff breeze I have done work that I could not do with less than eight horses on a horse power. I am well satisfied with my mill and outfit.

Hoping this may benefit some farmers, I remain, Hastings Co., Ont. O. A. HUFFMAN.

A Three-Horse Tread Power Fills the Bill.

To the Editor FARMER'S ADVOCATE:

SIR,—I willingly give any help to any brother farmer if I can. I tried a sweep power, but discarded it on account of thawing and freezing in winter. I discarded the use of steam power on account of having too much feed cut at one time—either feast or famine. I considered wind power, but having a heavy stock and it came a few days of calm I would be out of feed, because I have windmill for pumping and a very large tank, and sometimes I have to pump by hand. So last fall I purchased from D. Thom, of Watford, a three-horse tread power and a twelve-inch ripper, setting the ripper on second floor next to drive floor, building a cheap building 12x12 feet for the tread power. We cut feed two or three times a week of corn unhusked, with oat sheaves. Two of us did all the work, as no driver is needed, and the horses are clean and dry. I think the three horses gave nearly double power over the sweep. We also successfully filled my silo with a blower this fall by this power. I have not tried the grinder yet, but believe it will

work well. I get my chopping done for 6c. per cwt. near at hand, but I do not like the transportation to and from mill, which might lead me to purchase a grinder. I have no pulper. I think it would run a buzz saw complete. I prefer a ripper to a cutting box, because it splits the cornstalks, and the cattle eat all up, but it takes more power. I do not have a silo; it is too much work in the autumn for the benefit received. The ripper cost \$45.00, and about \$5.00 for repairs; the tread power cost \$100 cash, repairs nothing. I forget what our common rubber belt cost. Anyone is welcome to see my stock and stock barn.

WILLIAM B. LAWS.
Lambton Co., Ont.

Tread Power the Best.

To the Editor FARMER'S ADVOCATE:

SIR,—I have used my treadmill two years for cutting feed. It is a three-horse power and has cost nothing for repairs. It will last quite a number of years and is better than a windmill, sweep horse power or engine. It has great power and will run a crusher, pulper, etc., all right. The speed is according to the weight of the horses. The horses I use weigh about 1,100 lbs. When cutting cornstalks I use three horses, and cutting straw and hay two, and can cut almost any quantity you wish in one day. I use one of the large cutting boxes, twelve-inch throat. The price two years ago was \$140, with the belt. I do not know the price at present. In my opinion it would be the best power a farmer could use. ALEX. WILLEY.
Elgin Co., Ont.

A Tread Power is Best, But Avoid a Narrow Machine.

To the Editor FARMER'S ADVOCATE:

In my opinion a tread power fills the bill admirably for cutting fodder, grinding grain, pulping roots, pumping water, sawing wood, separating milk, etc. I have been using such a power for the last eighteen years and would not exchange it for any other that I have seen used for the different purposes above named. It occupies little space on the barn floor or anywhere it may be placed; it is ready for work on rainy days when you cannot be at work outside the house; it needs no driver, thereby saving a man's time as against the old sweep power. If of proper construction they are durable and very little cost needed for repairs, and if run on moderate elevation they are not hard on horses, as the speed is regulated by a governor. Tread powers are made in three different sizes—one, two and three horse power. A two-horse power I consider the most suitable for most farmers, and will cost in the neighborhood of one hundred dollars for the best made power. The uses we put our power to are threshing, cutting fodder, crushing grain, filling the silo, and sawing wood. Its cost for repairs will be trifling until the floor wears out. A few lags ought to be kept on hand in case of any breaking. The different makers will give a price list of all repairs. We use good hard maple wood for the floor of our machine, and a three-inch floor will last two seasons if the horses are dull-shod; some horses will do very well without shoeing, as we often use ours in that way. I would advise an intending purchaser not to buy a narrow-built power, as some horses will crowd and give trouble. Give the animals room, even at a little more cost; it will pay by and by in the satisfaction you will have with it. A tread power is the best for general farm use. Not being stationary like a windmill, you can work anywhere, at any time, and not have to wait for the caprices of the wind. Steam power is too expensive to be used in a small way, and out of reach of a small farmer. Gasoline engines are talked about, but I don't know of any being used for farm use.

GEORGE A. GRAY.
Huron Co., Ont.

Tread Power Threshing from Stook.

As threshing is generally done in Manitoba and other Provinces with traveling steam threshing machines, which for economy of time are wonders of modern invention, still there is no doubt that they are great distributors of weeds, carrying seeds from dirty to clean farms and scattering them broadcast. A good many careful farmers, who have considerable help in their own families, prefer to have tread power threshers of their own, and thus save the risk of getting their farms seeded down with weeds. Many find they can, by the use of the tread power machines, which require very little force, get their threshing done from the stook (as represented in the accompanying illustration) almost as rapidly as they could stack it, and thus save a double handling. The beautiful, dry harvest weather that usually prevails in Manitoba favors such work.

Washing by Horse Power.

To the Editor FARMER'S ADVOCATE:

SIR,—Will you allow me to say a few words to farmers through the ADVOCATE about washing day. I have been on the lookout for a machine to make that day easier, and while at the Winnipeg Industrial last summer I decided to buy a Manitoba washer. I wanted a machine that could be run by power other than *wife power*, as I have read in the ADVOCATE and believe that that is the most expensive power a farmer can use, and having a tread power to run the separator and churn, I wanted to do the washing with the horse as well. I bought a large-size machine, made a pulley for it, and find it works like a charm. We find the machine does all that is claimed for it.

To-day my wife put out a washing for ten of a family in five hours; no hand rubbing. The hardest part of the work is turning the wringer. Now, I believe there are quite a large number of your readers through Canada that have the power all ready, and if they only knew the washing could be done so much easier and at so little expense they would get a machine at once.

I hope this will induce others to try this plan of washing, and thereby take a heavy burden from the (in many cases overworked) wives and make life more pleasant on the farm.

MANITOBA FARMER.

Wider Platform Needed on Three-Horse Power.

SIR,—I have used a three-horse power for two years which cost me \$130. It has cost me nothing for repairs. An inconvenience I have experienced is that I cannot comfortably work three ordinary-sized horses upon it, as the platform is too narrow and the horses crowd. I do all my feed cutting with two horses, which furnish plenty of power, but for grinding grain three horses are required to do the work satisfactorily. I consider the tread power the most convenient power a farmer can have, but I would not advise him to buy a three-horse power only wide enough for two horses to work comfortably on it.

THOS. GINN.
Huron Co., Ont.



THRESHING FROM STOOK WITH TREAD POWER, POPLAR GROVE FARM, DELEAU, MAN.

Buy a Three-Horse Tread Power in Preference to a Two.

To the Editor FARMER'S ADVOCATE:

SIR,—Some ten years ago we bought a fourteen-foot Halliday windmill, supposed to be four-horse power. This was very satisfactory when everything was favorable, such as a good steady wind, but the great trouble always was that often when half through with the work wished to be accomplished, the velocity of the wind would suddenly diminish, consequently causing the work to stop. Two years ago we got tired of that way of working and decided to look into the merits and demerits of the tread power. After examining as many as we could we bought one from the Thom Implement Works, Watford, a three-horse power. This gave us great satisfaction. We found we could do work with it the four-horse power windmill would not do. For instance, with three medium size horses we could feed a Monarch ensilage cutter to its full capacity, using 30 feet of carriers to fill our silo. It was the same in regard to crushing grain. We could use a larger crusher than the windmill would drive, consequently getting more work from the tread power. A three-horse tread power can be bought for about \$125, and if properly set up and kept well oiled, will last a careful farmer a very long time, as there is really nothing to get out of repair. The beauty about such a power is that it is always ready, takes up little barn room, and can be used at any time regardless of weather. To would-be purchasers we would say buy a three-horse power in preference to a two-horse power, the difference in cost being a mere bagatelle, when you consider the extra work you can perform with the three-horse power. Regarding the tread power being hard on horses, we found that as soon as they got used to it it was comparatively easy work for them.

J. A. CARRICK.
Bruce Co., Ont.

By renewing your subscription promptly, you will confer a favor on the "Farmer's Advocate."

Renew your subscription for the "Farmer's Advocate" at once, and enable us to give a better paper than ever in 1898.

Ground About Six Thousand Bushels and Did Much More With a 14-Foot Windmill.

To the Editor FARMER'S ADVOCATE:

SIR,—The question of which is the most economical and satisfactory power for farmers to use for cutting fodders, grinding grain, pulping, pumping, sawing, separating, etc., is a question often asked by farmers who are in need of a power to do such work. The different powers, used have their advantages and disadvantages. The gasoline engine, I believe, would give the best satisfaction, if the cost be not too great. The steam engine is too costly, dangerous, and takes too long to start up. The tread and sweep horse powers are hard on horses and take a lot of time hitching up and getting the machinery started. The windmill, all things considered, I claim will give the average farmer the best satisfaction. It can be started in a minute, and requires less hands to operate than any of the other powers. Two years ago I bought a fourteen-foot windmill, made by Gould, Shapley & Muir Co., of Brantford, at a cost of \$140, and have since ground about 6,000 bushels of grain for myself and neighbors, besides cutting corn, hay and straw for 40 head of cattle and horses, and also run a small threshing machine to thresh out the peas raised on the farm. The cost of repairs has been nothing, shows very little signs of wear, and will last a long time if well cared for. The only inconvenience will be in running the milk separator and pulping roots, as this work needs to be done every day, and there is not always wind. The actual horse power of a fourteen-foot wheel will depend on the velocity of the wind, say from two to six horse power.

J. F. RATHBUN.
Brant Co., Ont.

A Steam Engine in Use for Six Years.

To the Editor FARMER'S ADVOCATE:

SIR,—We have used a steam engine for six years. We built a small stone building, with fireproof roof, fifty feet from barn. We use rods to carry power to whatever we may be running in barn; have a cistern under engine, supplied from barn roof. A new engine six years ago cost seven hundred dollars. I bought a second-hand one, it being overhauled at the shop, at a cost of five hundred dollars. They can be got at various prices. Ours was called a fourteen-horse power, but I consider it only about twelve-horse power. I have used it for threshing, cutting feed, and grinding grain. Using it about fifteen days in the year, we have burned out one set of fire grates. That is about all the expense it has been in six years. It should last a long time with proper care and attention.

Everything being under cover and using rods from engine to barn, and having a shed with dry wood, we are independent of the weather. I find it a great convenience to be able to thresh, cut feed or chop grain when the weather is stormy. I have not had any experience with a gasoline engine, tread power or power windmill. The cost for fuel is very little, as we use old rails, stumps or rubbish that can be gathered up.

I consider the FARMER'S ADVOCATE the best farmer's paper that is printed in Canada to-day.

Waterloo Co., Ont.

GEO. R. BARRIE.

Weather, Crops and Markets in Prince Edward Island.

October was a lovely month, and as a result much fall work, such as plowing, manuring, etc., has been done. November is also a fine month so far. No frost thus far. Turnips are all harvested and proved to be a rather poor crop, owing to the exceedingly dry August month. Up to the first week of November, the roads were never better, but at this writing they are pretty muddy. The markets for the farmers' products this fall are pretty good. Potatoes, which were a fair crop, are selling for 28 cents. This is considered a fair price in Prince Edward Island, where the average price in the last few years was less than 20 cents. Oats are now selling for 28 cents. This is the principal money crop in the island, and is up to almost the average, weighing about 36 pounds per measured bushel. Quite a number of the cheese factories have put in separators, and are now, since the first of the month, running as creameries. Most of last month's cheese is sold. I did not hear of any being sold for less than 9 cents, although it was pretty difficult to get that figure.

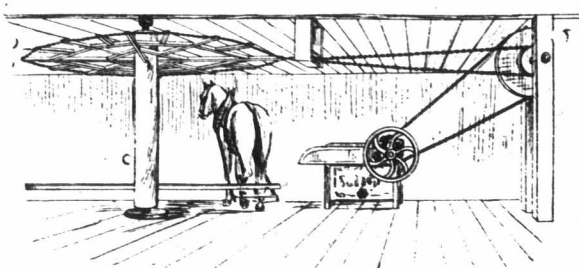
A new pork packing factory, of 1,000 hogs per day capacity, will start operations on the 15th. Buyers for this factory are paying 17 cents for bacon hogs of 165 to 200 pounds. Below and above this weight the price is 1 cent less. This establishment is creating quite a stir in hog matters.

Nov. 15, 1897.

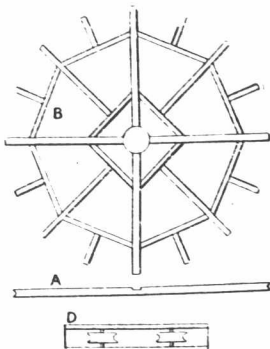
J. A. MACDONALD.

A Homemade Horse Power.

Occasionally a farmer on a small area of land with a few head of stock does not feel warranted in paying out much money for a power, but prefers to do such work as cutting or pulping by hand; in



which case, however, the animals usually get their food whole. In such cases a person at all handy with tools could easily make himself a one or two horse power similar to that illustrated herewith. This plan was sent us by Howard Mills, Grey Co., Ont., and published in our March 2nd (1896) issue. It takes up little space in the barn, and in barns where an elevated mow is supported by a beam 7 or 8 feet above the floor it can be easily constructed so that the horse will have plenty of room under the wheel. The wheel may be made of ash or elm scantling from 10 to 16 feet long according to the size of the wheel intended to be made. The two main arms and the one for the horse are 3 by 4 inches; the others are 2 by 4, to make it lighter. Each arm has a V-shaped notch in the outer end for the drive chain to run in. A post about 15 inches in diameter and 7 or 8 feet long is used. In this gudgeons are driven at either end and two holes are cut through the post at right angles, one 3 by 4 inches and the other 3 by 6 inches, for the two main arms. A couple of washers under it will make it run easier. The illustration A shows how the main arms are made, B shows the plan of the wheel, and C is a side view of the wheel in position. Put one arm in the 3x4 inch hole first, and then slide the other in the 3x6 inch hole till the notches come together and it drops down, then wedge them down tight. D represents the pulleys through which the drive chain passes, and should be placed on a level with the wheel, as shown in the upper illustration. A belt is run from the larger wheel to the pulley on the cutting box, root pulper or other machine.



with the wheel, as shown in the upper illustration. A belt is run from the larger wheel to the pulley on the cutting box, root pulper or other machine.

Troubles in Horse Breeding.

The English Royal Commission on Horse Breeding report that 40 per cent. of the mares served by the Queen's Premium horses fail to produce offspring in any given year. This, it was considered, fairly accurately estimates the average loss by mares breaking service or picking their foals, etc. This fact was brought under the notice of Prof. Cossar Ewart, M. D., F. R. S., who devoted special attention to the state of mares at this crucial stage, of which from the sixth to the ninth week is most critical, and wrote a pamphlet upon the subject. Among the practical remarks suggested in the pamphlet we quote the following:

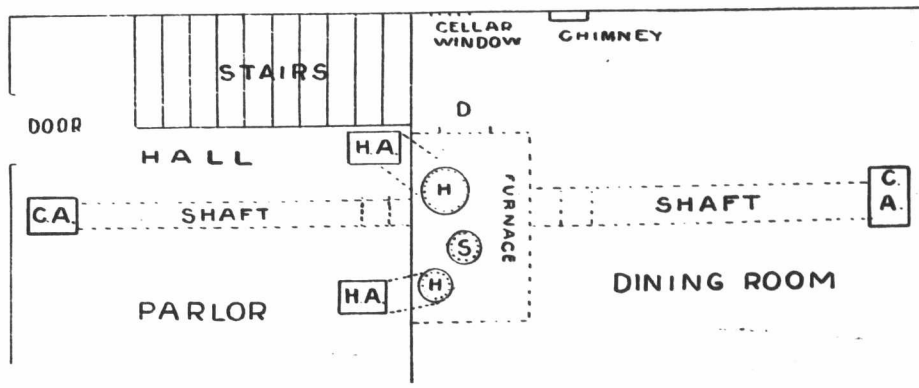
"The crucial stages are at the close of the third and the sixth, but especially, and for another reason, at the close of the seventh or beginning of the eighth week after conception. On account of the supremely nervous character of the horse, the mare is very susceptible to changes of temperature, of food, of companions, changes of surrounding and environment generally, and this susceptibility will be greatly increased at the breeding season. This might be illustrated in various ways, but the following practical suggestions will possibly prove useful: (1) Mares which have been indoors all winter, and are to run at grass all summer, should be acclimatized before being served; (2) mares, and more especially excitable ones, should be served in the evening, and shut up apart from other mares or geldings during the night, and they should thereafter be kept until the periodic disturbance has subsided in a paddock as far removed as possible from mares or geldings likely to tease them; (3) when any signs of being in season (oestrus) are detected in a mare, she should be removed from the company of mares believed to be already in foal; (4) each mare should be carefully watched from week to week, and periodically tried—every ninth or tenth day—until the critical period has been successfully passed; (5) mares backward and out of condition should be generously treated before service; unless they are in a healthy and vigorous state, ova may not be discharged until the summer is well advanced; or, if they be, the embryo, being impoverished, may not survive the critical period, and be more readily expelled."

Prof. John A. Craig to Go to Iowa Agricultural College.

Prof. John A. Craig, B. S. A., late of Wisconsin Experiment Station, has been elected to the chair of Animal Husbandry in the Iowa Agricultural College.

Heating the Farm House.

With the disappearance of forests and the growing scarcity of wood, fuel becomes an item of considerable importance to the farmer. I notice that many readers have been contributing valuable letters to the FARMER'S ADVOCATE, giving the result of their actual experience, but so far as I have seen no one has touched on the question of heating the house. I send you herewith pencil sketch of the plan I have adopted and a few notes describing it, which may possibly be of use to others. Should it prove to any as satisfactory as it has in my case, I shall be amply awarded. Formerly the parlor was heated with a small stove and the dining-room with a very large one, the pipe going through the ceiling into the hall above, where there was a big drum. The lower hall had no heat whatever. At present the smoke pipe from furnace comes up through dining-room floor and into chimney at one side; but by continuing it through second floor into bedroom above, using drum there, I expect to abolish the third stove. Having endured the cold, dirt, wood boxes, the insatiable consumption of fuel, and everlasting carrying in of wood and out of ashes till patience ceased to be a virtue, I made enquiries for a regular wood furnace and found the cost would run from \$75 to \$100, which rather staggered me. However, I heard of a couple of homemade furnaces and went to see them, and was not long in getting on to a plan that has cost me only about \$35 all complete. I first got a good 400-lb., three-foot box stove that cost me \$18. There is a cellar under the house with stone cross-wall below partition shown in plan. Alongside this I set the stove, with door facing window, and cased the other three sides (leaving opening for stove door) with 8-inch brick wall (it should be hollow), 4 feet by 5 1/2 feet long and 4 feet one brick high. There is a space of about nine inches wide between stove and inside of brick wall. About eighteen inches from top of stove I set in iron bars across, holding up a heavy piece of sheet iron with three holes cut through for smoke and two hot air pipes. On this sheet iron I filled in seven or eight inches of sand to keep in the heat, jacketed the smoke pipe with asbestos paper, and surrounded the thimble in floor with cement con-



PLAN OF HEATING WITH HOMEMADE FURNACE—DOTTED LINES SHOW BASEMENT ARRANGEMENT.

crete so as to avoid danger of fire. To run the smoke pipe direct into chimney in cellar would involve the loss of a great deal of heat. Beginning at the front of the stove a row of bricks lengthwise is laid underneath from brick floor of cellar to stove bottom and extending to the back and up the end, like a partition dividing the space around the stove into two sections. This is done to avoid trouble by the two currents from the cold air shafts striking. One cold air register ("C. A.") is placed just to the right inside the front door and the other at rear side of dining-room. Underneath ceiling of cellar is a long box or shaft of dressed boards one foot square (shown by dotted lines) which runs to within one foot of stone partition wall, then down to floor and through wall opening into the base of furnace chamber. A similar one comes in from the other side. These shafts provide what is absolutely necessary, a constant supply of cold air to be heated and returned up through tin flues, about ten inches in diameter, to the hot air registers ("H. A.") in hall and parlor. An arrangement might be made whereby a fresh air supply could be brought in from outside altogether and so avoid heating the same air over and over again in houses kept as close as some now are with storm windows and doors. The register and the flues can be got from any good tin shop. As far as my experience and observation go a big box stove used as described is just as good as a high-priced, fancy furnace, and will probably last much longer and is less liable to get out of order. Its simplicity is one of its great merits. Such an outfit can be put in for one-third—and under some circumstances less—the cost of a regular furnace.

The advantages of this plan of heating the farm house are four: 1st, less fuel (all sorts of big, rough chunks can be used); 2nd, less work both for men and women, particularly the latter; 3rd, a cleaner house; and 4th, better heating. If you consider this of any service to any of your numerous readers you are welcome to use it. Their houses may be differently laid out, but the main principles described can be applied by a little study.

[NOTE.—Our correspondent informs us that the two round hot air pipes ("H") shown by dotted lines are incorrectly represented by the artist. They should be the same size.—EDITOR.]

GARDEN AND ORCHARD

Export of Tender Fruits in Cold Storage.

Much credit is due the directors of the Ontario Fruit Growers' Association for the movement which has been made during the past season toward opening a trade in the British market for Canadian tender fruits. At the meeting held in Kingston last December the subject was fully discussed, and the Minister of Agriculture for the Dominion, who was present, asked for the appointment of a committee to consult with him for the carrying out of the scheme in an experimental way. The following is a list of the committee then appointed: L. Woolverton, A. H. Pettit, W. M. Orr, Geo. E. Fisher, E. D. Smith. This committee recommended the erection and maintenance of one cold storage warehouse by the Government and a guarantee to the shippers of the market price of their goods. This was done, and an agreement made with nine shippers to furnish one carload per week of assorted fruits for this work. Fifteen carloads were sent forward, and most of these have now been heard from. Failure resulted in the case of the two first carloads, owing partly to the high temperature on shipboard. From 40 to 48 degrees was too high to prevent a change in Bartlett pears and Crawford peaches. The later shipments, however, were carried at a lower temperature and arrived in fairly good condition, bringing most encouraging prices. For example, some Bartlett pears were sold at 15 shillings a case, Quackenbos plums at \$3.77 a case, while some Crawford peaches brought \$3.66 a case. These prices show the possibility of exporting our tender fruits with success, but there is at the same time the possibility of tremendous loss for inexperienced shippers, unless the conditions are all right. No doubt the best plan would be that which is adopted in California, where

there are packing-houses managed by experts in the business, who pack for the growers at a certain charge per case and guarantee the grower fair returns for his fruit.

A full and detailed report of this work during the whole season, which has engaged the special attention of the efficient secretary, Mr. L. Woolverton, will be given at the next

meeting of the Ontario Fruit Growers' Association, to be held at Waterloo on the 15th and 16th of December.

It will be necessary for the Dept. of Agriculture for the Dominion to continue the experiments in shipping in cold storage at least another season before conditions for certain safety of such tender fruits as Crawford peaches and Bartlett pears can be determined upon. To learn these conditions is very expensive, and one of the first shipments cost the Department £72, besides the loss of the fruit. This was partly made up by later successful shipments, but it shows the need of caution in private enterprise until another season's experiment has made clear the necessary conditions for capturing this very important export trade.

Packing Apples.

To the Editor FARMER'S ADVOCATE:

SIR,—Occasionally from our Institute platforms and frequently through the agricultural press the farmer is reminded that "Honesty is the Best Policy," and particularly is he implored to avoid the wicked practice of putting the large apples on the top and the little ones at the bottom, both speaker and writer overlooking the fact that except in a few cases where a fruit raiser forwards his own fruit the farmer has no hand in packing his apples, and if any dishonesty is practiced either in filling or labelling the barrels the fraud lies at the door of the buyers or packers, and it is equally unjust to make the farmer the scapegoat for the sins of others. The usual practice when the bargain is made is for the farmer to pull the fruit, place it under each tree, drive to the cooper's for the empty barrels, board the hands while they are filling the barrels, and take them to the railway station, all for the paltry sum of 75 cents per barrel for fall fruit and \$1 for winter fruit. No chance here for the farmer shipping a single bad barrel. A few years ago I had a call from an apple buyer with the view of purchasing. Passing through the orchard, we were stepping around a fallen tree fairly loaded with unripe fruit. This tree had been blown down some weeks before, so the apples were neither ripe nor developed, and my

intention was to feed them to the pigs as the only thing they were fit for. The agent pulled an apple and tasted it: "I'll take those," said he. I remonstrated with the man, as the fruit was unsalable. "No matter, they are Baldwins," was his reply. The fruit was pulled, packed into barrels with the agent standing beside the packers, and the man himself put on the label, "Choice Baldwins, put up by Montreal." This agent was probably employed for the season and paid so much per barrel. He had nothing to lose. No wonder that a year or so after I had a letter from a friend in Glasgow complaining of the inferior quality of our American apples. The thought struck me that my Glasgow friend had unluckily lighted on one of my barrels of *Choice Baldwins*, but I felt relieved by the thought that my name was not on that barrel.

Lambton Co., Ont.

Notes on Plum Growing from Georgian Bay Fruit Experiment Station.

There are now on test at this Station 133 varieties of plums, but only about twenty varieties have been sufficiently tested to justify a decided opinion on them. The experience of the past two years seems to have most fully demonstrated the fact that there is no longer any use of growing anything inferior or common, and I am sorry to say that even quality won't compete against size and appearance. The best selling and most profitable varieties the past season were Bradshaw and Washington for early (the latter is a poor shipper and not to be recommended for planting largely in commercial orchards); Glass, Gueli, and well-grown Lombard for mid-season. Small Lombards are worthless; if trees are overloaded they should be thinned. Pond Seedling, Coe's Golden Drop, Yellow Egg, Prine Claude, and German Prune for late varieties. Even these choice varieties would sell for little more than would pay expenses. Thousands of baskets were sold here (Thornbury) at twelve cents to twenty cents per basket, and many more thousands were left to rot in the orchards. Now, in the face of these facts is it not time to either call a halt in planting or secure more extended markets.

Cultivation.—Plow late in fall when all danger of stimulating a late growth is past. It will leave the soil in much better condition to conserve moisture next season. If this cannot be done plow in spring as early as possible, rather deeply for young trees, to encourage deep striking of the roots. Follow this with very frequent shallow cultivation. This should be continued till August, when cultivation should cease. We don't want to encourage a late growth, but a hard ripening of the wood. Apply manure any time from late fall to early spring when snow is not too deep. Soil should be kept rich enough to grow to perfection any kind of hoed crops.

Black Knot.—Cut them out whenever seen and burn. Make a thorough inspection in summer and in fall when leaves are off. If knots are found on trunk or large limbs cut off smooth and apply kerosene or turpentine (to the knot only); if it comes in contact with the bark it will cause it to shrink. **Leaf Blight.**—Spray with Bordeaux mixture two or three times during the summer. This, we believe, will also to a great extent prevent the spread of black knot fungus. **Curculio.**—Spray as soon as blossoms fall: with water, 40 gal.; Paris green, 3 ozs. Repeat in five to seven days, with Bordeaux, 40 gal.; Paris green, 3 ozs. Keep thoroughly agitated. This has never failed with me, and will also answer as a first spraying for leaf blight.

J. G. MITCHELL,
Grey Co., Ont., Nov. 24, 1897. Experimenters.

DAIRY.

What Does the Farm Separator Save to the Farmer and the Creamery?

BY J. A. KINSHELLA, SUPERINTENDENT GOVERNMENT CREAMERIES, ASSINIBOIA.

This important question every farmer and dairyman throughout Canada, as well as this far-off prairie country, should carefully study out. It is not only in this Territory, where the dairy industry has only begun, but in Ontario, the banner Province of Canada, we find many farmers constantly incurring heavy losses by following the old methods of our forefathers by still clinging to the shallow pans and deep-setting methods of creaming milk. The argument of many such farmers is that their fathers made a good and honest living by the old method, and they can see no reason to discard these for a system they know nothing of. I have had an extended experience in making both butter and cheese, inspecting milk in the creamery, the cheese factory, and in the farm dairy, the buttermilk at the creamery, and the skim milk from the separator during my nine years' work in Ontario; but the losses that the farmers sustain by the ordinary methods of skimming has never been as plainly forced upon me as during the past season's experience in this country. I have successfully demonstrated to many farmers during the past season, by actual tests of their skim milk, the losses which they sustain, and by actual tests I have found these to run from tenths of 1% to 1 and 1/4% of butter-fat. Nothing is so convincing to farmers as to have this test made right before their own eyes, and when they see the losses they are sustaining they may well consider what the farm separator is doing for the farmer. As an instance in point, one farmer who is sending the cream of twenty cows to the

Regina creamery was very much prejudiced against the separator, but finally brought samples of his skim milk, and after seeing the results of the carefully conducted test made with the Babcock tester, which showed that his skim milk contained nearly 1% of butter-fat, and striking an average as to the quantity of milk produced each day from his herd for seven months, and taking the average loss of butter-fat from a number of separate tests, we found he had lost on the season's milk from his twenty cows just \$93.00. This patron decided on having a separator next spring. The above case plainly shows the losses many farmers sustain. With fifteen or twenty cows the loss is often enough to pay for a separator in one season. The argument is sometimes used by the farmer who is not convinced on the separator question, that the ordinary separators are too heavy to be operated by his wife, so that he has to put one of his hired men on the separator for two hours or more each day. This man's time costs ten cents an hour. This for seven months, or two hundred and ten days, amounts to over \$50.00, and so long as the wife will drudge along, raising the cream in the old way, washing pans, etc., this farmer refuses to see the benefit in the separator. Any one who has fifteen or more good cows should buy a turbine separator, with capacity of sixty gallons per hour, and a three or four horse power boiler; this outfit will pay for itself in two years. The boiler, besides running the separator, will prove useful in many ways about the farm in running feed cutters, cooking feed, etc., etc. It could also be used for pasteurizing cream and skim milk. I believe this system must come into general use amongst farmers and creamerymen, and I believe the sooner our Canadian dairy products will successfully compete with the Danish product on the English market. I do not mean to say that all cream should be pasteurized or that pasteurizing can cure all taints and flavors and purify dirty cream and milk, but when other things have failed and you cannot get the butter perfect, pasteurizing should be adopted.

I am sorry space will not permit of my giving an account of our experience with the R. A. Lister pasteurizing plant, which we have had in operation in one of the Government creameries during the past year, but at some future time I hope to give the readers of the *ADVOCATE* some particulars on this interesting subject.

WHAT DOES THE SEPARATOR DO FOR THE FARMER AND THE CREAMERY?

- 1st. Relieves the farmer's wife from a great lot of slavish work.
- 2nd. It takes out more cream, and the cream is of a more uniform quality.
- 3rd. It practically cleans from the milk and cream all filth and constituents heavier than milk.
- 4th. It wonderfully improves the flavor of the butter; and,
- 5th. It makes more butter, more uniform in quality, with a greater saving in labor.

Cheese—Color and Flavor.

As indicated in Aug. 16th *FARMER'S ADVOCATE*, page 355, extensive investigations were in progress among Scotch dairymen, endeavoring to arrive at a means of preventing the discoloration of cheese, which had previously been learned to result from the effect of bacterial life. In a recent issue of the *Scottish Farmer* the result of a second series of experiments along the line of a preventive treatment is reviewed.

In 1896 Mr. J. R. Campbell, B. Sc., bacteriologist, along with Messrs. R. J. Drummond, John Robertson, and Henry MacFadyen, experts in dairying, carried on a series of careful experiments, which have during the summer of 1897 been repeated in order to verify the conclusions of last year's work. Mr. Campbell expressed the opinion that discoloration was due to acid produced by a bacterium, and that to counteract its action a pure culture or "starter" should be used. Forthwith this line of procedure was pursued in 1896, with the expected results of no discoloration, while the experiments this year, although of the same nature, were conducted in ordinary cheese-factory practice, the tests being made with Mr. Campbell's "pure culture" and Mr. Drummond's "starter." The plan was to have the cheese made by seven of the best makers in Argyle, Wigtonshire, and Stewartry, who made cheese four days in each of the months of June, July and August. On the first, fifth and ninth days they made cheese in the ordinary way without the use of any "starter"; on the second, sixth and tenth they made cheese with sour whey as starter taken from the previous day's making; on the third, seventh and eleventh they made cheese with the aid of a "starter" provided by Mr. Drummond; and on the fourth, eighth and twelfth days "pure culture," provided by Mr. Campbell, was used. Besides the experimental work done by these seven makers, other three expert makers conducted, if possible, a more crucial series. In these they made on the first, fifth and ninth days one-half the milk without "starter," and the other half with Mr. Drummond's "starter"; on the second, sixth and tenth they repeated the experiment, only substituting Mr. Campbell's "pure culture," for Mr. Drummond's "starter"; and on the third and fourth, the seventh and eighth, and the eleventh and twelfth days they pitted the "pure culture" and "starter" against each other.

The cheese were judged by the following scale of points: Color, 25; texture and body, 35; and

flavor, 40 points. Especial interest was taken in the flavor from the "starter" and "pure culture," because the experiments of 1896 seemed to indicate that while perfect color had been secured by the use of these ferments, flavor had to some extent been sacrificed. Judgment was given with great care. The two best cheeses in the lot were made on two consecutive days—the one by the use of "starter" and the other with "pure culture." They each received full marks for color, texture, and flavor. The two second best cheeses received full marks for color and texture, but five points were deducted for deficient flavor. In one was used "pure culture" and in the other sour whey. Another cheese in which "pure culture" was used scored full for color and texture, but lost ten points on flavor; while another made from "starter" received full for flavor and color, but lost five points on texture. While the experiments were conducted with a view to arrive at conclusions regarding a remedy for discoloration, so far as the report of the committee at hand gives light, no cheese in the entire collection, however made, showed discoloration; and while most of the experimental cheese was scored down slightly on flavor, it is concluded that the flavor has been much improved, as in no case where the cultures were used was there a single complaint made on the score of taints. The conclusions arrived at are that a good maker can make good cheese even with sour whey as a starter, but the results are rather uncertain, while the best and most uniform results, especially in coloring, are got by using either "starter" or "pure culture" as the governing ferment.

The Western Ontario Butter and Cheese Convention.

A meeting of the Executive Committee of the Western Ontario Cheese and Butter Association, consisting of President A. F. McLaren, First and Second Vice-Presidents J. S. Pearce and Harold Eagle, R. M. Ballantyne, and the secretary, George Hatley, was held in London, Nov. 13. It was resolved that the annual convention, to be held in the London Opera House, take place on Jan. 19, 20 and 21, 1898. The president, Mr. A. F. McLaren, was appointed to go to Montreal and make arrangements with the two main Canadian lines of railway for the best possible obtainable rates to and from the convention. Some of the notable gentlemen who will attend and address the meeting are: Hon. Sydney Fisher, Dominion Minister of Agriculture; Hon. John Dryden, Provincial Minister of Agriculture; Prof. C. C. James, Ontario Deputy Minister of Agriculture; W. H. Jordan, Sc.D., director of the New York Agricultural Station, whose subject will be, "Certainties and Uncertainties of Scientific Feeding of Animals"; and Mr. H. B. Gurler, of Clover Farm, De Kalb, Ill., who will discuss buttermaking. Among others expected are the following: Dr. W. D. Connell, Kingston University; A. W. Campbell, Good Roads Commissioner; Prof. H. H. Dean, B.A., principal of the Guelph Dairy School; Prof. J. W. Robertson, Dominion Agricultural and Dairy Commissioner; J. A. Ruddick, Kingston Dairy School; Hon. Thomas Ballantyne; Andrew Patullo, M.P.P.; D. Derbyshire, president Eastern C. and B. Association; Prof. Frank T. Shutt, M.A., Central Experimental Farm; and others. The next meeting of the Executive will be held in Brantford during the Fat Stock and Dairy Show, when the Ministers of Agriculture will be interviewed regarding the coming convention.

Wholesome Milk Supply.

As an outcome of the tuberculosis agitation in some of the United States some two years ago in connection with the milk supply of large cities, and an immediate result of there having been found last winter a tuberculous calf near the city, Toronto people became much agitated regarding its milk supply. So much was this the case that the city Board of Health was finally led to demand farmers supplying milk to the city to have their cows tested. This, however, met such vigorous opposition on the part of cow owners that the matter was dropped. The agitation indicated, however, that a large number of Toronto's citizens much preferred to drink milk of which there was some certainty as to its healthfulness. As an outgrowth of this, one enterprising firm, known as the Kensington Dairy, undertook to supply what seemed to be demanded. To this end, all their milk and cream supplies were obtained from scattered farms, selected for their sanitary condition and evident reliability of their owners. These dairies are each inspected, cows, premises, and persons in charge, once a month, so that no unsanitary conditions are allowed to exist that could interfere with the condition of the milk. The milk is also handled in bottles and cans, which are thoroughly sterilized. In fact, everything is done to enable the firm to supply the market with what is desired. The result is, this firm is getting the custom, which is well deserved.

This method, it must be allowed, is decidedly along the right lines, infinitely more satisfactory than if the Board of Health had set out to compel every dairyman to have his animals tested, thus calling into operation a set of machinery extremely cumbersome to handle, besides gaining the illwill and opposition of those interested in the source of supply. By this private method only harmony prevails, the citizens get what they want without any extreme compulsory measures, with which there is usually no end of trouble in carrying out.

The London (Eng.) Dairy Show.

The dairy show which is annually held at Islington, under the auspices of the British Dairy Farmers' Association, is perhaps the most important of its kind in Great Britain. It was held from October 19th to 22nd, inclusive. Not only are there competitions in cattle of various breeds, as well as dairy trials and dairy products, but goats, poultry, pigeons, bacon and hams, skim-milk bread, honey, egg-packages, new and improved inventions, vehicles for conveying milk, roots, and buttermaking contests are each given classes, and share in keen competition.

Of the various breeds of cattle, Shorthorns held a prominent place. Of these there were thirteen entries of cows present, from among which was found the largest butter producers, except one, in the show. The highest butter record for twenty-four hours was 2 lbs. 13½ ozs. from a cross-bred cow, Lady Fragrant, that calved on September 2nd. The highest-producing Shorthorn was Gaiety, shown by J. F. Spencer, and illustrated in this issue. She produced 2 lbs. 11½ ozs. of butter in one day, having calved on September 25th. She also won third place in the Shorthorn milking trial, giving 105 lbs. 11 ozs. of milk in two days. Besides this she won the distinction of winning the breed cup for best Shorthorn, judged by inspection, as well as premier honor in her class. She is described as a big, lengthy cow, with capital middle, back, loins and quarters, with capacious udder and supple skin. The champion in the milk trial stood second in the class and championship competition, giving in two days 134 lbs. 11 ozs. of milk.

The Jersey cow class contained twenty-four entries. The first and second ring awards were taken by Mr. McKenzie Bradley's Lady Lavinia 5th and Golden Chance, the former also winning the championship award for the breed. Unlike the Shorthorns, however, the butter test awards did not follow the inspected winners. The highest butter record of 2 lbs. 10½ ozs. was made by Dr. J. Watney's Lavanja, that calved on September 11th. This cow also won second in the milking test, giving in the two days 92 lbs. 8 ozs. of milk, being beaten by a cow giving 97 lbs. 6 ozs.

Guernsey cows were out twelve strong and of good quality. In the milking trials 96 lbs. 13 ozs. was reached in two days by one cow, and 82 lbs. 8 ozs. by another, the latter producing in the one day test 1 lb. 15 ozs. of butter. Six Red Polls competed. The highest two days' milk record made was 126 lbs. 6 ozs., and the highest 24 hours' butter yield was 1 lb. 10½ ozs. Four Ayrshires competed, and are referred to as excellent specimens of the breed. In the day's butter test one of the three silver medals came their way, the product being 2 lbs. ¼ oz. of butter. In two days the highest quantity of milk given was 107 lbs. 15 ozs. Kerries and Dexters numbered the same as Red Polls—six. Although these are as dwarfs compared with the other breeds, one gave in two days 65 lbs. 12 ozs. of milk, containing 4.5 per cent of fat.

The buttermaking contest had about 180 entries, divided into ten sections. No doubt the work of the many dairy schools throughout the country has much to do with this annual increase of entries. The former difficulty experienced by the judges in awarding the premiums was largely overcome at this show by adopting the following scale:

Condition of butter in churn.....	10
Condition of butter on worker.....	10
Making up.....	20
Smartness and cleanliness.....	20
Color of butter.....	5
Texture.....	20
Freedom from moisture.....	15
	100

Among the new and improved inventions a bronze medal was awarded to a nicely gotten up tricycle for milk delivery. Milk sterilizers also attracted much attention. Butter driers and workers, also milk filters and strainers, and various other contrivances were exhibited, and go to show the attention given in Britain to new things along these lines. The poultry entries were very large, as were also those of butter and the many varieties of cheese. Roots, honey, bacon and hams all occupied their due share of attention, and helped to make the event a grand success and worthy of the liberal patronage this show receives.

Feeding Cows for Butter Test.

At the Royal Agricultural Show at Manchester Dr. Herbert Watney won the first and third prizes in the class for cows giving the greatest amount of butter-fat in two milkings. All the competing cows were Jerseys. By Dr. Watney's permission, the following interesting note from his manager, Mr. John Cox, has been inserted in the report of the Manchester meeting in the Royal Agricultural Society's Journal:

By Dr. Watney's request I send an account of the food given to each of the three Buckhold cows at the "Royal" Show at Manchester. These amounts are only given approximately, as the foods were mixed in different proportions to suit each cow's taste.

Crushed oats, 2 lb.; groats (oat chop), 3 lb.; bean meal, 1 lb.; bran, 1 lb.; dried distillers' grains, 2 lb.; mixed feeding cake, 6 lb.; linseed cake, 2 lb.; crushed linseed, ¼ lb. Each cow per day 17½ lb.

The cows were allowed as much hay and grass as they would eat. This food was given during the 24 hours preceding the test, as it is during that time attention to feeding is most required; on the day of the test the cows were not so highly fed. In feeding cows for dairy tests there are three errors which are sometimes made:

- (1) Giving too much food and water immediately after a journey, when the animals are tired.
- (2) Feeding too liberally.
- (3) Giving too much food at one time.

Any one of these mistakes may cause the cows to suffer from impaction, or from distention of the stomach. The yields of milk and butter are then diminished, and the health or life of the cow endangered.

To avoid these mistakes the cows should be taken into the showyard as early as possible; the dry foods (except cake) must be scalded, and allowed sufficient time to swell, and only be given in small quantities, great care being taken that the cows are allowed ample time to chew their cud between each feed. A little hay or chaff fed with the meal assists rumination.

Water ought to be given at frequent intervals, and rock salt placed within reach of the animals.

likely spent a couple of hours extra on these same cheese to get the flavor off the curds.

Another thing about these early spring cheese is the putting them on the market within a few days after they come from the hoops. I know of cheese this season which were shipped from the factory when four days old, at over one cent per pound more than is offered at the present time for the finest September cheese. It would be a great deal better for the reputation of our cheese industry if none of the factories would make cheese before the 1st of May, and if the buyers would not ship any from the factories until they were at least ten days old. I found a number of makers using too much sour milk as a starter; others allowing the milk to stand too long before applying the rennet, causing the product in both cases to be harsh, acidic cheese that the buyers do not want. I found others making a fine cheese to ship at from eight to ten days old. These if left on the shelves a week or two longer very quickly go off flavor for the want of a little extra salt. In all of the twenty-eight factories I visited the whey is returned in the milk cans. Some of the whey tanks are in a deplorable condition. At the factories where the whey is elevated into a tank above the ground the tanks are in fair condition, but it is the reverse where the tanks are in the ground. This is where a great many of the bad flavors come from, the sour whey going back in old rusty milk cans and the cans not properly washed and scalded before the night's milk is put in. In July and August nearly all of the cheesemakers had gassy curds to contend with every day. In all cases these gassy curds arise from bad flavors in the milk, caused in a great many different ways. A few of the principal causes are: 1, bad water; 2, dirty milk cans; 3, not straining the milk; 4, improper aeration; 5, having the milk stand too near the pigpen or barnyard, etc.

JAMES MORRISON.

APIARY.

No. 11.—A Review of the Season's Work in the Apiary.

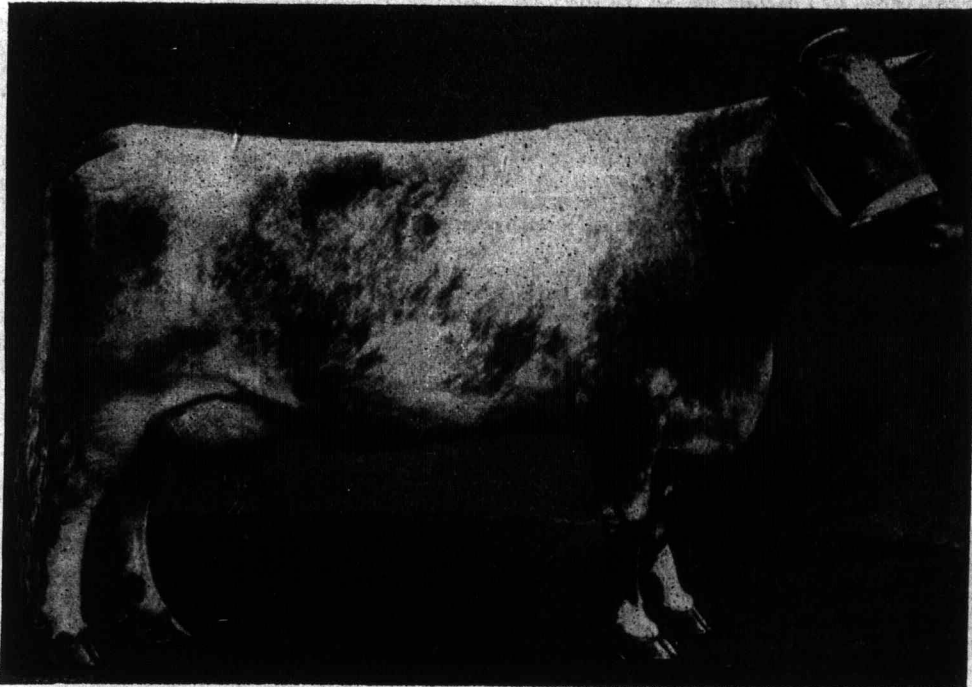
In starting into beekeeping many have no idea of what a season's work with bees consists. The following summary of management of an apiary for an entire season will, I trust, enable them to grasp such a whole and fix it in their minds. Of course, locality and the variation of the seasons of different years will cause the dates given to vary. The dates used are for Lincoln Co., Ont. A season's work with the bees consists of about the following:

- (1) Seeing that each colony is properly arranged upon its summer stand about the middle of April, or earlier should the weather permit.
- (2) Removing the winter packing, and where necessary expanding the brood-chamber, middle of fruit bloom to the first of June.
- (3) Putting on the first surplus cases at the opening of the clover bloom, if not compelled to sooner.
- (4) (a) Continued addition of surplus cases; (b) removal of honey; (c) caring for and managing swarms. All done from about second week in June until the third week in July.
- (5) Uniting about the last of July with other colonies those colonies which it is not desirable to winter.
- (6) Removal of all surplus cases and honey boards, and arranging the hives for winter, 10th to 15th September.
- (7) Feeding for winter, 15th to 25th September.
- (8) Packing those to be wintered outside, let to 7th October.
- (9) Putting into their winter repository those colonies which are to be wintered inside at the beginning of settled cold weather and just after they have had their last fly.

How to carry out in detail these nine points has all been described more or less fully in the ADVOCATE at the appropriate season during the past year. If we are to make a success of beekeeping, we must not neglect any of them. This necessitates the handling of our bees, and it is folly to think of having them unless we make up our minds to do this. Those who are very sensitive to their sting had best leave bees alone altogether, for however expert we may become in handling them, we are still liable to be stung occasionally. On the other hand, we must not think that bees are born to sting; they only do so in preservation of their lives and the defense of their home, and even then it costs them their life.

Insects and animals have an instinctive dread of fire. Even a lion can be chased with a firebrand. To handle our bees we take advantage of this instinct, and by the judicious use of smoke subdue them. Even wasps, hornets and yellow-jackets are no exception to this rule. All the directions, however good, that might be given would not enable one to ride a bicycle; he would just have to get on and try to ride, regardless of tumbles. So also in

English Dairy Shorthorn Cow, Gaiety.



Shorthorn cow, "Gaiety," winner of first prize and silver medal in the butter test in the Shorthorn class at the London Dairy Show, 1897. Daily yield of milk, 53 lbs. 5 ozs.; of butter, 2 lbs. 11½ ozs.

A Cheese Factories Instructor's Report.

To the Editor FARMER'S ADVOCATE:

SIR,—As an instructor employed by the Butter and Cheese Association of Western Ontario during the season just closed, I propose to make the report that may be of interest to the factorymen of Western Ontario. My district was the southwestern portion of Western Ontario, comprising all south of the main line of the Grand Trunk Railway and west of Oxford County, with a few of the Oxford factories. I commenced on April 14th. There were two things that were not as they should be that came under my notice: the starting to manufacture cheese in a factory before any cleaning had been done in it, and the want of provision for keeping the factory warm, which is necessary at that season. Before a load of milk arrives the factory should be thoroughly cleaned and everything in readiness, with a stove set up and a fire on in the making room. The whey tanks should have been cleaned out the fall before. A little washing and a good scalding out will then make them nice and clean to receive the whey from the first day's make. Patrons should be very careful to strain and aerate the milk as soon as drawn from the cow, especially in spring when the milking is done in the stables. From the appearance of the strainer in most of the factories one would judge that there was very little of the milk strained before it came to the factory. Here is where a great deal of the trouble arises in having bad flavored cheese. The cheesemaker cannot always detect in the milk the flavors which often develop only after the cheese go into the curing room. The cheese buyer comes to inspect the cheese, culls out all bad flavored ones, or wants a reduction on the month or half month, as the case might be. The blame is all laid on the cheesemaker, who very

learning to handle bees—get a good veil and smoker and go at it. When you make a mistake you will be stung, and being faithfully and constantly reminded of your mistakes in this pointed manner, and by using close observation, you will soon learn what your mistakes are, and, once learned, to avoid them, and handle your bees without dread; in fact, with practice it will become natural. Attention to the following points will, however, help much:

1. Have a good smoker that will give a large volume of smoke and respond quickly when required, and a veil of black (not white) Brussels netting. Wear a straw hat and clothing that is not fuzzy.
2. Always smoke the bees at the entrance of the hive, before touching it, and in opening it separate the parts just a little at first, and at once drive in the smoke before opening it up or jarring it.
3. Don't allow your bees to come to the top of an open case and, as it were, look round; keep them down with the smoke, but do not use enough of it to make them act like a pot boiling over.
4. Avoid quick, jerking motions, or jarring the hive before smoking.
5. Open hives if possible from the rear, so as to keep out of the way of incoming bees.
6. If stung, at once destroy the scent of the poison; nothing angers bees more quickly than the scent of the poison from a sting.
7. Very often a solitary bee or two will keep annoying by buzzing about one's head; such should be promptly knocked down.
8. Never leave any part of a hive that is opened exposed so that outside bees can get at it, unless it be constantly protected with smoke. If this be not carefully observed when there is no honey to gather, a swarm of pestering robbers will soon compel you to quit work, and perhaps do damage.
9. Try and have as much of the handling as possible done while the honey flow is on. It is much easier to do it then than when the bees are idle.
10. Colonies that are nervous, cross and hard to handle should be requeened. A. E. HOSHAL.
Lincoln Co., Ont.

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.

Coughing Young Pigs.

JOHN D. PAUL, Lambton, Co., Ont.:—"I have a litter of young pigs three weeks old. I notice some of them are coughing considerably the past day or two; otherwise they seem to be all right. Can you tell me what ails them or prescribe a remedy?"

[The usual causes of young pigs coughing are too close confinement, dirty bedding, damp or drafty pen. We have never known young pigs to cough when outdoors in summer, when sunshine, green food, mother earth, and plenty of exercise were *ad libitum*. These conditions should be supplied as far as possible. A daily run in a dry yard should be allowed, and the sow should be given sods, charcoal and salt, and her food should consist of such as roots and shorts. She should have clean, dry bedding, in not too warm building, but free from drafts. It is almost useless to administer medicine to a young pig. It is just possible the pigs have worms, and if so they should receive, when old enough to feed at a trough, half a teaspoonful of creoline for each pig in their feed.]

Miscellaneous.

Queries re Butter-fat and Breeds of Swine and Sheep.

"IGNORANT," Toronto, Ont.:—"1. Can the amount of milk and butter a cow will give in a year be even approximately determined from a 7-day test; if not, of what practical use are such tests?"

"2. On page 391 you say that the Guernsey cow Irma came into Mr. Butler's hands with a record of 70 lbs. milk per day and 3 lbs. butter, and Mr. Butler says although she has never been conditioned for a test with them she has produced over 40 lbs. milk, testing 6.8. Now, 40 lbs. milk testing 6.8 per cent. equals 3.2 lbs. butter, 85 per cent. fat. Does, then, the extra feeding of whatever it is that constitutes the usual preliminary to a test merely increase the volume of milk without increasing the weight of butter-fat contained therein?"

"3. What is the usual percentage of fat in cream as supplied to confectioners, city customers, etc., and what does a gallon of such cream weigh? What is meant by a 'double cream'? How much butter-fat does it contain, and what does a gallon weigh? What is the weight of a gallon of ordinary Jersey or Guernsey milk, say 6 per cent. butter-fat?"

"4. It is often stated that Tamworths and Improved Yorkshires are the best breeds for producing the lean bacon now in demand, and the other large breeds put on too much fat. Friends of the other large breeds deny that this is the case with hogs of 150 to 200 pounds, the weights at which packers' pigs are usually sold, and say their pigs only get too fat if kept till much older; that Poland-Chinas, Chester Whites, etc., produce as fine bacon at 150

to 200 lbs. weight as the English breeds first mentioned, and with less feed. Which is right?"

"5. Southdown breeders claim that their sheep produce finer mutton than any other breed. Breeders of other sorts say this is only true of mutton, which is largely eaten in England, but that nearly all the sheep eaten on this side the Atlantic are lambs, and that Southdown lambs furnish no better meat than any other. Which is correct?"

[1. Yes, the amount of milk and butter which a cow will produce in a year may be approximately estimated if the seven-day test be conducted about the middle of the period of lactation. If conducted at the beginning of the milking period and when all the conditions are most favorable for a large milk yield it would be more difficult to estimate the yearly production. If the correspondent wishes further information on this point see "American Dairying" (by H. B. Gurler), pp. 18 and 19.

The practical use of such tests is mainly to show what a cow can do in seven days, and it is natural to suppose that if a cow can make a large record for one week she will be able to give a good account of herself during the whole year. This assumption may or may not be correct. Usually it is a fair basis on which to judge of the capacity of a cow when all the conditions are favorable. (We are aware that it is not safe to conclude that because a horse can trot a mile in two minutes he can trot thirty miles in an hour; but the cases are somewhat different.)

2. The extra feeding and care which is usually given to a cow previous to and during a test period increases, or ought to increase, the volume of milk given if the cow has not previously been up to her full capacity. In the case cited, suppose that by extra care and feeding the volume of milk given was increased from 40 lbs. to 45 lbs., and the percentage of fat remained the same, viz., 6.8, the owner would thereby have increased the pounds of fat from 2.72 to 3.06 and the pounds of butter from 3.2 to 3.6 (85 per cent. fat). So in answer I would say that by increasing the volume of milk the weight of butter-fat is also increased, assuming that the percentage of fat remains the same, which it would be likely to do under normal conditions.

3. The percentage of fat in cream supplied to confectioners, etc., would probably range from 15 to 25 per cent., averaging 20 per cent. A gallon (imperial) of such cream would weigh about ten pounds.

We do not use the term "double cream" in our work. I presume that it refers to cream having a "double" or extra amount of butter-fat in it—very rich cream, very thick cream, etc. I suppose that such cream would contain from 30 to 35 per cent. of fat. Theoretically, such cream would weigh less per gallon than thin or ordinary cream. I doubt if the average scale would show any difference, though I have never tried such an experiment. Again, I would say that theoretically a gallon of Jersey or Guernsey milk (6 per cent. fat) would weigh less than a gallon of ordinary milk, because butter-fat is lighter than the other parts of the milk, and the more butter-fat in the milk the less it weighs per gallon. Such milk, in ordinary commerce, may be said to weigh ten pounds to the gallon, or the same as water. Scientifically, a vessel which holds 1,000 pounds of water would hold 1,031 pounds of average milk, because the specific gravity, or weight, of milk is about 31 thousandths greater than water at 4° C. and under ordinary atmospheric pressure.

It is difficult to make these points clear in the short space and time at my disposal. I would advise your correspondent and all readers of your excellent paper, the *ADVOCATE*, who desire a full knowledge of the many questions which arise in modern scientific and up-to-date dairying to take a portion or all of the dairy course which commences at the O. A. C. on Jan. 4th, 1898, and continues until March 25th. These and many other problems will be discussed and fully explained by the college staff and by the best staff of dairy instructors that can be found in America. We shall be glad to send circulars giving full information in reference to the dairy course to any who may ask for them.

H. H. DEAN.
Ontario Agricultural College.

Your correspondent asks some very difficult questions, and it will afford me very much satisfaction if some one would come forward with full and satisfactory answers to them. Regarding hogs, we have conducted experiments both last year and this with hogs of six different breeds, viz., Poland-China, Chester White, Duroc-Jersey, Tamworth, Yorkshire, and Berkshire, and I feel that the question is far from settled yet. The experiments so far indicate that the Tamworth and Yorkshire produce a larger proportion of lean meat, though I have not yet received the packer's report on this year's lot. As for economy of gain, last year they stood in the following order: Berkshire, Tamworth, Poland-China, Duroc-Jersey, Chester White, and Yorkshire. This year, however, the order has been somewhat changed, and they stand in the following order: Berkshire, Tamworth, Poland-China, Chester White, Yorkshire, and Duroc-Jersey, the Chester White and Yorkshire being practically even. It is the intention to carry the work further for the purpose of studying the characteristics of the different breeds, though it is not expected that any one breed will prove superior to all other breeds in every respect. A breed can be greatly modified by selection, and in the hands

of the skillful breeder no doubt any of the breeds mentioned can be made to give satisfactory results.

But the hog of commerce differs very materially from the pure-bred animal, and this opens up the question of cross-breeding, with all the numberless combinations that can be formed. It seems to me that the profitable farmer's hog is to be evolved from cross-breeding, and in this field there is room for all our breeds of swine. By judicious mating, the coarse bone, rough skin, weak bone, lack of size, over-production of fat, and other faults can all be modified, while we have need of the pure breeds to supply material for crossing. This side of the question might be followed much further, but space will not permit. Your correspondent implies, perhaps unintentionally, that the Tamworth and Yorkshire are not large breeds. If they are not large breeds, then no large breeds exist.

As regards sheep, we must not lose sight of the fact that most of the sheep eaten on this side of the Atlantic are not pure-breds, and it seems to me that it would be a difficult task for the average man to distinguish between Southdown grade lamb chops and those of other Down grades. As in the case of swine, it seems to me that there is room in Ontario for all of our improved breeds of sheep. The differences in soil, differences in requirements of breeders, peculiarities of the market which we aim to supply, and many other differences, all combine to complicate the question and to give the thoughtful breeder ample scope for his ingenuity.

Perhaps someone else can answer these questions more fully. For myself, I do not hesitate to confess that there are many things about sheep and swine that I don't know, and whenever I hear a man claim that this or that breed is superior to all others, I always think that there are also some things which he does not know. G. E. DAY.
Ontario Agricultural College.]

When May Silo be Opened?—Need Silage be Weighted?

H. N. CROSSLEY, Muskoka District, Ont.:—"1. Could you give me any information as to the time now considered necessary to keep corn in the silo before use? When I just started to make ensilage it was held to be necessary to let three months elapse before using. As we do not get our corn in the silo before the first of October, this principle only allows us the use of corn on the first of January, whereas we would like to use it about the first of December. 2. I would also like to get your opinion about the respective merits of weighting and not weighting silos. Ours has always been weighted with a layer of good-sized stones, but some farmers tell me that they do not now weight their silos at all. We have a Portland cement silo here; i. e., cement on the face of stone walls."

[1. It is now generally conceded that no advantage whatever arises out of waiting any length of time after filling the silo before commencing to feed the ensilage; in fact, it is considered an advantage by many to commence feeding at once in order to save the loss of the top layer, which ordinarily goes to waste. The fodder is equally as good when new as after it has gone through the heating process. 2. It is now considered wasted labor to weight silage in any way. The simplest and most effective covering was found by Mr. Wm. Rennie, farm superintendent of the Agricultural College Farm at Guelph, to be a cotton sheet soaked in oil, thus impervious to the air. The silage is allowed to settle for a few days after filling, and after thorough tramping the oiled sheet is spread over the surface and tucked down at the edges. Another common method is to sprinkle on several pails of water with a watering can, which induces a dense, matlike mold, when only a few inches will go to waste. Others, again, put on no covering whatever, but give the surface a thorough tramping every two days for two weeks, when not more than five or six inches of silage wastes. These questions and hundreds of others are satisfactorily answered in Prof. Woll's book on silage, which we give in paper covers for fifty cents or one new subscription, or in board covers for two new subscriptions or one dollar.]

Dehorning Cows.

E. VANDERHOOF, Leeds Co., Ont.:—"I would like to get your advice about dehorning milking cows. As I am milking cows all winter, I would like to know if dehorning them will make any difference to the amount of milk they are giving, or if they will fail any in flesh?"

[It has been time and again demonstrated by actual test that cows neither lessen in milk flow to any extent after dehorning nor do they fail in flesh. While the operation is in progress, from a few seconds to one or two minutes, they evidently suffer considerably, but after it is over they seem to know no difference whatever, but go on feeding, etc., as though nothing had happened. We believe the actual suffering from the operation, if properly done by a fine-tooth saw or a modern clipper, is very much overestimated. It would be well at this season to avoid leaving newly-dehorned cows out in the cold long enough for them to become chilled, as such may delay the healing of the wound.]

Gasoline Engine.

SUBSCRIBER, Hastings Co., Ont.:—"1. Would a gasoline engine be an advisable power for a farmer to have? 2. Are they likely to be durable? 3. Why have they not been used more?"

[In this issue of the *FARMER'S ADVOCATE*, among other letters on farm powers is one on the gasoline engine which answers "Subscriber" fairly

well. We hope to publish the experience of others on this subject. 1. Yes. 2. Yes. 3. They have not long been introduced into this country, but in some of the American States they are quite commonly used and much liked. Doubtless they will be more largely introduced as they become known.]

Pumpkins for Cows and Hogs - Turnips Flavoring Milk—Capacity of a Cistern.

SUBSCRIBER, Lanark Co., Ont.:—"I have much pleasure in thanking you for the prompt reply to my last questions, and I now submit several more, hoping they will receive the same attention: (1) Would you advise growing pumpkins for feeding dairy cows in fall? (2) Would you approve of feeding them to pigs? (3) Whether does turnips fed to dairy cows taint milk by passing through cow's system or from their breath while milking, as I have heard both points discussed? (4) Whether you would advise having a well bored for watering stock, about forty feet deep, or putting in a cistern? How many pails of water would a cistern 24x15x7 ft. hold, and would it be a reliable source throughout the winter, or would a larger one be necessary for watering thirty head of cattle?"

(1) We consider pumpkins good food for milking cows, especially when the pastures are dry and parched. It is well, however, to remove the bulk of the seeds before feeding the pumpkins, as they have a too stimulating action upon the kidneys. (2) They make capital food for hogs when boiled and mixed with crushed grain or shorts. They are much relished and serve a good purpose during the early stages of fattening. While it is the practice to grow pumpkins in the cornfield, where this is objected to because of their vines becoming troublesome in cultivating it will pay well to set apart a portion of ground exclusively for pumpkins, when a tremendous yield may be expected. (3) Milk does not absorb odors while warm. This was conclusively proven by Prof. Dean, principal of Guelph Dairy School, last spring by placing pails of warm new milk in the root cellar, when no turnip flavor was taken into it until the temperature of the milk was reduced to that of the cellar. When milk becomes cold, however, it absorbs flavors very quickly, as has often been proven. Prof. Dean also decided from a series of experiments that cows fed on turnips gave turnip-flavored milk regardless of the precaution taken to have it removed from the stable at once. We must conclude, then, that the turnip flavor comes from the milk through the gland and not from her breath. The turnip flavor can, however, be eliminated by pasturizing the milk as described in the FARMER'S ADVOCATE, Nov. 1st issue, page 477. (4) Owing to an element of uncertainty when depending upon a cistern for water supply for stock, we would say that a 40-foot well, if a strong spring could be depended on at that depth, would be preferable. A cistern, however, has the advantage of not having to be pumped when a basement barn is used. Where a well is properly protected the water should be good the year round, whereas cistern water may become foul when not regularly used. A cistern having the above dimensions would hold when full 157,500 pounds of water. This would last thirty cattle about sixty-five and a half days, allowing each animal eighty pounds daily. It is estimated that a herd of milking cows will drink a daily average of ninety pounds of water along with a winter ration made up partly of ensilage. It would depend upon the condition of the weather and the amount of roof surface to catch the rain whether or not a larger cistern would be necessary. We would ask our numerous kind friends who are frequently helping us out with these practical problems to give our readers the benefit of their experience along the lines suggested by "Subscriber."

Shipping Young Animals.

STONEDIKE, Ontario Co., Ont.:—"I have the chance of two good calves and two pigs. The expressage on the former will be \$1.75 per 100 pounds. I know from experience that a sleigh shipped as a sleigh is charged for at not less than 2,000 pounds, even if it only weighs 500 pounds, and that the words "hauled down" make all the difference if put on shipping bill. Now, as I am only a beginner, I would like to know if there are any such quirks in shipping stock? Do the railway companies charge for net weight or otherwise? And I would also like to know the best way to prepare calves and pigs for shipment, in one crate or a crate for each animal in the case of calves, and how for pigs? The calves would probably be three weeks old, and the pigs maybe six weeks. An answer in the columns of the ADVOCATE will much oblige."

[The rates either by freight or express for crated animals are charged on actual weight, including crate. To keep down expense of shipping, crates should be made as light as possible, consistent with sufficient strength to be safe. Half-inch basswood or pine, four to six inches, are sufficient for side-bars, but if length of crate is more than three feet six inches, a center upright standard should be added to give strength. Sills need not be more than one inch by four inches; the bottom boards laid crossways, on the sills may be half-inch for animals not over 100 pounds, and one-inch for heavier. Standards need not be more than one inch by three inches, and side bars should be inside standards. We prefer to board up closely both ends, for safety and cleanliness, especially by express. Calf crate need not be more than two feet six inches high and eighteen or twenty inches wide

if calf is tied to both sides of front of crate. For pigs six weeks old a handy box is made from a ten or twelve inch board; say length of bottom two feet four inches, height eighteen inches, bottom and ends cut from same board, then one-half inch by four-inch side bars, except lower side bar, which had better be six inches wide. For pigssix months the width should be eighteen to twenty inches, and length four feet to four feet six inches.]

Winter Buttermaking.

F. H. RANSOM, Norfolk Co., Ont.:—"I would like to ask a few questions in regard to winter buttermaking from cows that have been milked since first of April. 1. What temperature should milk room be where milk is set in shallow pans? 2. How long should it be set before skimming? 3. How long should cream be kept before churning? 4. At what temperature should cream be kept? 5. At what temperature should cream be when put in churn? I hope to see answers in your valuable paper, which I would not like to be without."

[In very many instances long churnings, when not caused by too low temperature or want of ripening, are due to cows having milked too long since last calving. With this in view, the introduction of one or two fresh cows into the herd should serve to avoid trouble in this line. 1. From 60 to 65 degrees, so that the milk shall be sour but not thickened, except at the bottom of the pans, when it is to be skimmed. 2. Thirty-six hours at the above temperature gives fairly thorough creaming. 3, 4, 5 The cream from shallow pan setting when the milk was sour at the time of skimming may be churned as soon as convenient, as it has ripened on the milk and is in good condition to churn. There is no objection, however, to hold it two or three days at a temperature of 40 to 45 degrees, and cream may be added from each succeeding skimming and thoroughly mixed with the cream already in the can. The cream can should be large enough to hold a churning, that the cream may be of uniform ripeness, or fat will be lost in the buttermilk. No new cream should be added for twelve hours before churning. The temperature of the cream may be raised to 60 or 64 degrees for churning by standing the can in a deep vessel of warm water, keeping the cream continually stirred.]

A Bank Barn for Sheep.

W. H., Bruce Co., Ont.:—"How would a small bank barn (50x34) do for sheep? What height should the stone wall be? I would like to fatten sheep and lambs. Could I do it without hay? If my peas were well cured and cut, instead of threshing, would it make good feed? Are roots necessary, or would bran do mixed with peas instead? Would it be a mistake to have barn facing north-east? I could put a veranda on of six or eight feet wide to make more shelter. How would a cistern do on level of basement floor, behind wall, and have a tap for water to trough? Please answer in the ADVOCATE."

[A barn of this size with basement would answer the purpose well and would make two good roomy pens if divided in the center and racks were placed around the walls. We would enclose front of basement and have double doors ten feet wide, to close in stormy weather. Basement should be eight or ten feet high; stone wall need not be more than two feet above ground at ends and front, and will be drier and healthier for sheep if of frame, boarded inside and outside. Back wall, if in a bank, would need to be full height of basement. It would be a mistake to have barn face north-east. It should face south if possible, and have roomy, dry yards for sheep to get sunshine and exercise. A concrete cistern, on level of basement floor, behind wall, would be all right with overflow pipe to a drain with good opening, and a tap could be arranged to draw water into a trough. Peas harvested before too ripe and well cured, and fed unthreshed in racks, or cut instead of threshing, make excellent feed for fattening sheep or lambs, without hay, but must be given in moderation. Roots are most desirable for young sheep in winter, especially for such as are to be kept for breeding, but are not really essential in fattening lambs. We would prefer feeding oats and bran in addition to the unthreshed peas, or instead of the peas, if cut, as being safer, peas being liable to scour lambs if fed alone.]

Galloway Cattle.

A YOUNG FARMER, Huron Co., Ont.:—"I am thinking of starting a herd of Galloways, and would like your opinion of them through your paper as compared with Durhams, which we have always kept. How do they compare for weight, for milk, and general profit? Also the names of some of the best breeders from whom good stock could be obtained? Please answer in your next issue, if possible."

[Galloways are smoothly turned, thick fleshed, short legged, thrifty cattle, hardy, good rustlers, and fair milkers. As compared with the modern Shorthorn, there is not much difference in their weight on an average at same age and under similar conditions. There are no public claims made for more than average dairy qualities in the Galloway; in fact, we believe little attention has been paid to their development along this line, while Shorthorns frequently, in public open tests, compare favorably with the best of the special purpose dairy breeds. A Galloway cow will, however, raise her calf well if given fair treatment. As to comparative profit, much depends upon the demand

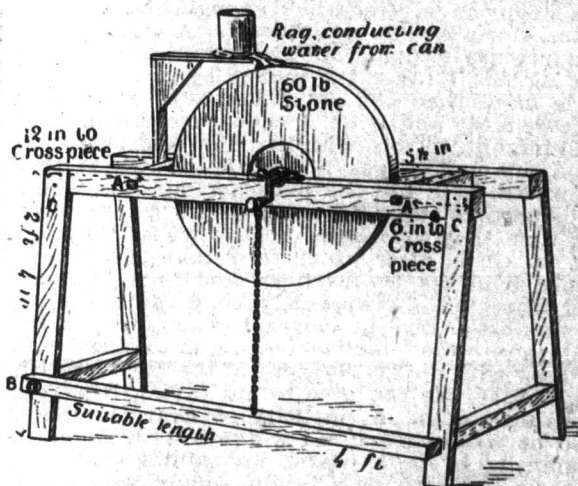
for breeding purposes, which, we judge, for Galloways is limited, as there are very few herds in the Dominion, while the demand for Shorthorn bulls is very active and sales are numerous, which, no doubt, is partly due to the fact that so many of the breeders advertise in the FARMER'S ADVOCATE, from which breeders of Galloways may do well to take a hint. Average Galloways will, we believe, take on flesh as cheaply as average Shorthorns, and it is of perhaps superior quality.]

THE HELPING HAND.

One-Man Self-Watering Grindstone.

W. M. SHIELDS, Ontario Co., Ont.:—"I send you a sketch and the following description of my own grindstone. I have used it all summer, and so am in a position to say that it works satisfactorily, and is a great saver of time, for one man may do his own turning and grind an axe or a bread-knife with equal satisfaction."

"The stone I have is a 60-pound one, and cost 60 cents. The handle, bearings, etc., cost 60 cents. I had on hand two 12-inch bolts and one 6-inch bolt; I do not know cost of these. The 12-inch bolts are used at AA, the 6-inch bolt at B; 6-inch or longer spikes do for CC. At each side of pedal at B, against the leg and against the head of the bolt, there is a washer, to allow easy play. Two by four



inch scantling may be used throughout, except for water-can bracket. We used round stuff from the bush, having no team and no time to go for lumber when we came here.

"The end for working at should not be over six inches from the stone, or to crosspiece. The pedal is at the left-hand side. The chain from pedal is attached to knob end of axle crank. The legs are braced together by crosspieces, as in letter A, and by a piece lengthwise, as in a well-made table. The bracket for water-can may be nailed to crosspiece, and on top of bracket, where can rests, a piece of wooden hoop should be tacked round to keep can from shifting by vibration while stone is in use. Punch a hole in the can and pull in piece of rag, and allow one end of rag to rest on stone. The rag will carry the water to stone in sufficient quantity and continuously."

POULTRY.

Winter Eggs.

To the Editor FARMER'S ADVOCATE:

SIR,—In order to realize a profit from poultry in a district where eggs sell from 7½ to 20 cents per dozen through the year, one can see at a glance that it is highly essential to have our fowls laying when their product is commanding the higher prices, and to attain these results there are four requirements, namely: Good, commodious, and comfortable quarters; proper, wholesome food; careful attendance; the services of early-hatched pullets, etc. As to quarters, it is not necessary to provide artificial heat even for our large-comb birds. A house can be constructed so as to protect the comb of a Leghorn from frost in our most severe weather, and that is all that is required. As to ventilation, I allow plenty of fresh air to come into my house from the double windows and door, even when mercury is lingering near zero, thus keeping the air pure and dry. I avoid crowding as much as possible, from the fact that it has an ill effect on the production of winter eggs. Eight square feet per hen, including roosting and scratching room, is the amount of space my poultry have when in their winter quarters.

Special attention should be given the hens through the moulting season. Those of them that are in that nude condition should be closed in for a while by themselves and looked after with care, so that they may speedily manufacture their winter garb.

In arranging poultry for the winter, the pullets should be separated from the older hens, and if they are about to commence work in laying those breakfast eggs, they may be given all the feed they may eat; yes, and without scratching for it, too. However, a little work in hunting for kernels of wheat among the litter of chaff and straw will do them no harm and will sometimes help to keep them out of mischief. We can not expect good results from our poultry if we do not provide proper grinding material for them. In the fall of the

year I lay in a quantity of limestone, which we gather from the fields. When I built my poultry house I procured a large stone with a flat surface; this we bedded in even with the earth floor in one corner of one of the scratching apartments, and here now and again I turn professor of dentistry and supply my fowl with artificial teeth, or that which is more commonly called grit, from the limestone gathered from the field. They are also very fond of broken crockery. Ground oyster shells are highly recommended; also hard, dry plaster, made from coarse sand and lime, is ravenously eaten by poultry. In making this mortar grit, take one bushel of new lime and five bushels of coarse sand, sprinkle and bury the lime in the sand, let it remain for a few hours, after which mix as usual for mason-work, then spread it out to about an inch in thickness, and let it remain until it is as hard as a bullet, then crush as wanted.

Winter morning food for my poultry consists of equal parts of barley, oats and pea chop, with about four quarts of meat and bone, which I procure from our town butcher for one-half cent per pound; this I run through a fourteen-dollar bone cutter, after which I put it into a water-pail with some scalding water, adding a small handful of salt; then stir it up well, allowing the meat to cook a little; then it is ready for the chop. This is put with enough water to make about three-quarters of a pail. It is then stirred again and all is brought to a sloppy state, after which enough bran is added to transform it all to a stiff paste. A water-pail of this mixture is enough for one hundred hens. In feeding this, I favor the pullets by giving them a little more than the older hens. If one cannot procure meat and bone, I should recommend new or skim milk to mix with the chop and bran. At noon my pullets get about all the wheat they want to scratch for, the hens getting oats—about two quarts to twenty-five hens—and before roosting time they all receive all the wheat they will eat up clean, after which they take their accustomed drink for the evening, and then retire full and contented. We scarcely know the true value of first-class fine-cut clover hay for our poultry, and those who practice feeding it to their flock will say with me that it is one of the most nourishing fodders we can give to our laying hens and growing chicks. A quantity of charcoal should also be within reach of our fowls at all times. It is amusing to me to watch my pullets wallowing in their dust bath on a bright, sunny winter day, and every person who enjoys an egg for breakfast from their own fowl flock should provide this invigorating treat for them.

It is generally to the early-hatched pullet that we have to look for our supply of winter eggs. A Leghorn pullet that is hatched the first of May and well cared for should commence laying about the tenth of October, and produce from 200 to 250 eggs the first season. However, a great deal depends on the amount of animal food that is given them. If they have to wander over much territory to secure this they will not lay so many, but if they were provided continually with all the fresh animal food they could consume, it is hardly known how many eggs they would lay. Poultry are also fond of different kinds of roots, such as beets, mangels, turnips, etc., and these may be fed to them with profit through the winter months. Yes, with the present prices of grain, there is money in hens if they are well looked after.

Simcoe Co., Ont. A. T. GILBERT.

Keep a Record of Each Hen.

To the Editor FARMER'S ADVOCATE:
SIR,—In the last ADVOCATE, p. 499, a correspondent expresses a desire for some plan whereby the egg production of each hen in a flock could be accurately known. As this is a subject I have thought a good deal about, though never able to put my ideas to the test of actual practice, I should be glad to put them before your readers in hopes that some one more favorably situated for the purpose would try them and see if any practical result can be obtained.

The only way to accomplish Mr. Graham's desire seems to me to be to have each hen numbered (devices for this purpose are advertised in the poultry journals) and then to use special nest boxes so constructed that when a hen goes in she shuts herself in and has to stay there till some one lets her out, before doing which the person would of course note her number and credit her in his record book with the egg laid. Of course, the henhouse would need to be visited at frequent intervals to avoid unnecessarily long confinement of the hens and to avoid eggs being broken. The nest box would need to be in two parts, an inner, dark one, or nest proper, for laying, and an outer, larger and less dark, into which the hen could go as soon as her egg was laid, with provision, if necessary, to prevent her again returning to the nest proper and eating the egg. The necessary doors, preferably made of wire netting, could be adjusted to work as desired by any country boy who sets traps; and, of course, it should not be necessary to open the box in order to know if a hen is in the laying portion or not. Where there two doors the closing of both would indicate "time to let me out."

Of course, not one person in a hundred who keeps hens would go to all this trouble even were the plan proved successful in practice, but one who made a specialty of it might in this way, I think, develop a strain of any good laying breed which would excel the hens we now have as much as our crack herds of Ayrshires, Guernseys, Holsteins, and Jerseys excel the ordinary milch cow of the country,

and that the birds of such a strain, when their merits became known, would be in demand at prices which would well repay the trouble of producing them.

Valuable information might also be obtained as to the external points which indicate egg-laying capacity, and generally the breeding of good layers placed on a more solid foundation than is now the case.

A simpler plan for raising the standard of egg production, and more suited for general use, would be to divide each autumn the stock from which next year's eggs for hatching are to be saved into two or more lots, keep them separate, keep a record of the eggs produced from each lot, and breed from the lot showing heaviest production. The larger the number of lots, of course, the greater the room for selection and the more rapid the improvement, which, of course, could not in any case be so rapid as by the first plan, as all the best hens would not likely be in any one lot. "X. Y. Z."

York Co., Ont.
N. B.—The ADVOCATE keeps steadily improving and there have been some splendid numbers lately.

Winter Egg Production.

The following treatment has given a fair return of eggs during the winter months without the use of artificial heat: Regular feeding with a ration composed of one-half wheat, one-quarter oats, and one-quarter barley, ground and wet with milk in the morning, and fed dry at night; also a little ground green bone added as required; a few vegetables are also fed either cooked or raw. A tendency to overfatness is checked by encouraging exercise and lessening the fattening portions of the ration. Egg-eating is overcome by feeding lime and using a nest with a false bottom.

S. A. BEDFORD, Supt. Brandon Exp. Farm.

MARKETS.

Chatty Stock Letter from Chicago.

(BY OUR SPECIAL CORRESPONDENT.)
Following are the current and comparative prices for the various grades of live stock:—

CATTLE.	Range of Prices.	Top prices		
		Present	Two weeks ago.	1896.
1500 lbs. up.....	\$4 35 to 5 40	\$5 25	\$5 15	\$4 75
1200 @ 1500.....	4 30 to 5 50	5 20	5 15	4 85
1000 @ 1200.....	4 30 to 5 35	5 15	4 90	4 70
800 @ 1000.....	3 80 to 5 10	5 00	4 75	4 60
600 @ 800.....	3 75 to 4 90	4 90	4 70	4 45
Stockers and feeders.....	3 00 to 4 35	4 45	4 10	3 65
Fat cows and heifers.....	3 25 to 4 55	4 50	3 90	4 00
Canning cows.....	1 00 to 2 40	2 50	2 35	2 25
Bulls.....	2 25 to 2 90	4 15	4 15	3 75
Calves.....	3 50 to 6 00	6 50	5 25	6 00
Texas.....	3 50 to 4 00	4 00	4 00	3 65
Texas C. & H.....	2 70 to 3 00	3 50	2 70	3 65
Western.....	3 75 to 4 40	4 35	4 00	3 65
Western cows.....	2 90 to 3 75	4 00	3 25
HOGS.				
Mixed.....	3 30 to 3 55	3 80	3 50	3 70
Heavy.....	3 20 to 3 50	3 80	3 50	3 70
Light.....	3 30 to 3 55	3 80	3 45	3 65
Pigs.....	3 65	3 45	3 65
SHEEP.				
Natives.....	2 25 to 4 65	4 70	3 65	3 50
Western.....	3 50 to 4 65	4 40	3 30	3 10
Lambs.....	3 75 to 5 85	5 75	5 20	4 50

The cattle market is showing a widening range of values as the holiday demand calls out sharper competition for the prime beefs, while the annual advent of the fairs and poultry season lessens the call for ordinary cattle. The hog market, on the other hand, shows a narrowing range of values.

There is really quite a boom on in the cattle and sheep ranching business in the south-west. Extravagant prices have been paid for a good deal of stock, and people who have something to sell are in happier framed mind than at any time since the palmy days of the early eighties, when it was largely a matter of "ask and ye shall receive" with cattlemen. Recently there was made a sale of 30,000 head of cattle of the Western Union Beef Company, in Pecos County, to J. T. McElroy, of Reeves County, Tex. The sale includes the ranch, consisting of 300,000 acres, with the springs and wells thereon, and involves \$900,000. The Western Union Beef Company is a New York organization, with a paid-up capital of \$12,500,000, and is now closing out all its cattle and ranch property in Texas, New Mexico, Colorado and Arizona, as it contemplates retiring from business. The price for the cattle was \$16 a head, spring delivery. The John Kennedy Ranch Company, near Corpus Christi, has sold to Davidson & Fleming 12,000 head of cattle at \$17 a head, spring and fall delivery. This is regarded by cattlemen as one of the most remarkable sales of this remarkable year in the Texas cattle industry. John T. Little sold to W. H. Jennings 800 four-year-old steers at \$30.50 per head.

Receipts Western range cattle for the season of 1897, estimating to the close of the season, compare as follows with other seasons:

Season of 1897.....	235,000
Season of 1896.....	271,000
Season of 1895.....	431,000
Season of 1894.....	374,500
Season of 1893.....	314,500
Season of 1892.....	271,000
Season of 1891.....	370,000
Season of 1890.....	229,500
Season of 1889.....	160,500

Hog cholera, so-called, is doing a great deal of damage in Northern Iowa and Southern Minnesota. Some experts in the employ of one of the great lines of railway declare that the disease commonly called hog cholera is typhoid pneumonia, and that it is caused more than anything else by improper food.

Lard hogs, of course, have a distinct value, and there is a certain demand for heavy fat backs or French backs, but in the main and in the long run it is pretty generally admitted that bacon hogs pay best, and consumers are steadily drifting away from a liking for excessively fat pork, and the demand for bacon hogs with the traditional streak of lean and streak of fat is becoming relatively stronger all the time. Canada is getting a good deal of advertising these days over her pre-eminent success in producing bacon hogs. As a rule, the United States farmers will be very slow to take up the painstaking methods by which such desirable results are attained by Canadian bacon growers, but the idea is growing and will receive a strong impetus from the subject being taken up scientifically by the agricultural colleges.

Charles W. Lennon, one of Armour's hog buyers, just returned from a ten days' trip to Canada, where he went on business for his firm. His mission was to look into the system

of fattening hogs in that country. He put in his time in the Western part of Ontario, where he was royally treated by everybody he came in contact with, especially the farmers, live stock dealers, and packers. He says Canadian hogs are fed on ground peas, barley, rye and shorts, and they are generally marketed when they weigh 160 to 200 lbs. In fact, buyers discriminate against all weights over 220 lbs. and 240 to 250 lb. averages sell 25 to 50 cents below the 160 to 200 lb. bacon grades. Their hogs are mostly all on the singling order, being long and thin. Packers, there, he says, discriminate against short, chunky hogs, such as the Chicago packers and butchers seem to want. The Canadian packers buy a nest of their hogs in the country, having their buyers out all the time. In Toronto, he says, there are only three commission firms.

An idea of the way the hog weights are running is shown by the following report: The 130,056 hogs received last week averaged 253 lbs., the heaviest since the week ending Oct. 2. Average the previous week, 251 lbs.; two weeks ago, 243 lbs.; a month ago, 245 lbs.; two months ago, 253 lbs.; a year ago, 243 lbs., and two years ago, 241 lbs.

The big hog packers are said to be working in unison more than ever before, and that they expect to be able to buy packing hogs this winter between \$3.25 and \$3.50. They claim that for two years they have paid more early in the winter for raw material than they were able later to realize on the products, and that they are heartily tired of such business. The opinion of hog dealers is that they are talking unreasonably low prices for the winter.

An exporter bought some good fed Western sheep at \$4.35. The demand for feeding feed throughout the Eastern States has not been so strong in a long time, but would-be purchasers have to have a good deal of nerve to face the prices they are quoted.

Canadian Live Stock Exports.

The following are the live stock exports for the weeks ending Nov. 17th and 24th, as prepared by R. Bickerdike, of the Live Stock Exchange, Montreal:

Nov. 11—Oakmore.....	Liverpool	675 cattle	1,015 sheep
" 13—Cathaginian.....	"	319 "	"
" 17—Lake Ontario.....	"	39 "	"
" 14—Montrose.....	Bristol	238 "	"
" 14—Norwegian.....	Glasgow	395 "	213 "
" 17—Amarghthia.....	"	256 "	"
" 12—Stockholm.....	Manchester	114 "	"
Total.....		2,236 cattle	1,223 sheep.

Nov. 18—Rosarian.....	London	190 cattle	985 sheep.
" 21—Gerona.....	"	350 "	"
" 23—Ormliston.....	"	183 "	635 "
" 24—Premona.....	"	358 "	201 "
" 19—Ottoman.....	Liverpool	379 "	615 "
" 19—Baltimore.....	"	672 "	"
" 21—Escalona.....	"	222 "	"
" 21—Layonian.....	"	447 "	"
" 21—Lake Superior.....	"	263 "	186 "
" 24—Memmen.....	Bristol	252 "	"
" 18—Sarmatian.....	Glasgow	330 "	146 "
" 20—Keemun.....	"	206 "	"
" 21—Sardinian.....	"	464 "	665 "
" 21—Bellona.....	Newcastle	262 "	"
Total.....		4,688 cattle	3,433 sheep.

This closes all shipments from this port for the season of 1897.

Montreal Markets.

(THE TRADE OF 1897 REVIEWED.)

What little demand there has been for some time back in the live stock trade for export is now over, with close of navigation. The best ended has been the heaviest exporting year in the history of the country, the season of 1891 being a better one in numbers—123,136 head—of which a large proportion were stocker cattle, whereas the total shipments for 1897 have been beef cattle. It has also marked the beginning of the shipment of American cattle via the St. Lawrence, but owing to the prevailing lower rates of freight from American ports than from Montreal, not so much advantage has been taken of the permission as it was thought would be the case, and only 12,331 head were shipped during the entire season. The total shipments for the season were 119,188 head of cattle, 61,254 sheep, and 10,051 horses. Shippers were not very fortunate this season, but their great losses, as estimated by some, are certainly far-fetched and very much exaggerated. The losses have been spread over a greater period than is usually the case, but they have also made money at other times. We think the estimate would be near the mark if placed pretty much on a par between the profits and the losses. Taking the season's cattle as a whole, the output has not been up to the average, lacking very much in the finish, to such an extent, indeed, that Argentine cattle for the past couple of months have realized as much in the British markets as our best Canadian cattle, while Argentine sheep have sold for fully 10c per lb. right along more than our own. The season's sheep shipments have not been so heavy as the past two years, nor has the results been so satisfactory to our shippers, as from the beginning to the end of the season the margins have been close. Among the live stock shipments about the only class that has been profitable to shippers has been the horse export trade, for although the season ended very badly, for the greater part of the time money was made on all shipments where good judgment was used in the selection of export stock, and though the numbers have fallen off not a little from the previous two years, it has not been on account of poor marks, but owing to a scarcity of good stock. There is a good demand in the British markets for good horses, such as heavy draft and good drivers with plenty of action, but all poorer and secondary grades are little inquired for, and are almost certain to lose the shipper money. Another branch of our export trade which has developed to an enormous extent has been the dairying interests, the shipments for the season far surpassing those of any previous season. The cheese exports for the season reached up over two million boxes, and there are still a good number to be forwarded which are held in cold storage here and west of Montreal. Such a thorough cleaning out have farmers had of all their stock that there are not a few, who are generally well posted, and who keep close watch on the market, who say that another dollar per hundred pounds will have to be paid for good beef cattle, if not more, at a very early date. It would not be an entirely unlooked-for result, taking the present strong standing of the local live stock markets, coupled with the steadily growing demand from the great Southern market. If such really proved to be the case.

THREE GREAT PICTURES.

In distributing the balance of our three great premium engravings, "Canada's Pride," "Canada's Glory," and "Canada's Columbian Victors," we desire that they find their way at once to as wide a circle of farm homes as possible, hence our exceedingly liberal offer of all three for one new subscriber, or 50 cents cash. We would advise our friends to take advantage of this offer at once while the supply lasts. For the information of our many new subscribers, we might say that the first two pictures represent groups of prize-winning heavy and light horses, respectively, and "Canada's Columbian Victors" is a beautiful illustration of prize-winning Ayrshires at the World's Fair in 1893.



A DOCTOR OF THE OLD SCHOOL.

BY IAN MACLAREN.

I. A GENERAL PRACTITIONER.

Drumtochy was accustomed to break every law of health, except wholesome food and fresh air, and yet had re-

This sustained defiance of the elements provoked occasional judgments in the shape of a "hoast" (cough), and the "change his feet" if he had happened to walk through a burn on his way home, and was pestered generally with sanitary precautions.

When Hillocks' brother so far forgot himself as to "slip awa" at sixty, that worthy man was scandalized, and offered laboured explanations at the "beeral."

"It's an awfu' business ony way ye look at it, an' a sair trial tae us a'."

"The parish had, in fact, lost confidence in Drums after his wayward experiment with a potato-digging machine, which turned out a lamentable failure, and his premature departure confirmed our vague impression of his character."

"He's awa noo," Drumsheugh summed up, after opinion had time to form: "an' there were waur folk than Drums, but there's nae doot he was a wee flitchy."

When illness had the audacity to attack a Drumtochy man, it was described as a "whup," and was treated by the men with a fine negligence. Hillocks was sitting in the Post Office one afternoon when I looked in for my letters, and the right side of his face was blazing red.

"The gudewife is keepin' up a ding-dong frae mornin' till nicht about ma face, and a'm fair deaved (deafened), so a'm wathoin' for MacLure tae get a bottle as he comes wast; yon's him noo."

"The doctor made his diagnosis from horseback on eight, and stated the result with that admirable clearness which endeared him to Drumtochy."

"Confound ye, Hillocks, what are ye plottin' about here fer in the west wi' a face like a boiled beet? Div ye no ken that ye've a titch o' the rose (erysipelas), and ocht tae be in the hoose? Gae hame wi' ye afore a' leave the bit, and send a haflin for some medicine. Ye duncers the idiot, an' ye can't follow Drums afore yir time?"

"He's a skillie man, Doctor MacLure," continued my friend Mrs. Macfadyn, whose judgment on sermons or anything else was seldom at fault; "an' he disna tribble the Kirk often."

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"If we're tae dee, we're tae dee; an' if we're tae live, we're tae live," concluded Elspeth, with sound Calvinistic logic; "but I'll say this for the doctor, that whether yir tae live or dee, he can aye keep up a shaipr moisture on the skin."

"What's a dae here, Hillocks?" he cries; "it's no an accident, is't? and when he got aff his horse he cud hardly stand wi' stiffness and tire."

"Well, doctor, begins he, as brisk as a magpie, 'you're here at last; there's no hurry with you Scotchmen. My boy has been sick all night, and I've never had one wink of sleep. You might have come a little quicker, that's all I've got to say.'

a winter's night, heard the rattle of a horse's hoofs on the road, or the shepherd, out after the sheep, traced a black speck across the snow to the upper glen, they knew it was the doctor, and without being conscious of it, wished him God speed.

Before and behind his saddle were strapped the instruments and medicines the doctor might want, for he never knew what was before him. There were no specialists in Drumtochy, so this man had to do everything as best he could, and as quickly. He was chest doctor and doctor for every other organ as well; he was dentist and chloroformist, besides being chemist and druggist. It was often told how he was far up Glen Urtaich when the feeders of the threshing mill caught young Burnbrae, and how he only stopped to change horses at his house, and galloped all the way to Burnbrae, and flung himself off his horse and amputated the arm, and saved the lad's life.

"You wud hae thoct that every meenut was an hour," said Jamie Soutar, who had been at the threshing, "an' a'ill never forget the puir lad lying as white as deith on the floor o' the loft, wi' his head on a sheaf, an' Burnbrae haudin' the bandage tight an' prayin' 'a' the while, and the mither greetin' in the corner."

"'Till he never come!' she cries, an' a' heard the sound o' the horse's feet on the road a mile awa in the frosty air."

"The Lord be praised!" said Burnbrae, and a' slippit doon the ladder as the doctor came skelpin' intae the close, the foam fleelin' frae his horse's mouth."

"'Whar is he?' was a' that passed his lips, an' in five meenuts he hed him on the feedin' board, and was at his work—so wark, neeburs—but he did it weel. An' ae thing a' thoct rael thoctfu' o' him: he first sent aff the laddie's mither tae get a bed ready."

"Noct that's finished, and his constitution 'ill dae the rest, and he carried the lad doon the ladder in his arms like a bairn, and laid him in his bed, and wats aside him till he was sleepin', and then says he: 'Burnbrae, yir a' gey lad never tae say 'Collie, will ye lick?' for a hevna tasted meat for sixteen hours."

"It was mighty tae see him come intae the yaird that day, neeburs; the varra look o' him was victory."

Jamie's cynicism slipped off in the enthusiasm of this reminiscence, and he expressed the feeling of Drumtochy. No one sent for MacLure save in great straits, and the sight of him put courage in sinking hearts. But this was not by the grace of his appearance, or the advantage of a good bedside manner. A tall, gaunt, loosely made man, without an ounce of superfluous flesh on his body, his face burned a dark brick colour by constant exposure to the weather, red hair and beard turning grey, honest blue eyes that looked you ever in the face, huge hands with wrist bones like the shank of a ham, and a voice that hurled his salutations across two fields, he suggested the moor rather than the drawing-room. But what a clever hand it was in an operation, as delicate as a woman's, and what a kindly voice it was in the humble room where the shepherd's wife was weeping by her man's bedside. He was "ill pittin' together" to begin with, but many of his physical defects were the penalties of his work, and endeared him to the Glen. That ugly scar that cut into his right eyebrow, and gave him such a sinister expression, was got one night Jess slipped on the ice and laid him insensible eight miles from home. His limp marked the big snowstorm in the fifties, when his horse missed the road in Glen Urtaich, and they rolled together in a drift. MacLure escaped with a broken leg and the fracture of three ribs, but he never walked like other men again. He could not swing himself into the saddle without making two attempts and holding Jess's mane. Neither can you "warstle" through the peat bogs and snowdrifts for forty winters without a touch of rheumatism. But they were honourable scars, and for such risks of life men get the victor's Crown in other fields. MacLure got nothing but the secret affection of the Glen, which knew that none had ever done one-tenth as much for it as this manly, twisted, battered figure, and I have seen a Drumtochy face soften at the sight of MacLure limping to his horse.

Mr. Hopps earned the ill-will of the Glen for ever by criticising the doctor's dress, but indeed it would have filled any workman with amazement. Black he wore once a year, on Sacrament Sunday, if possible, at a funeral; topcoat or waterproof never. His socks, which were rough like a duck's back, and below he was clad in shepherd's man's trousers, which disappeared into unpollished riding boots. His shirt was grey flannel, and he was uncertain about a collar, but certain as to a tie which he never had, his beard doing instead, and his hat was soft felt of four colours and several different shapes. His point of distinction in dress was the trousers, and they were the subject of unending speculation.

"Some three that he's worn that eedential pair the last twenty year, an' a mind massel him gettin' a tear abint, when he was crossin' oor pallin', and the mend's still vesible."

"Ithers declare at he's got a wab o' claith, and hes a new pair made in Muirtown, an' it's in the twa year maybe, and keeps them in the garden till the new look wears aff."

"For my ain part," Soutar used to declare, "I canna mak up my mind, but there's ae thing sure, the Glen wud not like tae see him without them; it wud be a shock tae confidence. There's no muckle o' the cheek left, but ye can aye tell it, and when ye see these breeks comin' in ye ken that if human pooper can save yir bairn's life it 'ill be done."

The evidence of the Glen—and tributary states—was unbounded, and rested partly on long experience of the doctor's resources, and partly on his hereditary connection.

"His father was here afore him," Mrs. Macfadyn used to explain; "between them they've hed the countyside fer weel on tae a century; if MacLure disna understand oor constitution, wna dis, a' wud like tae ask?"

"Drumtochy had his own constitution and a special throat disease, as became a parish which was quit self-contained between the woods and the hills, and dependent on the lowlands either for its diseases or its doctors."

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"But he's no verra ceevil gin ye bring him when there's naethin' wrang," and Mrs. Macfadyn's face reflected another of Mr. Hopps' misadventures of which Hillocks held the copy-right.

"Hopps' laddie at grosarts (gooseberries) till they hed to sit up a nicht wi' him and naething wud do but they maun hed the doctor, an' he writes immediately on a slip o' paper: 'Weel, MacLure had been awa a nicht wi' a shepherd's wife Dunleith yir, and he comes here without drawin' bridle, mud up tae the ceen."

"What's a dae here, Hillocks?" he cries; "it's no an accident, is't? and when he got aff his horse he cud hardly stand wi' stiffness and tire."

"It's nane o' us, doctor; it's Hopps' laddie; he's been eatin' ower mair berries."

"If he didna turn on me like a tiger."

"Div ye mean tae say."

every bairn that hes a sair stomach, and a' saw MacLure was roosed.

"I'm astonished to hear you speak. Our doctor at home always says to Mrs. Opps, 'Look on me as a family friend, Mrs. Opps, and send for me though it be only a headache.'"

"He'd be mair sparri' o' his offers if he hed four an' twenty miletas look aifter. There's naething wrang wi' yir laddie but greed. Gie him a gude dose o' castor oil and stop his meat for a day, an' he'll be a' richt the morn'."

"He'll not take castor oil, doctor. We have given up those barbarous medicines."

"'Whata kind o' medicines hae ye noo in the South?' 'Well, you see, Dr. MacLure, we're homoeopaths, and I've my little chest here, and oot Hopps comes wi' his boxy. 'Let's see,' an' MacLure sits doon and takes oot the bit bottles, and he reads the names wi' a lauch every time."

"Belladonna; did ye ever hear the like! Acconite; it coves a'. Nux Vomica. What next! Weel, ma mannie, he says tae Hopps, 'it's a fine ploy, and ye 'ill better gang on wi' the Nux till it's done, and gie him ony ither o' the sweeties he fancies.'"

"Noo, Hillocks, a' maun be aff tae see Drumheugh's griev, for he's doon wi' the fever, an' it's tae be a teuch fecht. A' hinna time tae wait for dinner, an' it's tae be a teuch fecht, oaks in ma haund, and Jess 'ill take a pall o' meal an' wate."

"Fee; a'm no wantin' yir fees, man; wi' that boxy ye dinna need a doctor; na, na, gie yir siller tae some puir body, Maister Hopps, an' he was doon the road as hard as he cud lick."

His fees were pretty much what the folks chose to give him, and he collected them once a year at Kildrummie fair.

"Weel, doctor, what am a' awin' ye for the wife and bairn? Ye 'ill need three notes for that nicht ye stayed in the hoose an' a' the vesit."

"Havers," MacLure would answer, "prices are low, a'm hearing; gie's thirty shillings."

"No, a'ill no, or the wife 'ill tak ma ears off, and it was settled for two pounds."

Lord Kilspindie gave him a free house and fields, and one way or other, Drumheugh told me, the Doctor might get in about £150 a year, out of which he had to pay his old house-keeper's wages and a boy's, and keep two horses, besides the cost of instruments and books, which he bought through a friend in Edinburgh with much judgment.

There was only one man who ever complained of the doctor's charges, and that was the new farmer of Milton, who was so good that he was above both churches, and held meeting in his barn. (It was Milton the Glen supposed at first to be a Mormon, but I can't go into that now.) He offered MacLure a pound less than he asked, and two tracts, whereupon MacLure expressed his opinion of Milton, both from a theological and social standpoint, with such vigour and frankness that an attentive audience of Drumtochy men could hardly contain themselves.

Jamie Soutar was selling his pig at the time, and missed the meeting, but he hastened to condole with Milton, who was complaining every where of the doctor's language.

"Ye did richt tae resist him; it 'ill maybe roose the Glen tae mak a stand; he fair hands them in bondage."

"Thirty shillings for twal vesites, and him no mair than seven mils awa, an' a'm tae tell there's werra mair than four at nicht."

"Ye 'ill hae the sympathy o' the Glen, for a' body kens yir as free wi' yir siller as yir tracts."

"Weel, Beware o' gude warks ye offered him! Man, ye chose it weel, for he's been colleckin' sae mony thae forty years, a'm ferear for him."

"A' ye often thoct oor doctor's little better than the Gude Samaritan, an' the Pharisees didna think muckle o' his chance aither in this world or that which is to come."

II.

THROUGH THE FLOOD.

Doctor MacLure did not lead a solemn procession from the sick bed to the dining-room, and give his opinion from the hearthrug with an air of wisdom bordering on the supernatural, because neither the Drumtochy houses nor his manners were on that large scale. He was accustomed to deliver himself in the yard, and to conclude his directions with one foot in the stirrup; but when he left the room where the life of Annie Mitchell was ebbing slowly away, our doctor said not one word, and at the sight of his face her husband's heart was troubled.

He was a dull man, Tammas, who could not read the meaning of a sign, and laboured under a perpetual disability of speech; but love was eyes to him that day, and a mouth.

"It's as bad as yir lookin', doctor! tell's the truth; wull Annie no come through?" and Tammas looked MacLure straight in the face, who never flinched his duty or said smooth things.

"A wud gie onything tae say Annie hes a chance, but a' daurn; a' doot yir gaein' tae lose her, Tammas."

MacLure was in the saddle, and as he gave his judgment, he laid his hand on Tammas's shoulder with one of the rare caresses that pass between men.

"It's a sair business, but ye 'ill play the man and no vex Annie; she 'ill dee her best, a' warrant."

"An' a'ill dee mine, and Tammas gave MacLure's hand a grip that would have crushed the bones of a weakling. Drumtochy felt in such moments the brotherliness of this rough-looking man, and loved him."

Tammas hid his face in Jess's mane, who looked round with sorrow in her beautiful eyes, for she had seen many tragedies, and in this silent sympathy the stricken man drank his strength by drops.

"A' weena prepared for this, for a' aye thoct she wud live the longest. . . . She's younger than me by ten year, and never was ill. . . . We've been mairt twal year laist Martinmas, but it's just like a year the day. . . . A we never worthy o' her, the bonniest, snoddest (nearest), kindest lass in the Glen. . . . A' never ood mak oot hoo she ever lookit at me, 'at heema her best, a' warrant."

"She didna cuist up tae me that a' weena worthy o' her, no her, but aye she said, 'Yir ma ain gudman, and nane cud be kinder tae me. . . . An' a' was minded tae be kind, but a' see noo mony little trokes a' might hae done for her, and noo the time is bye. . . . Naebody kens hoo patient she was wi' me, and aye made the best o' me, an' never pit me tae shame afore the folk. . . . An' we never hed ae cross word, no ane in twal year. . . . We were mair nor man and wife, we were sweethearts a' the time. . . . Oh, ma bonnie lass, what 'ill the bairnies an' me dae without ye, Annie!"

The winter night was falling fast, the snow lay deep upon the ground, and the merciless north wind moaned through the close as Tammas wrestled with his sorrow dry-eyed, for tears moved hand or foot, but their hearts were with their fellow creature, and at length the doctor made a sign to Marget Howe, who had come out in search of Tammas, and now stood by his side.

"Dinna mourn tae the brakin' o' yir hert, Tammas," she said, "as if Annie an' you hed never lived. Neither death nor time can part them that luv; there's naethin' in a' the warld sae strong as luv. If Annie gae frae the sicht o' yir een she 'ill come the nearer tae yir hert. She wants tae see ye, and tae hear ye say that ye 'ill never forget her nicht; no day till ye meet in the land where there's nae pairtin'. Oh, a' ken what a'm sayin', for it's five year noo sin George gied awa, an' he's mair wi' me noo than when he was in Edinboro' and I was in Drumtochy."

"Thank ye kindly, Marget; thae are gude words and true, an' ye hev the richt tae say them; but a' cannae dae without seein' Annie comin' tae meet me in the gloamin', an' gaein' in an' oot the hoose, an' hearin' her ca' me by ma name, an' a' 'ill no can tell her that a' luv her when there's nae Annie in the hoose."

[TO BE CONTINUED.]

Making Christmas Candy.

The coming home of the children from school and service makes Christmas a time of rare joy in the home. There may be more noise and stir than jangled nerves enjoy, but the spirits of youth will be curbed soon enough; let them look back to this Christmas at home as one when they had a "time." There is no more interesting or pleasurable way of spending a day indoors in cold weather than candy-making. If hearts be right it gives pleasure to old and young, and homemade candy is the choicest for home-coming children.

The making of these sweets is not difficult, and is quite within the reach of young cooks in a fairly furnished kitchen. Only the best materials should be used, and using the best materials the sweets need not be harmful. When some of us were children all candy was denounced as altogether "unhealthy." That may have been in the interests of domestic economy. Here are a few suggestions:

Marshmallows are considered a favorite candy, especially with the young, and the process of making them is both amusing and interesting. Yet marshmallows really contain no marshmallows at all, but pure, harmless gum arabic is used instead. This I had at first hand from one of the largest manufacturers in the country.

The following rule is perfectly reliable: Dissolve half a pound of clear white gum arabic in one pint of water; strain, add half a pound of refined sugar, place over the fire, and stir constantly until the sugar is all dissolved and the mixture has become like honey. Then add the whites of four eggs previously beaten, keep stirring the mixture till it becomes thin and does not adhere to the finger, flavor with rose or vanilla, and pour into a pan dusted with powdered starch, and when cool divide into squares.

Of caramels there are no end, but some are better than others. It is not as much labor to make them as it seems, and we give our best rule: One pint bowl of Baker's grated chocolate, two bowls of yellow sugar, one bowl of New Orleans molasses, one-half a cup of milk, a piece of butter the size of a small egg, and vanilla flavor. Simmer about twenty-five minutes; it should not be as brittle as molasses candy. Pour into buttered tins, and, when partly cold, mark in squares quite deep with a knife. The ingredients should all be mixed and thoroughly beaten together before being put over the fire, and then continually stirred until done. These are called "Boston caramels," and can hardly be excelled.

Now, peppermints. Every family that has a grandmother in it should have peppermints, for long after marshmallows and caramels have lost their charms the old-fashioned peppermints will find a welcome, for they are, it is said, like wine, "good for the stomach's sake." They are simple and harmless, if they do not possess the all-curing powers that quite old people often come to believe they do. Melt the sugar with just water enough to moisten it, dissolve it well, and boil over a quick fire. Add fifteen drops of essence of peppermint, and stir, boiling briskly, for 15 minutes, and then drop on a plate to cool.

Butterscotch.—This is the favorite of the school-boy with perhaps but a penny to spend. How the sweet bit seems to delight the little fellow as he trudges along to school smacking his lips!—an everyday scene. This is the way to make it: Boil together for half an hour one cup of molasses, two cups of sugar, three spoonfuls of butter, one heaping teaspoonful of carbonate of soda, one teaspoonful of lemon or vanilla flavoring. Stir constantly and pour on plates to cool. The flavoring should be added last.

Everyone who likes candy at all favors nut candies in variety. Boil two pounds of brown sugar, half a pint of water, and one gill of molasses till the mixture hardens when a little is dropped in cold water. Then add the meats of nuts removed from the shells in as large pieces as possible. Spread the nuts on plates and pour the candy over them to cool. English walnuts, hickory nuts, and peanuts are most often used.

Old-fashioned Molasses Candy.—Simmer together over the fire one quart of good molasses and butter the size of an egg till it will harden on being dropped into cold water. When nearly done, add a heaping teaspoonful of soda and plenty of wintergreen flavor, and pull while hot.

"When She Got There."

Our readers are all so familiar with the marvelous story of "Old Mother Hubbard," so entrancing to childish minds, that little explanation need be given of our engraving, which portrays the modern rendering of the dear old tale. Great is the contrast in the treatment of the subject, but the result is the same in both cases, "And so the poor dog got none." Our canine friend does not, however, appear to be in want of a bone or any other delicacy; it is more probable that the treat to which he is looking forward is a romp with his beloved mistress, whose bonnie face he is so earnestly regarding.

Recipes.

CHRISTMAS CAKE.

Four lbs. raisins, 1 lb. currants, 1 lb. almonds (blanched), 1½ lbs. butter, 2 lbs. sugar, 1½ doz. eggs, 1 lb. mixed peel, ½ pt. black molasses, 1 wineglass wine, 1 wineglass rose water, 1 teaspoon soda mixed in half a cup of sour cream; flour to stiffen.

CHRISTMAS PUDDING.

Three lbs. raisins, 1 lb. currants, 2 lbs. suet, ¼ lb. mixed peel, 1 doz. eggs, 2 lbs. bread crumbs, ½ cup



"WHEN SHE GOT THERE."

black molasses, spice, ½ teaspoon soda in one cup of sour cream, 1 lb. sugar; flour to stiffen.

MINCE MEAT.

Three lbs. of lean beef, 6 lbs. apples and 1 lb. of suet all chopped fine and mixed together, 4 lbs. raisins, 6 lbs. currants, 1 lb. citron, 1 lb. candied lemon, 2 lbs. sugar, 1 tablespoonful salt, 2 oranges grated, powdered cinnamon, mace, cloves and allspice to taste; add 3 pts. of boiled cider, and set on the stove, stirring to prevent boiling until thoroughly scalded; add enough sweet cider when using to make moist.

GINGER PUDDING.

One cup flour, 1 cup bread crumbs, 1 cup dark molasses, 2 ozs. sugar, 1 teaspoon ginger, 1 lb. finely chopped suet; mix well together and place in a buttered basin, steam for three hours, serve with sauce.

MINNIE MAY regrets to say that out of several essays received in response to our prize offer in the October number, not one comes up to the standard or is of real practical merit.

UNCLE TOM'S DEPARTMENT.

MY DEAR NEPHEWS AND NIECES,—

"The day is cold and dark and dreary," and as I sit gazing at the ruddy glow of the firelight, my thoughts (which I am vainly trying to concentrate upon a subject suitable for my next ADVOCATE letter) go scampering off on a tour of their own, and—what can I do but follow them?

Where do they lead me? Far and near o'er all our proud Dominion, wherever there resides one single member of my numerous family; into beautiful houses and lowly cottages, but always into happy homes, for as the days speed by and the sweet season of peace and goodwill draws nearer, the hearts of all, both rich and poor, thrill with responsive gladness and fellowship.

As I look about me I see the deft fingers of my older nieces busily employed upon sundry articles which mysteriously disappear upon the approach of other members of the family, for (let me whisper the secret) these very articles are meant for Christmas presents, and of course would fall short of their full purpose did they not come as a surprise to the recipients.

And I see the long-boarded contents of little red banks poured out, counted and recounted many a time before the eventful day comes, when the little folks are allowed to go shopping. The importance of these men and women in miniature! What a hearty laugh must jolly old Kris Kringle give as he watches them make their purchases!

I see also some grave-looking youths poring thoughtfully over their books, and I mentally say, "Those boys will be men," for I never will admit that our country boys do not need a good education. The unlettered clodhopper is fast becoming extinct, and the intelligent farmer who can also take his place in the drawing-room is appearing in his stead. Our Government is doing much to further the interests of the farmers by Institute meetings and other means, and it remains with the latter to co-operate and thus benefit by them. You, my boys, the future men of our country, should prepare now, that you may not only fill your allotted places, but do so ably and well, remembering what Goldsmith says:

"An honest yeomanry, their country's pride,
When once destroyed can never be supplied."

The many excellent papers contributed to our recent "Gem contest" show a love of the beautiful in literature which pleased me so much that I have decided to repeat the competition. It was difficult, where all were good, to select the best, but I trust the choice made gave satisfaction.

While most of the papers were neatly prepared, a few were apparently written with a view of saving paper; that is, in as small a space as possible, which made the reading difficult and (if desired for publication) rendering copying necessary. Those who were unsuccessful then may be the winners next time, if they try again. Trusting to receive a great many papers from old and new contributors, and wishing all a very Merry Xmas,
Your loving—UNCLE TOM.

Second "Memory Gem" Contest.

"Uncle Tom" offers three cloth-bound books for the three best sets of quotations sent in between now and January 10th, according to the following rules: Each list must contain fifteen quotations, but not more, each of which should have author's name appended. Do not, however, let a particularly beautiful thought be lost for lack of knowing the author.

Gems already published in our department will not be accepted, and preference will be given to those not found in the school readers, as with those almost all are familiar. Neatness, spelling and punctuation will be taken into consideration when making awards. Write on one side of paper, address "Uncle Tom," FARMER'S ADVOCATE, London, and mail early enough to reach this office on or before January 10th, 1898.

Results will appear in February 1st issue.

Prompt renewals to the "Farmer's Advocate" facilitate our work greatly at this season.

THE CHILDREN'S CORNER.

Jimmie Boy's Letter to Santa Claus.

Dear Santa Claus, if you could bring
A patent doll to dance and sing,
A five-pound box of caramels,

An elephant that roars and walks,
A Brownie doll that laughs and talks,
A humming top that I can spin,

A boat or two that I can sail,
A dog to bark and wag his tail,
A pair of little bantam chicks,

A scarlet suit of soldier togs,
A spear and net for catching frogs,
A bicycle and silver watch,

A small toy farm with lots of trees,
A gun to load with beans and peas,
An organ and a music-box,

A double set of building-blocks—
If you will bring me these, I say,
Before the coming Christmas day,

I sort of think, perhaps, that I'd
Be pretty nearly satisfied.
—Harper's Young People.

Searching for Santa Claus.

Faster and faster fluttered the snowflakes to
carpet that city street, and to fashion a fairy high-
way on the roof-tops for Santa Claus and his fleet
reindeer.

Through the blinding whiteness, trudging brave-
ly along, could be seen two small figures. A pair of
blue eyes looked out timidly from under an
apology for a cap. A pair of black eyes looked
out fearlessly through locks of yellow hair covered
by a scarlet hood. Now I am going to tell you, at
the very beginning, what this boy and girl were
about,—they were searching for Santa Claus.

In a quiet little street, in a tiny bare room, that
very morning, Willie and Millie had listened to a
mournful tale: Santa Claus did not know their
address, and so, of course, he would not visit them.
"Is that him?" cried the boy, tugging at the
little girl's arm. "Say, Millie, is that him?"

"No," said Millie, and she laughed.

The snowflakes caught in the little boy's pinched
face, and clung to the little girl's hair.

Some snowflakes—and these were not kind
snowflakes—crept inside four little worn shoes to
take a look at twenty little toes.

"There he is, Willie!"
They took hold of hands and ran as fast as they
could.

"Hello! What's up?" It was Santa Claus'
voice, clear and merry. He stopped stock-still,
with the snowflakes on his silver beard, and on the
great basket he carried upon his arm.

Millie hastily drew a corner of her shawl over a
rent in her dress; but Santa Claus' twinkling eyes
had seen it already, but he didn't seem to mind it.

"Willie and me come to give your our address,
Mr. Santa Claus," she said politely. "It's No. 3
Dickerson street. We're the same ones you gave
the horse and cart and the baby doll to last year,
when we lived on Greek street."

"They're all broke up," added Willie in a
whisper.

"My goodness above!" cried Santa Claus: "I've
been looking for you two everywhere. No. 3 Dick-
erson street,—trust me for remembering!" With
that he hurried down the long avenue. The snow-
flakes, growing larger, were pelted at him like
snowballs. And the dear old fellow was laughing
so that he couldn't walk straight.

The Christmas Pudding.

With apples, and suet, and almonds and plums,
Candied-peel, brandy, and currants and crumbs;
Oh! what a jolly good pudding we'll make!

Blacker than treacle and sweeter than cake.
We stir it up with a wooden spoon—
It takes the whole of the afternoon;

We take it in turns till cook thinks fit
To drop in the ring and the three-penny bit.
If you get the ring it's perfectly clear

That you will be married within the year;
But if you've the button it's equally plain
That forever unmarried you must remain.

But, if you've the three-penny bit, why then
You'll live and die the richest of men;
So the three-penny bit is the best of the lot,

For who cares whether they're married or not?
But, if I were rich, I would buy some skates,
And a crick-t-bat and some Tunis dates;

And a book for father—for mother some pearls,
And a life-size dolly for each of the girls.
Oh! if I were rich we would keep a bear,

And a pony to ride and armor to wear;
And every game you can get to play,
And a pudding—like this one—EVERY DAY!

Home.

I am not an alarmist. If every bank were to
break I wouldn't lose a cent, and I could walk
home. I have got two shoulders of meat in the
smoke-house, and clothes to last six months.

We've got to get back to headquarters—home—
to find out the trouble. Home ought to be the
brightest, happiest and cheeriest place under the
sun, on the face of the earth.

Every man shows what he thinks of his wife
and children by the kind of home he puts them in.
A man whose home is all out of whack, the blinds

down and the doors off the hinges, the steps rotten
—that shows his character. The husband shows
his character by the exterior of his home; the wife
by the interior. I don't see how some men can
keep pious on what they get three times a day.
Spurgeon includes all human miseries under "dirt,
devil, debt." I have been in houses where they had
twenty-five dollars' worth of silverware and fifteen
cents' worth of grub. I would like to be able to
digest silver, but I can't. I like girls who can play
on the stove as well as on the piano. Many a man
has been sent to a drunkard's grave by what he
has been given to eat by his wife. You give a man
a biscuit that will knock down a yearling, and he's
got to have a drink or something else before night.
If you've got a good wife, a good home and a
good cow, your are elected, as the Presbyterians
say.—Sam Jones.

What's the Use?

The daily press is striving hard—
But what's the use?
That folks their follies may discard,
But what's the use?
For people still blow out the gas,

And trains at crossings try to pass,
While ladies still chew gum, alas!
So what's the use?
The farmers still are signing notes—
So what's the use?
And buying wild Bohemian oats,

So what's the use?
For though we wait a ham day by day,
Yet snickers still will dearly pay
For every "snap" that comes their way,
So what's the use?

THE QUIET HOUR.

Thy Will, Not Mine.

(Continued from page 503.)

"Not as I will"—the sound grows sweet
Each time my lips the words repeat.
"Not as I will"—the darkness feels
More safe than light when this thought steals
Like whispered voice to calm and bless
All unrest and all loneliness.
"Not as I will," because the One
Who loved us first and best has gone
Before us on the road, and still
For us must all his love fulfill,—
"Not as we will."

We are not to think, then, that every burden
we ask God to remove, He will surely remove; nor
that every favor we crave, He will surely bestow.
He has never promised this. "This is the con-
fidence that we have in Him, that if we ask any-
thing according to His will, He heareth us." Into
the very heart of the prayer which our Lord gave
He put the petition, "Thy will be done." Listen-
ing at the garden gate to the Master's own most
earnest supplication, we hear, amid all the agonies
of His wrestling, the words, "Nevertheless, not as
I will, but as Thou wilt." The supreme wish in
our praying should not, then, be merely to get the
relief we desire. This would be to put our own will
before God's, and to leave no place for His wisdom
to decide what is best. We are to say: "This
desire is very dear to me: I would like to have it
granted: yet I cannot decide for myself, for I am
not wise enough, and I put it into Thy hand. If
it be Thy will, grant my request: if not, graciously
withhold it from me, and help me willingly to
acquiesce, for Thy way must be the best."

Prayer is right, no matter how intense and im-
portunate: yet amid all your agony of desire, it
should be the supreme, the ruling wish, subduing
and softening all of nature's wild anguish, and
bringing every thought and feeling into subjection,
that God's will may be done.

"If Himself He come to thee, and stand
Beside thee, gazing down on thee with eyes
That smile and suffer; that will smite thy heart
With their own pity to a passionate peace;
And reach to thee himself the Holy Cup—
Pallid and rosy, saying, "Drink with Me!"—
Wilt thou refuse? Nay, not for Paradise!
The pale brow will compel thee, the pure Hands
Will minister unto thee; thou shalt take
Of this Communion through the solemn depths
Of the dark waters of thine agony.
With heart that praises Him, thy yearns to Him
The closer for that hour. Hold fast His Hand
Though the nails pierce thine too! Take only care
Lest one drop of the sacramental wine
Be spilled, of that which ever shall unite
Thee, soul and body, to thy living Lord!"

The groundwork of this acquiescence is our con-
fidence in the love and wisdom of God. He is our
Father, with all a father's tender affection, and yet
with infinite wisdom, so that He can neither err
nor be unkind. He has a plan for us. He carries
us in His heart and in His thought. The things
we, in our ignorance, desire, might in the end work
us great ill; the things from which we shrink may
carry rich blessings for us; so we should not dare to
choose for ourselves what our life experiences shall
be. The best possible thing for us is always what
God wills for us. To have our own way rather
than His, is to mar the beauty of His thought con-
cerning us. The highest attainment in prayer is
this laying of all our requests at God's feet for His
disposal. The highest reach of faith is loving,
intelligent consecration of all our life to the will of
God. When some great hope of our life is about
to be taken from us, we should not dare settle
the question whether we shall lose it or keep it.
We do not know that it would be best. At least,
we know that God has a perfect plan for our life,
marked out by infinite wisdom; and surely we
should not say that what we, with our limited
wisdom, might prefer, would be better than what
He wants us to be. J. R. MILLER, D. D.

Puzzles.

1-CHARADE

One bright morning,
While walking along the street,
A little lad with a wounded first
I chanced to meet.
Said I: "What's the matter, TOTAL boy,"
That you are crying here alone.
He told me what the grievance was,
And SECOND thing had to be done,
So I wiped his "tears and bound his wound,
And whispered to him, "Come";
He walked with me some distance 'till
I brought him to his home. MURIEL E. DAY.

2-DOUBLE ACROSTIC.

My No. 1 is a bay in the United States.
2 is a number.
3 is a weapon.
4 is a spirituous liquor.
5 is pertaining to the moon.
6 is to cut off.
7 is a Greek philosopher.
Initials and finals give the name of one whom we all know.
MAGGIE SCOTT.

3-RIDDLE.

What word is it, that meaning plenty, when divided in
the center, and transposed, gives two words that mean some-
thing the boys say the girls like.
MAGGIE SCOTT.

4-EASY BEHEADINGS.

1. Behead an indication of sleepiness and leave an artificial
shade.
2. Behead another indication of sleepiness and leave an
animal.
3.—Behead need and leave an insect.
4. Behead an article used in packing crockery and leave a
reckoning.
5. Behead an awkward bow and leave a kind of cloth.
6. Behead a locality and leave network.
7. Behead to loiter and leave a doll.
8. Behead sudden blows and leave parts of a horse.
9. Behead to turn and leave a peg.
10. Behead a stain and leave a piece of land.
11. Behead a bough and leave a farm in California.
12. Behead loose and leave want. EDITH BROWN.

5-ANAGRAM.

Long ages ago—now think with care—
There lived an orator grand;
All ye who guess "complete" be fair,
And SEND ME THOSE TO HAND.
W. G. MOFFATT.

6-ENIGMA.

In bright but not in light;
In good but not in right;
In wand but not in witch;
In branch but not in switch;
In vice but not in fault;
In chase but not in caught;
In sign but not in proof;
In mouth but not in roof;
In duel but not in fight;
In right but not in light;
In sweets but not in candy.
Total a place in Quebec. MURIEL E. DAY.

7-CHARADE.

My first is an insect, my second a verb, my third a conso-
nant, my fourth a possessive adjective, my whole is a river
in Quebec.
BLANCHE MACMURRAY.

8-TRANSPOSITION.

Het oeesstwt siturf eth dogs webots
Od tebs nl uehll now dagner wrgo;
Istl wile oht eell, orf f out cerht,
Uoht lwil ton dlnf etmh yeernhaw.
A. P. HAMPTON.

9-TRANSPOSITION.

The ONE goes by in fearful haste
Because it has no time to waste,
So prompt must be the delivery
Of precious freight it carries be.
But ere it passes out of view
It suddenly comes to a TWO.
Chafe at the TWO though ONE-boy may
A rushing torrent bars the way.
TWOs in that THREE two days the ONE
Veiled by the tree FOURS from the sun,
Meanwhile the ONE-boy must contrive
To eat his victuals without FIVE.
W. G. MOFFATT.

Answers to Nov. 1st Puzzles.

1—(1) Plover—lover; (2) cargo—argo; (3) bunion—onion;
(4) coat—oat; (5) ozone—zone; (6) pelf—elf.
2—Earnest.
3—W O R L D 4—Friendship;
O T H E R 6—Ascent—scent—cent.
R H O N E 7—(1) Earwig; (2) Caravan.
L E N D S
D R E S S
5— Defer not till to-morrow to be wise.
To-morrow's sun to thee may never rise.
8—No great deeds are done by falterers who ask for cer-
tainly.

SOLVERS TO NOV. 1ST PUZZLES.

Maggie Scott, Edith Brown, Mabel Ross, Blanche Mac-
Murray.

COUSINLY CHAT.

M. E. D.—Have returned it; did it arrive safely? Poor
"Kit" is a great source of curiosity. Yes; little, I believe.
Your squares are always good, but anything new is always
acceptable too. What's the matter with L. M. S.?
"Margreta."—You have guessed correctly. Perhaps you
are friends; look it up. Your sort of club would suit me too.
It was a "Gem" contest I referred to. I thought it would be
repeated.
"Annie Laurie."—You ask, "What has become of Clara
Robinson?" I repeat the question, What has become of her?
Mab.—The competitions for solving and contributing are
distinct. The same person may win in both.

An old negro heavyweight applied to the local
dispenser of patronage for a government position.
" What are your qualifications?" he was asked.
" My qualifications?"
" Yes."
" Well, sub," he said, drawing himself up
proudly, " I've all wool an' a yard wide!"

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Containing the Old and New Testaments, according to the authorized version, together with new and revised helps to Bible study—a new Concordance and an indexed Bible Atlas, WITH SIXTEEN FULL-PAGE ILLUSTRATIONS, PRINTED IN GOLD AND COLOR.

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OUR BAGSTER BIBLE APPRECIATED.

The Bible we are offering was submitted to the careful scrutiny of several leading Divines, who commend it in the very highest terms in every respect, particularly as to the Helps, Typography and Binding. We have sent out large numbers of them already to persons securing new subscribers (3) for the ADVOCATE, and in every case they are more than delighted. Several have earned more than one Bible in that way. Here is a sample testimony received recently from one of the best known horticulturists in Ontario.

GENTLEMEN,—I am pleased to acknowledge the receipt to-day of the very valuable premium, being a fully-prepared, up-to-date "Comprehensive Bagster's Teacher's Bible," that in your great generosity you were pleased to offer and transmit to me for the very small service of procuring three new names for the FARMER'S ADVOCATE AND HOME MAGAZINE for the year 1898. I wish herewith most sincerely to express my grateful thanks for this very precious gift, and I shall be much pleased to use it in remembrance of your thoughtful kindness. When I hold this very pretty, useful book in my hand and consider its very great comprehensiveness and its helpful modern advantages contained in its 1,100 bright, beautiful octavo pages in clear, readable minion type, I am astonished that you can in safety to yourselves make such an offer to your canvassers for so small a service, and I am sure there should be thousands of our young people all over this fine prosperous country who will readily do this service and hold out their grateful hands for a present so valuable and so useful to all. Gentlemen, allow me again to thank you for your valuable gift, and I shall still consider myself further indebted to you to do whatever lies within the range of my power and ability for your success. Very truly yours, B. GOTT.

Middlesex Co., Ont., Oct. 9th, 1897.

HOW TO GET A

First-class Collie

TO any subscriber sending us the names of 10 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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Ladies' Gold-filled Hunting-case, guaranteed for five years, with genuine American seven-jeweled movement, stem wind and stem set, for 18 new subscribers.

Same Watch—gent's size, open face—for 16 new subscribers.

Same Watch—gent's size, with hunting-case—for 19 new subscribers.

Gentleman's 3 oz. silverine, open face, with seven-jeweled American movement. Case will wear white throughout, and last a lifetime. For 9 new subscribers.



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TO any of our subscribers furnishing the required number of new subscribers we will send per mail, charges prepaid, any of the valuable premiums shown on this page.

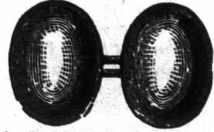
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Sterling Silver Baby Pin, 1 New Subscriber.



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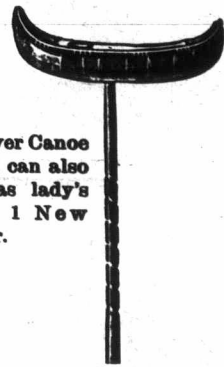


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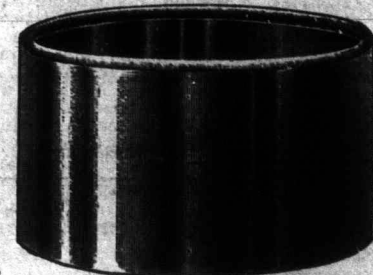


Solid Gold Locket, either Guinea Gold color or bright, 10 New Subscribers. Can have same locket gold filled for 3 New Subscribers.

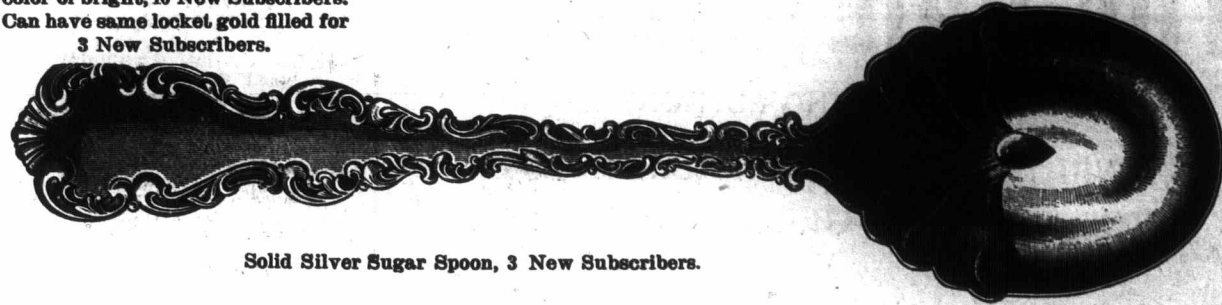
Sterling Silver Canoe Scarf Pin, can also be used as lady's stick pin, 1 New Subscriber.



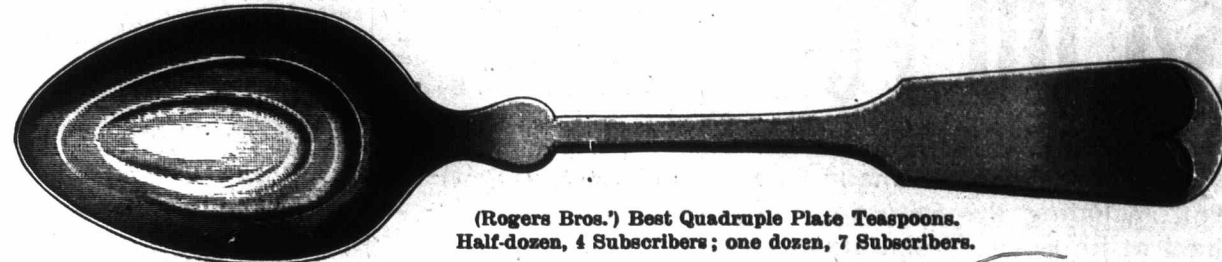
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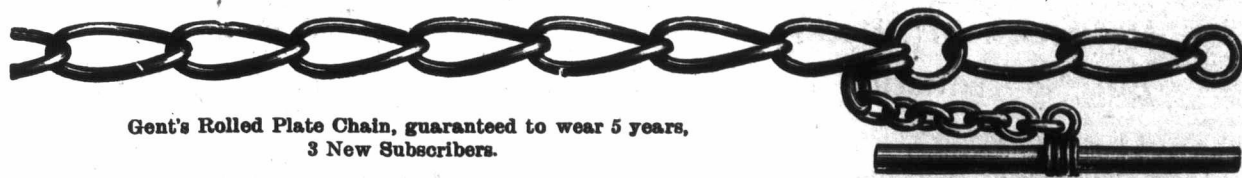
Solid Silver Napkin Ring, 4 New Subscribers



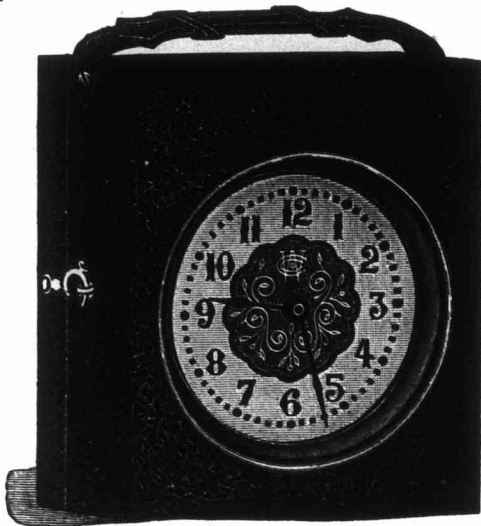
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(Rogers Bros.) Best Quadruple Plate Teaspoons. Half-dozen, 4 Subscribers; one dozen, 7 Subscribers.



Gent's Rolled Plate Chain, guaranteed to wear 5 years, 3 New Subscribers.



Fine Gold-finished Clock, handsomely decorated dial; fitted in Maroon Seal Leather Case. 4 New Subscribers.



Rich Roman Gold Plate Clock, handsomely polished Case, 4 New Subscribers.



Lady's Bracelet, best Rolled Plate, 4 New Subscribers. Same pattern in Sterling Silver, 3 New Subscribers.

Handsome Rings

WARRANTED TEN KARAT GOLD.

To find the size of ring required, take a narrow strip of paper that will draw tightly around the finger, forward same to us, and we will assure you a perfect fit.

CHILDREN'S OR MISSES' REAL STONE SETTING.



No. 1—Price, \$1.25. 1 Pearl, 2 Garnets. 2 New Subscribers.



No. 2—Price, \$1.25. 1 Garnet. 2 New Subscribers.



No. 3—Price, \$1.50. 3 Pearls. 3 New Subscribers.



No. 4—Price, \$2.00. 1 Pearl, 2 Garnets or Coral. 3 New Subscribers.

LADIES' REAL STONE SETTING.



No. 5—Price, \$3.50. 2 Pearls, 3 Garnets. 5 New Subscribers.



No. 6—Price, \$3.50. 2 Garnets, 5 Pearls. 5 New Subscribers.



No. 7—Price, \$3.50. 1 Garnet, 2 Pearls. 5 New Subscribers.



No. 8—Price, \$2.00. 3 New Subscribers.

FOR CANVASSING OUTFIT ADDRESS:

**The Wm. Weld Co., Limited,
London, Ont.**

GOSSIP.

We call attention to Messrs. T. & H. Shore's new advertisement of poultry. We assure purchasers they will receive birds as represented.

The National Poultry Association, of Chicago, will hold their second annual poultry show, Jan. 24th to 29th, at the 2nd Regiment Armory Hall, on Michigan Avenue, Chicago, Ill. Secretary, W. W. Hogle, 1015 Benson Ave., Evanston, Ill. Elaborate preparations are being made.

It has been arranged that Mr. C. Marker and Mr. J. A. Kusella, members of the Dominion Dairy Commissioner's staff, who have been in charge of the creameries in the Northwest Territories during the summer, will spend some time in British Columbia to promote dairy interests there.

H. George & Son, Crampton, Ont., write: "Our herds of swine are going into winter quarters in good shape, and the sales for good, straight hogs continue good. We will not exhibit at the coming Provincial Fat Stock Show at Brantford this year, on account of being so closely sold out, and breeding all our good stuff for next spring's trade."

F. Birdsall & Son, Birdsall, Ont., write: "Our stock are going into winter quarters in good heart. Shorthorns have been in good demand, and enquiries are numerous for bulls from good milking strains. Our Oxfords have done remarkably well at the local shows, and are going into the sheds in good trim. The demand has been very good at reasonable figures. Below are some of our sales: John Fitzpatrick, Norwood, 1 shearing ram; A. Tynel-Wooler, 1 ram lamb; Alex. Robertson, Boboyagon, 1 ram lamb; Morgan Johns, Lakofield, 1 ram lamb; Henry Arkell, Arkell, 6 ram lambs. Our Chester White sows have farrowed, one having fifteen at a litter, the other nine. They are exceedingly fine pigs, of nice type, and sired by U. S. King—619—and Uncle George—386—



Elgin Experience.

Within a certain section of New York State there are three times as many Elgin Watches carried as of all other makes combined, yet less than one-third of the watches on the jewelers' repair racks in that section are Elgins. Strong evidence that they cost less to keep in order than any other watch. Ask your jeweler about the timekeeping qualities of these superb watches, and be sure that the word "Elgin" is engraved on the plate of the watch you buy.

The Full Ruby Jeweled is the grade specially recommended.

Elgin National Watch Co., Elgin, Ill.

GOSSIP.

W. G. Pettit & Son, Freeman, Ont., write us that they have had an excellent demand for Shropshires this fall, and have sold all but a few yearling ewes, that they reserved until after they were served by their imported ram. They say: "Our Shorthorns were never in better shape. The young bulls are an excellent lot of thick-fleshed fellows, with good quality and plenty of substance. Indian Statesman is doing well, and we are more than pleased with our young stock from him."

Our readers should note W. C. Shearer's change of advertisement in this issue. He advertises some grand Barred Plymouth Rocks bred direct from imported stock. This breed is one of the finest of farm poultry, being of a good size, quiet disposition, and excellent winter layers. This should be a good opportunity for farmers to secure a cockerel to grade up their present stock of hens; and why not give one of the boys or girls an interest in the farm by purchasing a trio of fowls, and let them keep a small pure-bred flock of their own.

The programme for the fifth annual meeting of the Michigan State Association of Farmers' Clubs, to be held at Lansing, Dec. 14, 15 and 16, has been issued by the secretary, F. D. Wells, Rochester, Mich. Among other topics to be taken up the following seem to us of greatest importance: "Effective Work with Legislative Bodies," "The Relation of the Farmer to the Rural School," "The Larger Life," "The Farmer's Club, Why?" A number of notable addresses will be made by Col. J. H. Brigham, Asst. Secretary of Agriculture, Mich.; Hon. G. F. Horton, Master of the State Grange; and other prominent gentlemen, besides a number of ladies.

BREEDERS OF HEAVY DRAFT HORSES.
Hendrie & Co., Hamilton, Ont., write: "We have in our work several well-bred, large, roomy Clyde and Shire mares, 1,600 to 1,700 pounds, suitable to work on the farm and raise a heavy draft colt. From our own observation there is in Canada a scarcity of heavy draft stock suitable for dray work in the city, and with the increased demand already felt there promises to be a still further shortage of the right sort. Those farmers who look ahead of the times will surely benefit by breeding in 1898 from a well-bred heavy Clyde or Shire mare. Our fall work being about over, we are in a position to offer these mares for sale at a reasonable price. They can be seen at Toronto."

HOW TO PREVENT CATTLE FROM CHOKING.
In a root-growing section it would be difficult to find a farmer who, at some time or other, had not lost a valuable animal, if he ever owned any, from choking on whole turnips or large pieces, and indeed when it is the practice to feed uncut or unpeeled roots it is found necessary to keep a probang in the near vicinity. All this trouble and loss can be easily avoided by pulping or cutting the roots before feeding. When the roots are not to be mixed with dry feed it is preferable for cattle, as it requires much less time and power to do it, and answers just as good a purpose. However, when one has rough feed to use up and wishes to increase its palatability the pulper soon will pay for itself. In order that a feeder of roots may avoid trouble and loss by animals choking, and also feed with greater economy, with the least labor, he should own a combined root pulper and cutter. An improved machine of this sort is offered in this issue by Tolton Bros., Guelph, Ont.



Immense Stock.

New and second-hand Carriages, Harness, Sleighs, Cutters, Robes, Horse Clothing, Sleigh-bells, Saddles, Bridles, etc., always on hand for private sale at

Grand's Repository,

53 to 54 Adelaide St. West, TORONTO.

Auction sales of Horses, Carriages, etc., every Tuesday and Friday at 11 o'clock.

WALTER HARLAND SMITH,

Proprietor and Auctioneer.

SHORTHORN
bulls and heifers, having gilt-edged pedigrees, and of superior quality.
G. A. BRODIE,
Bethesda P. O., Ont.

Oak Lodge Herd — Yorkshire Hogs
ARE MY SPECIALTY.



One hundred pigs on hand from two to three months old. Quality guaranteed. Prices reasonable. Come and inspect my stock.

J. E. BRETHOUR, BURFORD, BRANT CO.

CHOICE AYRSHIRES.
R. REFORD, breeder and importer.
FOR SALE — Young cows in calf to imported Napoleon of Auchendrain. Bull calves, sired by imported Glencairn 3rd. Write for prices to JAMES BODEN, Manager, St. Annes de Bellevue, Que. Farm close to St. Annes Station.

BREEDERS OF HEAVY DRAFT STOCK.

FOR SALE!
A few well-bred heavy Clyde and Shire mares, 1600 to 1700 lbs., suitable to work a farm and raise a heavy draft colt.
Apply — HENDRIE & CO., LIMITED, Toronto.

THE DAILY GLOBE

(EARLY MORNING EDITION)

Will be Sent to Any Address, Canada or the United States, for

\$4.00 Per Annum.

No change will be made in size, and every department, including the Saturday illustrated, will be maintained at its present high standard.

Reduction in Prices,
But No Reduction in Service.

The only paper in Canada that publishes regularly an illustrated edition on Saturday, and which compares in every way with the best in America or Great Britain.

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FOR SALE BY ALL NEWSDEALERS.

OR SEND DIRECT TO.....

THE GLOBE,

TORONTO, - - - CANADA.

ADVERTISE IN THE FARMER'S ADVOCATE.

IMPORTANT PUBLIC SALE OF
HIGH-CLASS Jersey Cattle

— BY AUCTION, ON —

Thursday, Dec. 9th, at London, Ont.

THE entire herd of Jerseys, property of Messrs. Humpidge & Laidlaw, at the farm, 6 miles from London, 1 mile from Westminster Station, London and Port Stanley R. R. FORTY HEAD registered in A. J. C. C. herd register, including the sweepstakes bull, PRINCE FRANK, two other prize-winning bulls, and a grand lot of young cows and heifers, richly bred and strong in individual capacity for dairy work. For Catalogue giving pedigrees and particulars, address—

John Smith, M. P. P., Humpidge & Laidlaw,
AUCTIONEER, BRAMPTON, ONT. LONDON, ONT.

Bookkeeping, Shorthand, Penmanship!

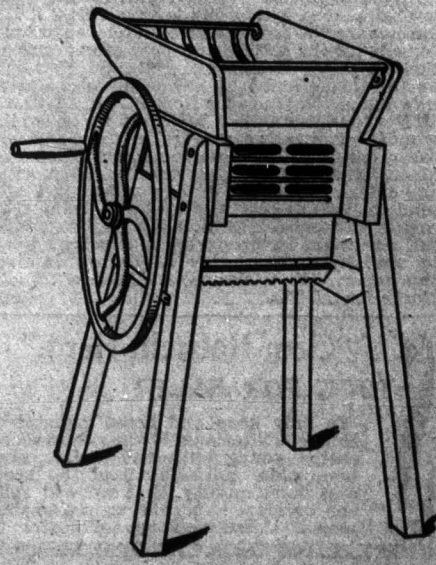
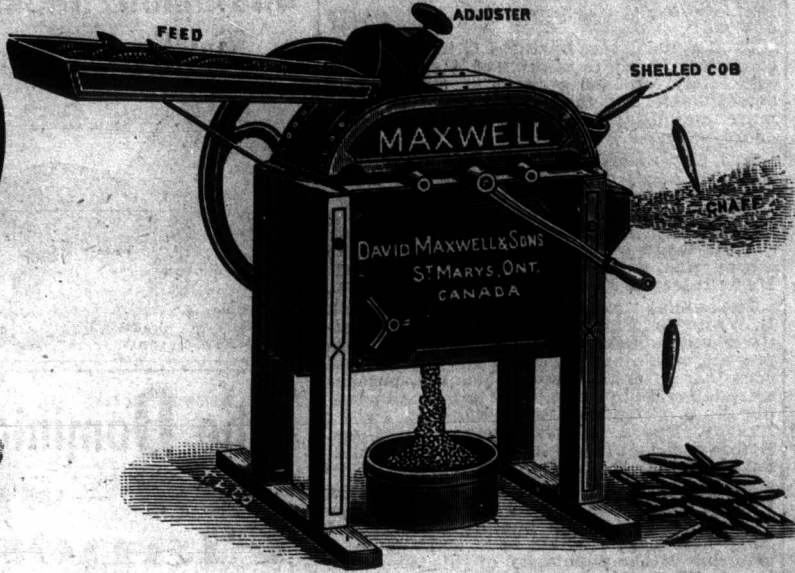
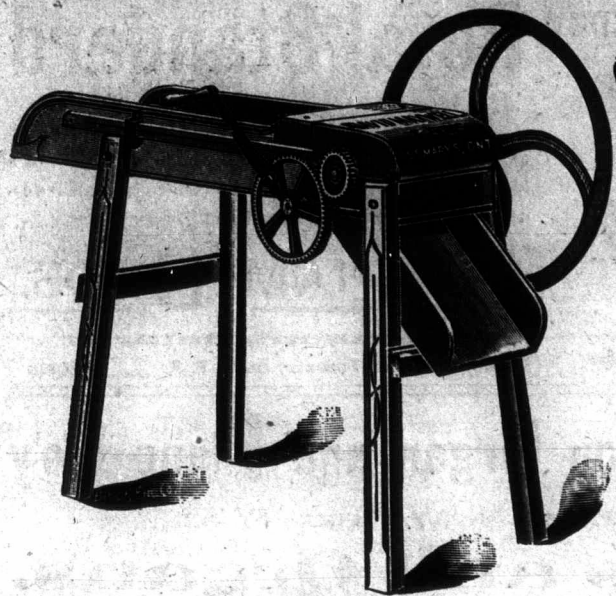
BUSINESS FORMS AND CUSTOMS, ETC., TAUGHT BY EXPERIENCED SPECIALISTS.

Central Business College.
Stratford, Ont..

UNQUESTIONABLY the leading commercial school in Ontario. Graduates of other business colleges in attendance this term. STRONGLY RECOMMENDED BY FORMER STUDENTS. Up-to-date courses; moderate rates; board cheap; enjoys a splendid patronage; assists students to positions. Write for catalogue. WINTER TERM OPENS ON MONDAY, JANUARY 3RD, 1898.

W. J. ELLIOTT, Principal.

There Is No Doubt About the Merit of **THE KEYSTONE DEHORNER**
It cuts both ways, does not crush. One clip and the horns are off close. Write for circular. The Keystone Dehorner Mfg. Co., Picton, Ont., Can.



David Maxwell & Sons

Manufacturers of

High-Grade Farm Implements:

Binders, Reapers, Mowers, Hay Rakes, Hay Loaders, Hay Tedders, Disk Harrows, Scufflers, Turnip Sowers, Turnip Slicers and Pulpers, Cider Mills, Hand Straw and Corn Cutters, Lawn Mowers, Churns, Wheelbarrows, and Corn Shellers, Iron Jacks, Riding Plows, etc. Agents wanted in all unoccupied territory.

St. Mary's, Ontario, Canada,

SEND FOR CATALOGUE.

FOR SALE!

25 GLYDESDALE STALLIONS and MARES.

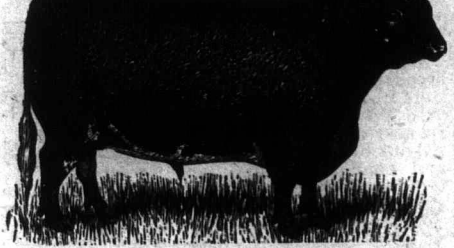


Nearly all prize-winners at Toronto, Montreal, Ottawa, and Chicago World's Fair. Most of our young stock are bred by the Columbian champion, Prince Patrick, and Grandeur (sweepstakes four times at Toronto). Two of our fillies are daughters of Lillie Macgregor, the champion World's Fair mare. Also a number of Hackneys. Also Ayrshire bull and heifer calves, and Shropshire sheep.

D. & O. SORBY, Guelph, Ontario.

Arthur Johnston,

Greenwood P. O. and Telegraph Office,



OFFERS FOR SALE

FIFTEEN SPLENDID YOUNG BULLS.

Also Cows and Heifers, As good as the old bull ever left.

Berkshires

OF CHOICEST BREEDING AND QUALITY FOR SALE

Send for Catalogue and prices. "No business, no harm," is our motto. Clearmont C. P. R., or Pickering G. T. R.

Shorthorns & Leicesters

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

YOUNG STOCK FOR SALE.

E. Gaunt & Sons, ST. HELEN'S, ONT.

Lucknow Station, G. T. R., 3 miles. om

W. G. Pettit & Son, FREEMAN, ONTARIO.

Telegraph office, Burlington Station, G. T. R.

BREEDERS OF Shorthorns, Shropshires, and Berkshires

Ten choice young bulls from 9 to 12 months, extra good quality, got by "Indian Statesman" (imp. ram), due to lamb in March and April. Also eight young cows, due to farrow in March, and a few heifers from four to six months old.

Farms one-half mile and one and one-half from Burlington Station, G. T. R.

JOHN SRIGLEY, Allandale, Ont.

Breeder of Shorthorns and Herefords, Shropshire sheep, Berkshire and Yorkshire pigs. A choice bunch of Shropshires, also a few Shorthorn and Hereford females now for sale. om

Hawthorn Herd of Deep-Milking Shorthorns

For Sale! FOUR young bulls and several heifers of the choicest breeding and good quality. Prices right. om

WM. GRAINGER & SON, Londesboro, Ont.

Spring Grove Stock Farm



Shorthorn Cattle and Lincoln Sheep. The noted sire, Golden Robe - 20396 - and Nominee - 19023 - at the head of the herd. Representatives of this herd won two silver medals and the herd prize at Industrial Fair, Toronto, 1897. Prize-winning Lincoln Sheep also bred at Spring Grove. Stock of all ages and both sexes for sale. Apply **T. E. ROBSON, Ilderton, Ont.**

SIMMONS & QUIRIE.

Shorthorn Cattle, Berkshire Swine - Money-making Sorts.

The imported bull, BLUE RIBBON - 17005 - (63736), by ROYAL JAMES (54972); dam ROSE-LINTY, by GRAVESEND (46461), heads the herd. Female representatives of the celebrated Minn, Strathallan, Golden Drop and Myrie families.

The Berkshires are choice prize-winning stock. Easy to feed, quick to sell.

Stock for Sale. **C. M. SIMMONS, Ivan P. O., Ont.**

1-1-y-om **JAMES QUIRIE, Delaware, Ont.**

FOR SALE: Good Young Cows

two years old, yearlings and heifer calves out of imported and home-bred cows, and the imported bulls, Royal Member and Rantin Robin. Come and see them, or write, if you want something special.

H. CARGILL & SON, Station on the farm. Cargill Sta. & P. O., Ont.

INGLESIDE Herefords.

UP-TO-DATE HERD OF CANADA!

Bull Calves

OF THE RIGHT SORT

For Sale.

Address - **H. D. SMITH, Compton, Que.**

WILLOW GROVE HERD OF JERSEYS.

Sweepstakes herd of 1893, 1894, 1895 and 1896.

J. H. Smith & Son, Ont.

are offering 12 females, to calve shortly; one first prize bull, dam Elena of Oakdale (19 lbs. 4 oz. of butter in seven days), granddam Menies 3, A. J. C. C., test 20 lbs. 1 oz. in seven days. Dam of bull won 1st prize in dairy test, Guelph, 1896, and he is half-brother to King of Highfield.

GLEN ROUGE JERSEYS.

WILLIAM ROLPH, Markham, Ont. offers twelve Jersey Bulls and Heifers (pure St. Lamberts), out of tested cows. Grand individuals. Prices right. 2-7-om

A. J. C. C. JERSEYS FOR SALE.

Bulls fit for service. Bull calves, heifer calves, and young cows from tested dams. Bagn Hugo heads the herd. Prices right.

H. E. WILLIAMS, Sunny Lea Farm, KNOWLTON, P. Q.

ADVERTISE IN THE ADVOCATE

GOSSIP.

We inadvertently omitted to mention in connection with our Chicago Horse Show report in last issue that Mr. Geo. S. Pepper, of Toronto, superintended the exhibits and arena in a most successful manner. To keep things moving along without friction in working off 267 classes and several "extras," as Mr. Pepper so successfully did, requires no small amount of tact and generalship.

A. J. Watson, Castlederg, Ont., writes:—"Shorthorns at Ashton Frontview never before looked so well at this time of the year. The show cattle are looking extra well now. I have two extra nice bull calves and one heifer out of the show cows, and I expect four more soon. I also have one nice bull about two years old for sale now. Sheep are all looking well after their round of the fairs. I also have some nice young Berkshire pigs for sale of extra good breeding."

The Herd Register, issued quarterly by the American Guernsey Cattle Club, has illustrated on the front page of the fourth number of 1897 the portrait of a beautiful specimen of the breed, in France 8rd. This volume contains pedigrees of bulls Nos. 4827 to 4937, and cows Nos. 9594 to 9732. Among the numerous inside illustrations are those of Masher 705 and Masher 2nd 258, winners of first prize and medals in the Island of Guernsey. The secretary of the Club is Wm. H. Caldwell, Peterboro, N. H.

THE ESTABLISHED SALE OF JERSEYS.

Our readers are reminded of the public sale by auction on Thursday, December 9th, of the entire herd of high-class registered Jerseys belonging to Messrs. Humpidge & Laidlaw, London, Ont. The catalogue comprises the pedigrees of thirty-three young cows and heifers and seven bulls, all registered in the A. J. C. C. record. There are some over six years old, and a large proportion are under three years, about twenty being in calf or in milk, and most of those milking will be bred again before the sale. The cattle are typical Jerseys of the St. Lambert and St. Haller families, the herd bulls and a number of the females having been prize winners at the Western Fair in competition with Toronto winners. The cows have been very regular breeders of heifer calves, increasing the herd rapidly and doing good work as producers of milk and butter, and all are in good health and condition. The dispersion sale is made necessary by a dissolution of the partnership of the owners, and we are assured will be sold with-out reserve. The sale will be held at Mr. W. G. Laidlaw's farm, six miles from London, and one mile from Westminster Station, on the LONDON & PORT STANLY ROAD.

ONTARIO AGRICULTURAL AND EXPERIMENTAL UNION.

In the programme of the next annual meeting of the Ontario Agricultural and Experimental Union, to be held at the Agricultural College, Guelph, on the 8th, 9th and 10th of December, we notice that reports of the summary results of the year's co-operative experimental work in horticulture, agriculture, apiculture and dairying will be presented and discussed at the meeting. In agriculture alone co-operative experiments were conducted on 285 different farms throughout Ontario in 1897. These include tests with leguminous crops and mixed grain for green fodder; grasses and clovers for hay; commercial fertilizers for corn and mangels; and with leading varieties of grain, potatoes, roots, and fodder crops. From the horticultural section, the results of the co-operative tests with leading varieties of strawberries, raspberries, currants and gooseberries will be given. The dairy committee will report on uniform tests made in several cheese factories and creameries during the past summer. The work throughout impresses us as being of a practical nature, and worthy of careful study by those interested in agriculture. Addresses are to be delivered by Mr. Geo. McKerrow, Superintendent of Farmers' Institutes, Madison, Wis., on "Economic Feeding"; by Dr. Jas. Mills, Pres. Ontario Agricultural College, Guelph, on "Some of the Advantages of the Ontario Fruit Experiment Stations"; also, by C. C. James, M. A.; G. C. Creelman, B. S. A.; L. G. Jarvis, and others.

Arrangements have been made with the Grand Trunk and Canadian Pacific railway companies for excursion rates from December 6th to 13th, inclusive. Secretary C. A. Zavitz, O. A. C., Guelph, will supply programmes.

ALLAN LINES

THREE DISTINCT SERVICES FROM MONTREAL WEEKLY.

Royal Mail Service of Passenger Steamers, Montreal to Liverpool, every Saturday, calling at Quebec and Londonderry.

DIRECT SERVICE MONTREAL TO GLASGOW

Direct Service Montreal to London.

These steamers are of most recent construction; are of the highest class, and their record for the safe carriage of cattle is unexcelled.

Special attention paid to the best methods of stowing and carrying cheese, apples and other farm produce. Steamers fitted with refrigerators for perishable freight. For schedule of sailings, rates of passage or other information, apply to—

J. D. HUNTER, Western Freight Agent, Corner King and Yonge Streets, Toronto, or H. & A. ALLAN, Montreal.

BOWEN CABLE STAY FENCE CO.

\$10 For a machine to build the cheapest, strongest and best fence made of wire. No royalties, no farm rights, machine easily and quickly operated by any farmer. Send for large circulars.

NORWALK, OHIO, U.S.A.

Exile of St. Lambert 18657

Sire of 50 DAUGHTERS with seven-day tests of from 14 lbs to 32 lbs. 7 oz. of butter—a greater record than can be shown of any other bull "living or dead." We will sell a few grandsons and granddaughters, by tested dams, and sired by EXILE'S SUCCESSOR 42716—a pure St. Lambert with a royal pedigree.

P. J. COGSWELL, ROCHESTER, N. Y.

MASSENA'S SON

and two choice young Jersey Bulls for sale; also eggs from choice pens of Bk. Minorcas (Rev. W. H. Scott's breeding), Plymouth Rocks and Black Langshans at \$1 for 15 eggs. Orders booked for Berkshire pigs. All of the best strains.

W. W. EVERITT, CHATHAM, ONT.

Maple Hill Holstein-Friesians

SPECIAL OFFERING.

Three bull calves, sired by Sir Pieter Josephine Mechthilde, whose five nearest female ancestors average over 23 pounds butter per week, and out of the great cows, Cornelia Tensen, Lady Akkrum 2nd, and Inka Rose Pieterje DeKool. If you want a bull to head your herd why not get the best?

11-y-om **G. W. CLEMONS, St. George, Ont.**

Brookbank Holsteins.

Champion milk and butter herd. Can sell a limited number of bulls and heifers one month old and up; some nice ones from our show herd. First come first served. Quality unsurpassed. Prices right. Write or come and see.

A. & C. RICE, Oxford Co., Ont. -om CURRIE'S CROSSING.

SPRING BROOK STOCK FARM.

Choice Tamworth pigs ready to wean, sired by the prize-winning imported boar, Nimrod. Write at once for prices.

A. C. HALLMAN, New Dundee, Waterloo Co., Ont.

D. J. GIBSON, Bowmanville, Ont.

Breeder of

HOLSTEINS AND TAMWORTHS

Now offering a yearling bull fit for service and a number of young Tamworths of both sexes.

ADVERTISE IN ADVOCATE

Consumption Cured.

An old physician, retired from practice, having had placed in his hands by an East India missionary the formula of a simple vegetable remedy for the speedy and permanent cure of Consumption, Bronchitis, Catarrh, Asthma, and all throat and lung affections, also a positive and radical cure for Nervous Debility and all Nervous Complaints, after having tested its wonderful curative powers in thousands of cases, has felt it his duty to make it known to his suffering fellow-men. Actuated by this motive and a desire to relieve human suffering, I will send free of charge, to all who desire it, this recipe, in German, French or English, with full directions for preparing and using. Sent by mail by addressing with stamp, naming this paper, W. A. NOYES, 330 Power's Block, Rochester, N. Y.

"Gem Holstein Herd."
STOCK FOR SALE!

We only keep and breed registered Holstein-Friesians. We have now some choice young bulls and heifers, also some older animals, all of the very best dairy quality, that we will sell one or more at a time, on reasonable terms. Correspondence solicited.

HILLIS BROTHERS,
REDFORD PARK P.O., ONT.
Shipping Station, Toronto. 7-y-om

Guernsey Cattle

CHESTER WHITE AND DUROC-JERSEY PIGS.

At present we are offering
4 Richly-bred Bull Calves

two of which are from imported cows, and pigs of all ages.

WM. BUTLER & SON,
DERHAM CENTRE, ONT.

GUERNSEYS

This is the Dairy breed for ordinary farmers. Large, vigorous and hardy, giving plenty of rich milk. Several fine young bulls for sale at very reasonable prices. A few heifers can be spared.

Address: **SYDNEY FISHER,**
Alva Farm, Knowlton, P.Q.

Guernsey Bulls for Sale.

We are now prepared to dispose of half a dozen young bulls of gilt-edge breeding.

MCKINNON BROS., LYN, ONT.

AYRSHIRE BULLS.

Four fit for service, and one very fine bull calf just dropped out of a particularly fine imported cow; also four August calves by our 1st prize bull, Craigielea (imp.); dams from imported cows and by imp. bull.

THOS. BALLANTYNE & SON,
Neldpath Stock Farm, STRATFORD, ONT.
Farm adjoins city, main line G.T.R.

WM. WYLIE,
288 Bleury St., MONTREAL,
or Howick, P.Q.

Breeder of high-class AYRSHIRES. Young stock always for sale; bred from the choicest strains procurable. Breeding stock selected from the most fashionable strains and prize-winning stock of the day. Farm located at Howick, Que. 5-1-y-o

FAIRVIEW STOCK FARM.

Ayrshire Cattle and Berkshire Pigs.

Traveller of Parkhill at the head of herd, while my herd is descended from cows purchased of Mr. David Benning; are modern in type, and are of the choicest milking strains. Write for prices of young bulls and heifers.

DAVID LEITCH, Grant's Corners, Ontario.
Stations—Cornwall, G.T.R.; Apple Hill, C.P.R.

AYRSHIRE CATTLE

The bull TOM BROWN and the heifer WHITE FLOES, winners of sweepstakes at World's Fair, were bred from this herd. Young stock for sale. Also Leicester Sheep and Berkshire Swine. 5-1-y-o

DAVID BENNING,
Glenhurst Farm, WILLIAMSTOWN, ONT.

AYRSHIRES AND RED TAMWORTH SWINE.

Still a few choice young bulls for sale, and a grand lot of Tamworth boars ready for service. Write us now and secure one.

CALDWELL BROS., Briery Bank Farm, Orchard, Ont.

KAINS BROS., BYRON, ONTARIO,
LONDON STATION.

Breeders of AYRSHIRE CATTLE. Several fine young bulls, including the first prize yearling at London, second prize bull calf, and other good ones; also choice heifers of various ages. Prices right. 1-1-y-o

ADVERTISE IN ADVOCATE

GOSSIP.

In writing to advertisers, mention the "Farmer's Advocate."
The English horse business is in a healthy condition. A Shire stallion of Harold blood sold lately for 1,000 guineas at Lord Liang-atook's sale, and forty-three stallions, colts, mares and fillies yielded the splendid average of 186½ guineas.

A. J. Cotton, of Treherne, Man., has threshed from 47½ acres over 12,350 bushels of No. 1 hard wheat. The yield on the whole field averaged 26 bushels to the acre. In addition to this, Mr. Cotton succeeded in marketing quite a large bulk of the grain early in the season, and will realize from it about \$9,500. He will clear \$5,000 or \$7,000 for his year's crop.

The annual "round up" given by the Frank E. White Co., Chicago, to agricultural advertisers and publishers, some 300 of whom were present, was a unique social and intellectual occasion. After an elaborate banquet, speeches were delivered by a number of men, including N. B. Crichtfield, State Senator, Penn.; Ex-Gov. Hoard, of Wisconsin; and others. Before parting the guests extended a cordial vote of thanks to the Frank E. White Co.

Volume XI of the Standard Poland-China Record, being the number for 1897, is a huge and well compiled and bound publication of some 1,150 pages, which is to some extent a criterion of the popularity of this American breed. The pedigrees contained are of boars 2,174, numbering from 18825 to 17825; of sows 5,085, numbering from 37251 to 42336. The president of the Association is Grant Hornaday, Fort Scott, Kansas, and the secretary, Geo. F. Woodworth, Maryville, Mo.

A beautiful specimen of the Douglas fir has been shipped from New Westminster, B. C., to Kew Gardens, London, England, the great botanical and forestry display center. The actual length of the tree was over 250 feet from ground to top, and 116 feet from the base to the first limb. Owing to large roots at the base, the tree had to be felled some eight to ten feet from the ground to get a clear section and as perfect a circle as possible. The section was seven feet in diameter.

The annual meeting of the Ontario Fruit Growers' Association will be held in the town of Waterloo, on December 15th and 16th, commencing at 9:30 a. m. of the former date. Papers and discussions have been arranged for on the subjects of "Spraying of Fruits," "Cold Storage of Fruits," "San Jose Scale," and numerous other live subjects to fruit growers. The president of the Association is Mr. W. E. Wellington, and the secretary Mr. L. Woolverton.

Mr. W. E. H. Massey, Toronto, has in quarantine a choice yearling Jersey bull selected for him on the Island of Jersey by the expert judge and importer, S. Peor, Mt. Morris, N. Y., who writes: "I believe this to be the very best bull on the Island at the time. He won first prize in the parish where raised. His dam is a noted winner in the showing and at butter tests as well. He has back of them a long line of great prize-winning animals, male and female."

One of the greatest sales of harness horses and carriage stock on record was conducted at the American Horse Exchange in October by Mr. W. D. Grand for Mr. O. E. Belmont, Mr. Marion Story, Mr. John Arthur and other contributors. The total of the day's sales was \$29,790. The top price of the entire offering was \$4,400, which was bid by Mr. Eben D. Jordan, Boston, for Leader the Scotchman. Sundown brought \$2,800. Mr. Belmont's average on twenty head was \$945.

The FARMER'S ADVOCATE had a pleasant call recently from Mr. J. J. Edgerton, farm superintendent of the Iowa State Experimental Station, who had been visiting the farm in connection with the Agricultural College of Guelph, with the appearance of which, and Mr. Rennie's methods, he expressed himself very much pleased. He also visited the farms of D. & O. Sorby and D. McCrea, Guelph; H. Arkell, Arkell; and E. D. Tillson, "Hisonburg"; gathering points which he will utilize at the Iowa Station, the farm of which covers some 900 acres.

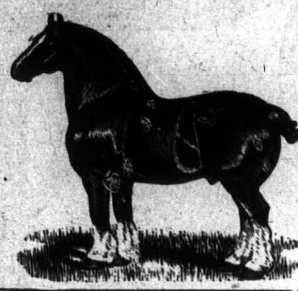
Miss Maidment, lecturer on dairying, poultry rearing, etc., for the County Council of Durham, has just returned from a tour in Canada and the United States, where she has been studying the methods adopted by the different governments and other bodies for providing education in agriculture and dairying, and also the manufacture and transportation of butter, cheese, and other farm produce. Among other institutions she visited the Ontario Agricultural College, the Central Experimental Farm, and various dairy districts, including those of Manitoba.

YORKSHIRES AND DUROC-JERSEYS AT HERMANVILLE FARM, P. E. I.

Hermanville Farm is situated eight miles directly north of Souris, P. E. I., on the north side of the Island. The farm fronts on the shore of the Gulf of St. Lawrence, the spray from the Gulf often fungoiding the crops growing on the farm. The nearest R. R. station is Harmony, on the P. E. I. railroad. Mr. Herman McDonald, manager of the farm and father of the proprietor, Mr. J. A. McDonald, has had a wide experience as a breeder of thoroughbred hogs, and is generally employed at the autumn fairs as an expert judge. For a number of years pure-bred swine from his herd have been disseminated throughout the Island, to the great improvement of the pig stock. The breeding animals now on farm are of a very high order of individual excellence and breeding. They are all Island-bred from imported stock. One of the matrons of the herd is the Yorkshire Duchess of Hermanville—2377—, undoubtedly one of the best sows in America. In 1895 she captured first prize at Charlottetown, when she was considered the finest Yorkshire sow of her age (seven months) ever exhibited on the Island.

The foundation of the Duroc-Jersey herd was obtained from Tape Bros., of Ridgeway, Ont. The present animals of this breed are of extraordinary merit. The Duroc stock boar, Emperor of Hermanville, is indeed hard to beat, while the Yorkshire stock hog, Duke 2537, is probably as fine a pig as is on the Island. From fifty to sixty young pigs are expected for the spring trade. A certificate of registry is furnished with all stock sold.

Champion Hackney Royal Standard Stallion . . .



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